www.theicph.com
e-ISBN : 978-623-90032-8-9



The 8th INTERNATIONAL CONFERENCE ON PUBLIC HEALTH 2021

PROCEEDINGS

THEME :

Developing a Global Pandemic Exit Strategy and Framework for Global Health Security



Due To Covid-19 Pandemic,
the 8th ICPH will be held online on
17 - 18 Nov 2021
Join Us On

INDEX COPERNICUS INTERNATIONAL · WorldCat · BASE · Google · oneSearch · CABI · Crossref · Academic Search · neliti · THOMSON REUTERS

PROCEEDINGS

Theme : Developing a Global Pandemic Exit Strategy and Framework for Global Health Security

e-Proceeding The 8th ICPH 2021

Abstract

TOPIC I :
EPIDEMIOLOGY AND PUBLIC HEALTH

EFFECT OF FUNCTIONAL STATUS ON THE QUALITY OF LIFE OF PATIENTS WITH STROKE: A META-ANALYSIS

Anwar Wahyudi[1)], Didik Gunawan Tamtomo[2)], RB. Soemanto[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret
[3)]Faculty of Social and Political Sciences, Universitas Sebelas Maret

ABSTRACT

Background: Patients with stroke may become disabled and have specific problems due to the physical and mental disability. Stroke is also prone to loss of productivity, which imposes their quality of life. The aim of this study was to evaluate the effect of functional status on the quality of life in stroke patients.
Subjek dan Metode: A systematic review and meta-analysis was conducted by collecting articles from Clinical Key, DOAJ, PubMed, Science Direct, Proquest, Scopus, and Google Scholar databases. The articles were filtered using PICO model, including: (1) Population= post stroke patients, (2) Intervention= good functional status, (3) Comparison= poor functional status, and (4) Outcome= quality of life. Keywords used "functional status" AND "quality of life" AND "stroke". Articles included for this study were full text, cross sectional study, wrote in English language, published from year 1991 to 2020, and reporting β-coefficient. The articles were collected using PRISMA flow diagram. Quantitative data were analyzed by Review Manager (RevMan) 5.3.
Results: There were 5 studies with 620 stroke patients from Thailand, Taiwan, Turkey, and Pakistan. This meta-analysis study showed that functional status was positively associated with quality of life of stroke patients (β-coefficient= 0.63; 95% CI= 0.52 to 1.08; p = 0.0001).
Conclusion: Functional status is positively associated with quality of life of stroke patients.

Keywords: functional status, quality of life, stroke

Correspondence:
Anwar Wahyudi. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir Sutami 36A, Surakarta 57126, Central Java. Email: arwanwahyudi851@gmail.com. Mobile : +62813106121049.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.01

META-ANALYSIS THE EFFECT BACK SCHOOL PROGRAM TO REDUCE PAIN IN PATIENTS WITH CHRONIC NON-SPECIFIC LOW BACK PAIN

Sima Asmara Dewa Marya Mahardika Putri, Nanda Agustian Simatupang

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Most low back pain is the result of an injury, such as muscle sprains or strains due to sudden movements or poor body mechanics while lifting heavy objects, or the result of certain diseases. Back school program is an educational and training program with lessons given to patients for treating or preventing low back pain. This study aimed to examine the effect back school program to reduce pain in patients with chronic non-specific low back pain.
Subjects and Method: A systematic review and meta analysis study was conducted by following PRISMA flow diagram. The study collected articles from PubMed, Science Direct, Google Schoolar, and PEDro databases. Keywords used (LBP OR "Low Back Pain") AND ("Back School" OR "Back School Program") AND ("randomized controlled trial" OR RCT). The inclusion criteria were (1) full text, (2) Randomized Controlled Trial (RCT), (3) published from 2010 to 2020, (4) reported Mean and Standard Deviation, (5) intervention was back school program, (6) study subjects were at age 18-65 years, and (7) experienced non-specific chronic low back pain without radicular pain. The articles that met the criteria were assessed using RevMan 5.3 application program.
Results: A meta-analysis from 9 studies showed that back school program reduced pain in patients with non-specific chronic low back pain 0.44 times than other intervention or non-intervention (SMD= -0.44; 95% CI= -1.19 to 0.31; p=0.25).
Conclusion: Back school program reduced pain in patients with non-specific chronic low back pain.

Keywords: back school program, low back pain, meta-analysis

Correspondence:
Sima Asmara Dewa Marya Mahardika Putri. Masters Program in Public Health. Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: simaasmara@gmail.com. Mobile: 082140354882.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.02

META-ANALYSIS: THE RELATIONSHIP BETWEEN OLDER AGE AND DEATH CAUSED BY COVID-19

Annissa Devi Permata[1)], Bhisma Murti[1)], Didik Gunawan Tamtomo[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: The older people tended to have more severe illness conditions and vulnerable on infectious disease, including COVID-19. Previous studies reported that the highest fatality rates are older people, across countries with varying levels of COVID-19 mortality and infection. This study aimed to investigate older age as a risk factor of COVID-19 mortality using meta analysis.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from PubMed, Science Direct, Springer Link, and PMC Europe databases. Keywords used "older age" AND "mortality" OR "death" OR "fatal outcome" OR "Predictors outcome" OR "Impact" AND "corona-virus" OR "Covid-19" OR "SARS-COV-2" OR "2019 n-Cov" OR "severe acute respiratory syndrome related coronavirus". The inclusion criteria were full text, articles were published from year 2020 to 2021, retrospective cohort studies, used English language, and reported adjusted Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: 7 articles were included into a meta analysis study. This study showed that older age had risk 4.15 times to death caused by COVID-19 infection than younger age (aOR= 4.15; 95% CI= 2.35 to 7.32; p<0.001).
Conclusion: Older age increased the risk of death caused by COVID-19 infection.

Keywords: death, COVID-19, older age

Correspondence:
Annissa Devi Permata. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami, 36A, Surakarta 57126, Central Java. Email: 96annissadevipermata@-gmail.com.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.03

META-ANALYSIS THE EFFECT OF POST ISOMETRIC RELAXATION ON UPPER TRAPEZIUS MYOFASCIAL PAIN SYNDROME

Alfiya Zulfa Indana[1)], Setyo Sri Rahardjo[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)] Faculty of Medicine, Universitas Sebelas Maret
[3)]Study Program of Acupuntur, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Myofascial pain syndrome (MPS) is a common clinical problem, arising from the muscle and produces sensory, motoric, and autonomic symptoms. They are caused by myofascial trigger points which are focal areas of tenderness caused by hypercontracted muscle tissue. Post-isometric relaxation is a manual therapy technique suggested in the treatment of myofascial trigger points. The purpose of this study was to examine the effect of post isometric relaxation on upper trapezius myofascial pain syndrome.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, Science Direct, Google Schoolar, and PEDro databases. The determination of selected articles based on eligible criteria using PICO: (1) Population= individu aged 18-65 years, (2) Intervention= post isometric relaxation, (3) Comparison= other therapy, and (4) Outcome= upper trapezius myofascial pain syndrome. Keywords used ("MPS Upper Trapezius" OR "Myofascial pain syndrome upper trapezius") AND ("PIR" OR "Post isometric relaxation) AND "randomized contrplled trial". The inclusion criteria were full text, randomized controlled trial study, published from 2010 to 2020, and reported Mean and SD. The articles were collected by PRISMA flow diagram. The selected articles were quantitatively examined by Review Manager 5.3.
Results: A meta-analysis involved 9 studies showed that post isometric relaxation reduced upper trapezius myofascial pain syndrome, but it was statistically non-significant (SMD= 0.18; 95% CI= -0.36 to 0.72; p= 0.510).
Conclusion: Post isometric relaxation reduces upper trapezius myofascial pain syndrome, but it is statistically non-significant.

Keywords: post isometric relaxation, laser therapy, upper trapezius myofascial pain syndrome

Correspondence:
Alifiya Zulfa Indana. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: alifiyaindana0@gmail.com. Mobile: 082240463478.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.04

MORTALITY RISK OF COVID-19 PATIENTS WITH CHRONIC LIVER DISEASE COMORBIDITY: A META-ANALYSIS

Isna Nur Rohmah

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: The relationship between pre-existent comorbidities and adverse clinical outcome has been largely investigated. Recent studies have reported the association between preexisting chronic liver diseases and either the risk of infection or the hospitalization of COVID-19 patients. A systematic review and meta-analysis was conducted to investigate mortality risk of COVID-19 patients with chronic liver disease comorbidity.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, Pubmed, and Science Direct databases. Keywords used "Chronic Liver Disease" AND COVID-19 OR SARS-CoV-2 AND Mortality OR Death. Eligibility criteria were defined using the PICO model as follows, (1) population: COVID-19 patients, (2) intervention: comorbid chronic liver disease, (3) comparison: without comorbid chronic liver disease, and (4) outcome: death. The inclusion criteria were full text, articles were published from year 2020 to 2021, retrospective cohort studies, used English language, and reported adjusted Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: 6 cohort studies including 34,176 COVID-19 patients from America, Europe, and Indonesia, were selected for systematic review and meta-analysis. Chronic liver comorbidity increased the risk of mortality in COVID-19 patients (aOR= 3.91; 95% CI= 3.00 to 5.10; p<0.001).
Conclusion: Chronic liver comorbidity increases the risk of mortality in COVID-19 patients.

Keywords: comorbidity, chronic liver, COVID-19, mortality

Correspondence:
Isna Nur Rohmah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: isnanr28@gmail.com. Mobile: 081327215685.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.05

ARE ENVIRONMENTAL AND BIOLOGICAL FACTORS ASSOCIATED WITH LEPROSY?

Siti Mar'atul Munawaroh[1)], Rokhmayanti[2)], Andri Setyo Dwi Nugroho[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia
[3)]Yogyakarta Health Office, Yogyakarta, Indonesia

ABSTRACT

Background: Leprosy among children and adolescents has been correlated with certain social and environmental aspects, such as malnutrition, living in overcrowded households, and it could also be linked to interactions with potential animal reservoirs. The objective of this study was to determine the associations between environmental and biological factors on the risk of leprosy.
Subjects and Method: A case control study was conducted in Kulon Progo, Yogyakarta, Indonesia, from March to July, 2019. A number of 44 leprosy patients and 44 non-leprosy patients was selected by purposive sampling. The dependent variable was leprosy. The independent variables were physical environment (drain and trash) and biological environment (presence of mice and animal ownership). Data on leprosy were obtained from medical record in Kulon Progo District Health Office and 21 health centers in Yogyakarta. The other data were collected by questionnaire and observation. The data were analyzed by a multiple logistic regression.
Results: Poor drain (aOR= 1.16; 95% CI= 0.41 to 3.23; p= 0.780), presence of mice (aOR= 2.16; 95% CI= 0.58 to 11.8; p= 2.610), and animal ownership (aOR= 2.94; 95% CI= 0.43 to 20.1; p= 0.272) increased the risk of leprosy, but it was statistically non-significant. Presence of trash decreased the risk of leprosy, but it was statistically non-significant (aOR= 0.91; 95% CI= 0.35 to 2.43; p= 0.857).
Conclusion: Poor drain, presence of mice, and animal ownership increase the risk of leprosy, but it was statistically non-significant. Presence of trash decreases the risk of leprosy, but it was statistically non-significant.

Keywords: leptospirosy, risk factors, environmental factor, biological factor

Correspondence:
Siti Maratul Munawaroh. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: sitimaratul08@-gmail.com. Mobile: +6282133295468.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.06

ASSOCIATION BETWEEN CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND MORTALITY CAUSED BY COVID-19: A META-ANALYSIS

Pamogsa Daniyar[1)], Agus Kristiyanto[2)], Setyo Rahardjo[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Sport, Universitas Sebelas Maret
[3)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Recent studies showed that patients with chronic respiratory diseases, particularly chronic obstructive pulmonary disease (COPD), have a high risk for COVID-19 infection due to their poor underlying lung reserve and increased expression of angiotensin-converting enzyme 2 (ACE-2) receptor in the small airways. A systematic review and meta-analysis was conducted to investigate association between chronic obstructive pulmonary disease and mortality caused by COVID-19.
Subjects and Method: This was a systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from PubMed, Google Scholar, Science Direct, BMJ, Garuda, SINTA, and national library databases. Keywords used "Anxiety" AND "Nurses" AND "COVID-19". Article search is carried out by considering the eligibility criteria, including population= COVID-19 patients, intervention= chronic obstructive pulmonary disease, comparison= without comorbid disease, and outcome= mortality. The inclusion criteria were full text, articles were published from year 2020 to 2021, cohort studies, used English language, and reported adjusted Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: A meta analysis study including 9 studies showed that chronic obstructive pulmonary disease increased mortality risk in COVID-19 patients (aOR= 1.51; 95% CI= 1.21 to 1.9; p<0.001).
Conclusion: chronic obstructive pulmonary disease increases mortality risk in COVID-19 patients.

Keywords: chronic obstructive pulmonary disease, COVID-19, mortality

Correspondence:
Pamogsa Daniyar. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: pamogsadaniyar@gmail.com. Mobile: +6285290601552.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.08

INDOOR RESIDUAL SPRAYING AND ITS EFFECT ON THE RISK OF MALARIA INFECTION IN CHILDREN UNDER FIVE: A META-ANALYSIS

Arlina Azka[1)], Setyo Sri Rahardjo[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: The two most important malaria parasite species are *Plasmodium falciparum* and *Plasmodium vivax*. The principal vector of malaria is *Anopheles arabiensis*, and most vector control activities are targeted against this species. Current malaria prevention and control strategy includes indoor residual spraying (IRS), environmental control use of long-lasting insecticide-treated nets (LLINs), and effective case management. This study was conducted to examine indoor residual spraying and its effect on the risk of malaria infection in children under five.
Subjects and Method: A systematic literature search was conducted in multiple databases including PubMed, Google Scholar, SpringerLink, ResearchGate, and Science Direct and complemented to identify cross-sectional studies published from 2020 to 2011. The following search terms were used: "malaria risk" AND "indoor residual spraying" AND "children under five" AND "cross-sectional". The inclusion criteria were English full-text and reported adjusted odds ratio.
Results: 8 studies from Zambia, Tanzania, Uganda, Nigeria, Sierra Leone, and Ethiopia were involved in meta-analysis. This study showed that children who are lived in the house with indoor residual spraying had a lower risk to expose malaria (aOR= 0.63; 95% CI= 0.49 to 0.79; p<0.001).
Conclusion: Indoor residual spraying reduces the risk of malaria in children under five.

Keywords: indoor residual spraying, malaria, children under five

Correspondence:
Arlina Azka. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: arlina.azka@gmail.com. Mobile: +628121477 3660.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.010

EFFECT OF OVERWEIGHT ON GASTROESOPHAGEAL REFLUX DISEASE IN ADULTS: A META-ANALYSIS

Fitria Wulandari, Bhisma Murti

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background Epidemiological data have demonstrated that overweight and obesity is an important risk factor for the development of gastroesophageal reflux disease (GERD). A commonly suggested pathogenetic pathway is the increased abdominal pressure which relaxes the lower esophageal sphincter, thus exposing the esophageal mucosal to gastric content. Apart from the mechanical pressure, visceral fat is metabolically active and it has been strongly associated with serum levels of adipocytokines, which may play a role in GERD. The study objective was to investigate the effect of overweight on GERD in adults.
Subjects and Method: A systematic review was conducted using the Google Scholar, PubMed, and SpringerLink databases and the following search criteria: "GERD OR Gastroesophageal reflux" AND overweight AND Obesity AND "adjusted Odds Ratio". The inclusion criteria were full-text, cross-sectional, and reported adjusted Odds Ratio. The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: A total of 9 articles from India, North India, South India, Pakistan, Indonesia, China, Tunisia, Nigeria, and Albania were eligible for quantitative meta-analyses. This study showed that overweight increased the risk of GERD in adults (aOR= 1.81; 95% CI= 1.32 to 2.48; p<0.001).
Conclusion: Overweight increases the risk of GERD in adults.

Keywords: overweight, gastroesophageal reflux disease, adult

Correspondence:
Fitria Wulandari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: fitriawulan14@gmail.com. Mobile: 082169215248.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.09

INDOOR RESIDUAL SPRAYING AND ITS EFFECT ON THE RISK OF MALARIA INFECTION IN CHILDREN UNDER FIVE: A META-ANALYSIS

Arlina Azka[1)], Setyo Sri Rahardjo[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: The two most important malaria parasite species are *Plasmodium falciparum* and *Plasmodium vivax*. The principal vector of malaria is *Anopheles arabiensis*, and most vector control activities are targeted against this species. Current malaria prevention and control strategy includes indoor residual spraying (IRS), environmental control use of long-lasting insecticide-treated nets (LLINs), and effective case management. This study was conducted to examine indoor residual spraying and its effect on the risk of malaria infection in children under five.
Subjects and Method: A systematic literature search was conducted in multiple databases including PubMed, Google Scholar, SpringerLink, ResearchGate, and Science Direct and complemented to identify cross-sectional studies published from 2020 to 2011. The following search terms were used: "malaria risk" AND "indoor residual spraying" AND "children under five" AND "cross-sectional". The inclusion criteria were English full-text and reported adjusted odds ratio.
Results: 8 studies from Zambia, Tanzania, Uganda, Nigeria, Sierra Leone, and Ethiopia were involved in meta-analysis. This study showed that children who are lived in the house with indoor residual spraying had a lower risk to expose malaria (aOR= 0.63; 95% CI= 0.49 to 0.79; p<0.001).
Conclusion: Indoor residual spraying reduces the risk of malaria in children under five.

Keywords: indoor residual spraying, malaria, children under five

Correspondence:
Arlina Azka. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: arlina.azka@gmail.com. Mobile: +628121477 3660.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.010

META-ANALYSIS: THE EFFECT OF HIGH BLOOD PRESSURE ON STROKE

Novita Herlita Dewi

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Blood pressure (BP) is elevated in 75% or more of patients with acute stroke and is associated with poor outcomes. Whether to modulate BP in acute stroke has long been debated. With the loss of normal cerebral autoregulation, theoretical concerns are twofold: high BP can lead to cerebral oedema, haematoma expansion or haemorrhagic transformation; and low BP can lead to increased cerebral infarction or perihaematomal ischaemia. This study aimed to explore the effect of high blood pressure on stroke.
Subjects and Method: A systematic review was conducted using the PubMed, Science Direct, Google Scholar, Springerlink databases and the following search criteria: ("Hypertension" OR "High Blood Pressure") AND ("Stroke"). The inclusion criteria were full-text, observational study, published from 2012 to 2020, and reported adjusted Odds Ratio (aOR). The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: A total of 7 articles from America, Brazil, China, Indonesia, and India were eligible for quantitative meta-analysis. A meta-analysis involved 2 case control studies showed that hypertensive patients had higher risk on stroke 1.5 times than normotensive patients (aOR= 1.50; 95% CI= 0.69 to 3.27; p= 0.31). A meta-analysis involved 5 cross-sectional studies showed that hypertensive patients had higher risk on stroke 3.30 times than normotensive patients (aOR= 3.30; 95% CI= 2.49 to 4.38; p<0.001).
Conclusion: Hypertension increases the risk of stroke.

Keywords: hypertension, stroke

Correspondence:
Novita Herlita Dewi. Masters Program in Public Health, Universitas Sebelas Maret, Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: novitaherlita@student.uns.ac.id. Mobile: +6281311426454.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.11

HISTORY OF HOUSEHOLD CONTACT, MATERNAL DOMESTIC HYGIENE, AND THEIR ASSOCIATIONS WITH THE RISK OF TUBERCULOSIS IN CHILDREN

Chattrin Fahrezi, Rezania Asyfiradayati

Faculty of Health Sciences, Universitas Muhammadiyah Surakarta

ABSTRACT

Background: Close contacts of patients with infectious tuberculosis are at increased risk of developing *Mycobacterium tuberculosis* infection and disease. The risk of tuberculosis in individuals with latent *M. tuberculosis* infection is estimated to be 5%–10% over the course of a lifetime, with approximately half of cases occurring within the first 2 years after exposure. The purpose of this study was to investigate the relationships between history of household contact and other factors on the risk of Tuberculosis in children.
Subjects and Method: A case control study was carried out in Wonogiri, Central Java, in April 2019. The study population was children aged 0-14 years with Tuberculosis in 2018. A sample of 92 children consisting of 46 children with Tuberculosis and 46 children without Tuberculosis was selected by purposive sampling. The data were collected by medical record and questionnaire. Correlations between household contact, maternal domestic hygiene, and the risk of Tuberculosis were assessed by Chi-square.
Results: History of household contact increased the risk of Tuberculosis in children (OR= 6.91; 95% CI= 1.44 to 33.26; p= 0.007). Good maternal domestic hygiene lowered the risk of Tuberculosis in children (OR= 0.38; 95% CI= 0.15 to 0.97; p= 0.039).
Conclusion: History of household contact increases the risk of Tuberculosis in children. Good maternal domestic hygiene lower the risk of Tuberculosis in children.

Keywords: Tuberculosis, household contact, maternal domestic hygiene, children

Correspondence:
Chattrin Fahrezi. Faculty of Health Sciences, Universitas Muhammadiyah Surakarta. Jl. A. Yani Tromol Pos I, Pabelan, Kartasura, Sukoharjo 57169, Central Java. Email: chattrinfahrezi311@gmail.com. Mobile: 08812532292.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.12

CORRELATION BETWEEN SMOKING AND THE RISK OF DEATH IN PATIENTS WITH LUNG TUBERCULOSIS: A META-ANALYSIS

Hakim Anasufalah

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Previous studies estimated that 20% of Tuberculosis cases in adults are attributable to smoking, compared with 16% for human immunodeficiency virus and 15% for diabetes. Compared with nonsmokers, those who smoke tobacco have twice the risk of Tuberculosis disease, and patients with Tuberculosis who smoke have twice the risk of death during Tuberculosis treatment. This study aimed to explore correlation between smoking and the risk of death in patients with lung Tuberculosis using meta-analysis.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, ScienceDirect, and Google Scholar databases. The determination of selected articles based on eligible criteria using PICO: (1) Population= patients with lung Tuberculosis, (2) Intervention= smoking, (3) Comparison= non smoking, and (4) Outcome= death. Keywords used "Smoking" OR " Smokers" AND " Mortaliy" AND " Pulmonary Tuberculosis" AND " Adjusted odds Ratio". The inclusion articles were full text, observational studies, published from year 2010 to 2021, and reported odds ratio. The articles were collected by PRISMA flow diagram. Selected articles were assessed using Review Manager 5.3.
Results: A meta-analysis involved six cohort studies from Malaysia, South Korea, Iran, Mozambique, Pakistan, and Taiwan. This study showed that smoking increased the risk of death in patients with lung Tuberculosis (aOR= 2.96; 95% CI= 2.85 to 3.08; p <0.001). I^2= 42% showed that there were homogenous characteristics between studies, so fixed-effect model selected for analysis in meta-analysis.
Conclusion: Smoking increases the risk of death in patients with lung Tuberculosis.

Keywords: smoking, lung Tuberculosis, COVID-19, death Kematian

Correspondence:
Hakim Anasulfalah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: anasulfalah75@gmail.com. Mobile: 085602655400

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.13

THE EFFECT OF ADDITIONAL CORE STABILITY TRAINING IN INCREASING BODY FITNESS IN FOURTH FIELD ARTILLERY BATTALION SOLDIERS, CIMAHI, WEST JAVA, INDONESIA

Wita Hana Puspita[1)], Tjetjep Sudrajat[2)]

[1)]Universitas Esa Unggul, Jakarta
[2)]Field Health Detachment, Bandung

ABSTRACT

Background: In recent years, fitness practitioners have increasingly recommended core stability exercises in body fitness conditioning programs. Greater core stability may benefit body fitness performance by providing a foundation for greater force production in the upper and lower extremities. The study objective was to investigate the effect of additional core stability training in increasing body fitness among soldiers.
Subjects and Method: A quasy experiment was conducted at fourth field artillery battalion soldiers, Cimahi, West Java, Indonesia. A sample of 20 soldiers was selected for this study and divided into two groups, (1) 10 soldiers received core stabilty exercise (intervention group), and (2) 10 soldiers received common exercise (control group). The dependent variable was physical fitness. The independent variable was core stability. Exercise was conducted three times a week for 4 weeks. Physical fitness was measured by physical fitness assessment form. Mean difference of physical fitness after intervention between groups was examined using independent t-test.
Results: After intervention, mean score of physical fitness in the intervention group (Mean= 3.90; SD= 1.52) was higher than control group (Mean= 1.60; SD= 0.70) and it was statistically significant ($p < 0.001$).
Conclusion: Core stability exercise can be used to improve physical fitness in fourth field artillery battalion soldiers.

Keywords: core stability exercise, physical fitness

Correspondence:
Wita Hana Puspita. Universitas Esa Unggul, South Jakarta, Indonesia. Email: wita.tj0408@gmail.com.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.14

THE EFFECT OF CONTINUUM APPROACH THERAPY ON FUNCTIONAL ABILITY IN PATIENTS WITH BRACHIAL PLEXUS INJURY

Galang Aji Samudera

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Traumatic brachial plexus injuries (TBPI) tend to occur in young, otherwise healthy and active individuals. While brachial plexus injuries themselves are not fatal, they can cause disability and can be very difficult to reverse. In addition to motor and sensory deficits, they may also cause pain and functional limitations. Effects of continuum of care interventions were expected to maintain functional ability in patients with brachial plexus injury. This study objective was to examine the effect of continuum approach therapy on functional ability in patients with brachial plexus injury.
Subjects and Method: This was a quasy experiment with no control group. A sample of 15 patients with brachial plexus injury was selected for this study by purposive sampling. The dependent variable was functional ability. The independent variable was continuum approach therapy. Functional ability was measured by functional independence measurement (FIM). Mean difference of functional ability before and after intervention was examined using paired t-test.
Results: Mean of functional ability after continuum approach therapy in patients with brachial plexus injury (Mean= 120.8; SD= 1.56) was sligthly higher than before (Mean= 120.4; SD= 1.59) and it was statistically significant (p= 0.009).
Conclusion: Continuum approach therapy can be used to improve functional ability in patients with brachial plexus injury.

Keyword: continuum approach therapy, functional ability, brachial plexus injury

Correspondence:
Galang Aji Samudera. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ghalangsamudera@gmail.com. Mobile: 087836783209

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.15

IS INFLUENZA VACCINE ASSOCIATED WITH COVID-19 INFECTION SEVERITY: META-ANALYSIS

Shinta Nur Atikah

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Recently, several studies have suggested a possible protective effect of the influenza vaccine against SARS-CoV-2. Although no cross-reactivity between influenza-induced antibodies and SARS-CoV-2 protection has been demonstrated, several theorized mechanisms of the potential protective effect of influenza vaccination have been proposed in the recent studies. Alternatively, influenza vaccination's potential protective effect may be explained by its ability to stimulate the activation of natural killer cells, the levels of which have been found to be considerably decreased in moderate and severe SARS-CoV-2 cases. This study aimed to investigate the effect of influenza vaccine on COVID-19 infection severity.
Subjects and Method: A systematic literature search was conducted in multiple databases including Pubmed, Google Scholar, and Sciene Direct, to identify randomized control trial published from 2020 to 2021. The following search terms were used: "COVID-19" OR "COVID-19 Severity" AND "Vaccine Influenza". The inclusion criteria were English full text and randomized controlled trial. The articles were filtered using PICO model, including: (1) Population= COVD-19 patients, (2) intervention= influenza vaccine, (3) comparison= without influenza vaccine, and (4) outcome= severity of COVID-19 infection. The inclusion criteria were English full-text, observational study, and reported adjusted Odds Ratio (aOR). The systematic review was carried out according to the PRISMA diagram. Data analysis were performed using RevMan 5.3.
Results: A meta analysis involved 7 studies from Italia, United States, Spain, and Taiwan showed that influenza vaccine reduced severity of COVID-19 infection (aOR= 0.73; 95% CI= 0.58 to 0.92; p= 0.05)
Conclusion: Influenza vaccine reduces severity of COVID-19 infection.

Keywords: influenza vaccine, severity, COVID-19 infection

Correspondence:
Shinta Nur Atikah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: shintaatikah@student.uns.ac.id. Mobile: 081295254862

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.16

ASSOCIATION BETWEEN GENDER AND DEPRESSION IN COVID-19 PATIENTS: META ANALYSIS

Desif Upix Usmaningrum

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Mental disorders incidence is likely to have increased during the pandemic, due to a variety of factors. While some pandemic-related stressors affect nearly everyone, many especially affect women. The purpose of this study was to investigate the impact of COVID-19 pandemic on women's mental health.
Subjects and Method: This was a systematic review and meta-analysis. The study was conducted in multiple databases including PubMed, Science Direct, dan Google Scholar. The articles were filtered using PICO model, including: (1) Population= COVID-19 patients, (2) intervention= female, (3) comparison= male, and (4) outcome= depression. Keywords used "gender" OR "risk factors" AND "depression" OR "mental health" AND "COVID-19 patients" OR "COVID-19 survivor". The inclusion criteria were English full-text, cross sectional study, published from 2020 to 2021, and reported mean and standard deviation. The systematic review was carried out according to the PRISMA guidelines. Data analysis were performed using RevMan 5.3.
Results: The were 8 studies from China, Iran, Turkey, Equador, and Morroco involving 1,994 COVID-19 patients for meta-analysis. This study showed that female COVID-19 patients had higher risk on depression than male (Standardized mean difference= 0.38; 95% CI= 0.29 to 0.48; p<0.001).
Conclusion: Depression in female COVID-19 patient is higher than male.

Keywords: gender, depression, COVID-19

Correspondence:
Desif Upix Usmaningrum. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 3A, Surakarta 57126, Central Java. Email: desifupix@student.uns.ac.id. Mobile: 0878388872.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.17

CARDIOVASCULAR COMORBIDITY ON THE RISK OF DYING IN CONFIRMED OF COVID-19 PATIENTS

Syndia Puspitasari

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Pre-existing cardiovascular diseases (CVDs) have been proposed to identify patients at higher risk of adverse coronavirus disease 2019 (COVID-19) outcomes, but existing evidence is conflicting. Estimating the risk of pre-existing comorbidities on coronavirus disease 2019 (COVID-19) mortality may promote the importance of targeting populations at risk to improve survival. This study aimed to explore cardiovascular comorbidity on the risk of dying in confirmed of covid-19 patients.
Subjects and Method: This was a systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from PubMed, Science Direct, and Google Scholar databases. Research problems were formulated in PICO, as follows: (1) Population= patients confirmed COVID-19, (2) Intervention= comorbidity heart disease, (3) Comparison= without comorbidity, and (4) Outcome= death. Keywords used "Heart disease" OR "Cardiovascular disease" OR “Heart failure” OR Hypertension AND “COVID-19 Testing” OR “COVID-19” OR “SARS-CoV-2” AND mortality OR “mortality rate” OR “increase mortality”. The inclusion criteria were full text, articles were published from year 2020 to 2021, observational studies, and reported adjusted Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: As many as 10 cohort studies from United States New York, Moscow, China, California, Iran, and Italia, reviewed in meta-analysis. This study found that patients confirmed COVID-19 with comorbidity heart disease had higher risk of dying 2.56 times than those without any comorbidity (aOR= 2.56; 95% CI= 1.14 to 5.74; p= 0.002).
Conclusion: Patients confirmed COVID-19 with comorbidity heart disease have higher risk of than those without any comorbidity.

Keywords: cardiovascular disease, comorbidity, death, heart disease COVID-19

Correspondence:
Syndia Puspitasari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: syndiapuss96@gmail.com. Mobile: 082234398706.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.18

THE EFFECT OF MEDIAL ARCH SUPPORT IN LOWERING FATIGUE IN CHILDREN WITH FLAT FOOT IN KARTASURA, CENTRAL JAVA

Adilla Misi Nurfitria[1)], Cica Tri Mandasari[2)], Agus Setyo Nugroho[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]School of Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Flexible flatfoot is a condition that involves the collapse of the medial longitudinal arch of the foot during weight-bearing stress and the restoration of the arch after the removal of body weight. Limited evidence is available regarding the effects of insoles on pediatric flexible flatfoot because of the heterogeneity and low methodological quality of previous studies. This study aimed to examine the effect of medial arch support in lowering fatigue in children with flat foot.
Subjects and Method: A quasy experiment with no control group was conducted in Kartasura, Surakarta, Central Java, Indonesia, in April 2019. A sample of 20 students with flat foot was selected for this study. The dependent variable was fatigue. The independent variable was medial arch support. Mean score of fatigue before and after intervention was measured by paired t-test.
Results: After intervention, fatigue level (Mean= 1.01; SD= 1.013) was lower than before (Mean= 78.45; SD= 8.36) and it was statistically significant ($p<0.005$).
Conclusion: Medial arch support uptake reduces fatigue in student with flat foot.

Keywords: flat foot, fatigue, medial arch support

Correspondence:
Adilla Misi Nurfitria. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: adillamisi2502@gmail.com. Mobile: 0895422843877.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.19

META-ANALYSIS MORTALITY RISK OF COVID-19 PATIENTS WITH CHRONIC HEARTH DISEASE COMORBIDITY

Meike Arianty

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: COVID-19 outbreak has been pandemic and become a major global public health emergency. Respiratory symptoms were the main manifestation of COVID-19, but mounting evidence substantiates the presence of cardiac injury in patients. Several retrospective studies have shown increasing serum levels of High-sensitivity troponin I, creatine kinase, creatine kinase-mb in confirmed patients. This study was carried out to investigate mortality risk of COVID-19 patients with chronic hearth disease comorbidity.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, ScienceDirect, and Google Scholar databases. The determination of selected articles based on eligible criteria using PICO: (1) Population= COVID-19 disease, (2) Intervention= chronic heart disease, (3) Comparison= without chronic heart disease, and (4) Outcome= death. Keywords used "Chronic Heart Disease OR Chronic Cardiac Disease" AND COVID-19 OR SARS-CoV-2 AND Mortality OR Death. The inclusion articles were full text, cohort study, reported adjusted odds ratio, and published from year 2020 to 2021. The articles were collected by PRISMA flow diagram. Selected articles were assessed using Review Manager 5.3
Results: A meta-analysis involved 8 cohort studies from United Kingdom, China, Ireland, Spain, Sweden, and Russia showed that chronic heart disease increases the risk of death in COVID-19 patients (aOR= 3.59; 95% CI= 2.89 to 4.47; p<0.001).
Conclusion: Chronic heart disease increases the risk of death in COVID-19 patients.

Correspondence:
Meike Arianty. Masters Program in Public Health, Universitas Sebelas Maret. Jl Ir. Sutami 36A, Surakarta 57126, Central Java. Email: akuike30@gmail.com. Mobile: 082284818070.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.20

DIFFERENCES OF OXFORD EXERCISE VERSUS HOLTEN EXERCISE ON INCREASING THE QUADRICEPS FEMORIS MUSCLE STRENGTH

Muhammad Husien Syawaludin

Study Program of Physiotherapy, Health Polytechnics, Ministry of Health Surakarta/
Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: The quadriceps femoris is the most voluminous muscle of the human body. The muscular adaptation of the quadriceps muscle with advancing age changes its morphology and function. The musculature loses mass and volume (sarcopenia) decreases strength and coordination. Therefore, it is of utmost importance to improve lower limb muscle strength by exercise. The purpose of this study was to determine which exercise increases quadriceps femoris muscle strength between Oxford and Holten methods.
Subjects and Method: A randomized controlled trial was conducted at campus 2 Health Polytechnics Ministry of Health Surakarta, from February to March 2013. A sample of 62 women was divided into 2 groups (1) Oxford therapy and (2) Holten therapy. The dependent variable was quadriceps femoris muscle strength. The independent variables were Oxford and Holten therapies. Quadriceps femoris muscle strength was measured by 1RM submaximal Holten diagram. Mean difference of quadriceps femoris muscle strength between groups was assessed by independent t-test.
Results: After intervention, there was no difference of quadriceps femoris muscle strength of women in Oxford group (Mean= 20.37; SD= 1.74) and Holten group (Mean= 20.94; SD= 1.62), with p= 0.194.
Conclusion: There is no difference of Oxford method and Holten method in quadriceps femoris muscle strength of women.

Keywords: Oxford exercise, Holten exercise, quadriceps femoris muscle strength

Correspondence:
Muhammad Husein Syawaludin. Study Program of Physiotherapy, Health Polytechnics, Ministry of Health Surakarta. Jl. Kapt. Adi Sumarmo, Colomadu, Karanganyar 57173, Central Java. Email: fahusein26@gmail. Mobile: 085728989309.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.21

ASSOCIATIONS BETWEEN AGE, GENDER, BODY MASS INDEX, AND LENGTH OF EXERCISE ON THE LIMBS EXPLOSIVE POWER IN TAEKWONDO ATHLETES

Atik Handariati, Galih Aji Gandika

Academy of Physiotherapy, Dustira Military Hospital, Cimahi, West Java, Indonesia

ABSTRACT

Background: The explosive power shows itself in the great majority of movements and elements performed by the athletes, particularly in the jumps, which are essential corporal movements in several kinds of sport. The training directed to the development of jumping capacity presents a large number of exercises that aim to improve muscular power in the lower limbs and therefore the impulsion capacity. The vertical impulsion is an important measure used to calculate the explosive power of the lower limbs. This study aimed to analyzed the associations between age, gender, body mass index, and length of exercise on the limbs explosive power in taekwondo athletes.
Subjects and Method: A cross sectional study was conducted at *Sangkuriang* and *Lions* sports arenas in Cimahi, West Java, Indonesia. A sample of 95 Taekwondo athletes was selected for this study. The dependent variable was limbs explosive power. The independent variables were age, gender, body mass index, and length of exercise. Limb explosive power was measured by a number of vertical jump repetition. The other variables were collected by questionnaire. The data were analyzed by Chi square.
Results: The limbs explosive power increased with age (OR= 2.89; 95% CI= 1.23 to 5.77; p= 0.010) and length of exercise (OR= 7.44; 95% CI= 2.96 to 18.67; p<0.001). Gender increased the limbs explosive power, but it was statistically non-significant (OR= 1.14; 95% CI= 0.51 to 2.56; p= 0.900). The limbs explosive power decreased with body mass index, but it was statistically non-significant (OR= 0.72; 95% CI= 0.30 to 1.18; p= 0.600).
Conclusion: The limbs explosive power increases with age, length of exercise, and gender. The limbs explosive power decreases with body mass index.

Keywords: the limbs explosive power, length of exercise, body mass index

Correspondence:
Galih Aji Gandika. Academy of Physiotherapy, Dustira Military Hospital. Jl. Dustira 1, Cimahi 40521, West Java, Indonesia. Email: gandika68@gmail.com. Mobile: +6282-122441438.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.22

META-ANALYSIS THE EFFECT OF AEROBIC EXERCISE ON THE SOCIAL WELL-BEING IN BREAST CANCER SURVIVOR

Citra Ayuningtiyas[1)], Agus Kristiyanto[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Sport Education, Universitas Sebelas Maret

ABSTRACT

Background: Exercise is associated with decreased recurrence risk, improved survival and quality of life for breast cancer survivors. This is remarkable in light of empirical work supporting breast cancer survivors as generally motivated to make healthy lifestyle changes, including exercise. This study aimed to invetigate the effect of aerobic exercise on the social well-being in breast cancer survivor.
Subjects and Method: A systematic literature search was conducted in multiple databases including PubMed, Science Direct, and Google Scholar. The following search terms were used: "breast cancer" OR "ca mammae" OR "carcinoma mammae" OR "mammae cancer"AND aerobic OR "aerobic exercise" AND "quality of life" OR "QOL" AND "RCT" OR "randomized control trial" OR "cluster-randomized control trial". The articles were filtered using PICO model, including: (1) Population= breast cancer survivor, (2) intervention= aerobic exercise, (3) comparison= none intervention, and (4) outcome= quality of life. The inclusion criteria were full-text, randomized controlled trial, and reported mean and standard deviation. The systematic review was carried out according to the PRISMA flow diagram. The data were quantitatively examine by meta-analysis using RevMan 5.3.
Results: 9 studies from California, Brazil, Kosovo, Spain, United Kingdom, Canada, Germany, and Netherland were involved for meta-analysis. The results of this study showed that aerobic exercise improved quality of life in breast cancer survivor (Standardized Mean Difference= 0.24; 95% CI= -0.01 to 0.48), and it was statistically marginally significant (p= 0.060).
Conclusion: Aerobic exercise improves quality of life in breast cancer survivor.

Keywords: aerobic exercise, breast cancer survivor, social well-being, quality of life

Correspondence:
Citra Ayuningtiyas. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java, Indonesia. Email: citratiyas2@gmail.com. Mobile: 085345903455.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.23

DIFFERENCE OF VO2 MAX LEVEL BETWEEN FOOTBALL AND BASKETBALL PLAYERS

Muhammad Fajar Husein, Wijianto

Graduate Program of Physiotherapy, Universitas Muhammadiyah, Surakarta

ABSTRACT

Background: Maximal oxygen uptake (VO2max) has been regarded by majority of authors as the best indicator of aerobic capacity of an organism, and at the same time, the best indicator of an athlete's physical capacity. The aim of the study was to compare physical capacity of athletes by measuring differences in VO2max capacity with regard to the kind of sport they are practicing.
Subjects and Method: A cross-sectional study was conducted at Universitas Muhammadiyah Surakarta, Central Java, Indonesia. A sample of 26 athletes consisting of 12 football players and 14 basketball players aged 20 to 29 years was selected for this stduy. The exlusion criteria were smoker and athletes with heart disease or pulmonary disease. The dependent variable was VO_2 max. The independent variable was type of sport. Mean difference of VO_2 max between groups was examined using Mann-Whitney.
Results: VO_2 max in football players (Mean= 42.96; SD= 3.55) was higher than basketball players (Mean= 39.65; SD= 4.88) and it was statistically significant.
Conclusion : VO_2 max in football players is higher than basketball players.

Keywords: VO_2 max, football player, basketball player

Correspondence:
Muhammad Fajar Husein. Graduate Program of Physiotherapy, Universitas Muhammadiyah, Surakarta. Email: Gemilanggean@gmail.com.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.24

EFFECT OF CORE STABILITY EXERCISE ON THE IMPROVEMENT OF PHYSICAL FITNESS (ENDURANCE) IN MILITARY SOLDIERS

Feny Oktaviyani[1)], Jenal Arifin[2)]

[1)]Universitas Esa Unggul, Jakarta
[2)]Physical Military Area III/Siliwangi, Bandung 40113, West Java

ABSTRACT

Background: Core stability is a primary component of functional movement, essential in daily living and athletic activities. Core stability comprises the lumbopelvic-hip complex and is the capacity to maintain equilibrium of the vertebral column within its physiologic limits by reducing displacement from perturbations and maintaining structural integrity. Core stability necessitates instantaneous changes by the central nervous system to elicit appropriate combinations and intensities of muscle recruitment for stiffness (ie, stability) as well as mobility demands of the system. This study aimed to assessed the effect of core stability exercise on the improvement of physical fitness (endurance) in military soldiers.
Subjects and Method: This was a quasy experiment. A sample of 48 military soldiers was selected by purposive sampling and divided into two groups, (1) 24 soldiers received 12 minutes run and core stability excercise, and (2) 24 soldiers received 12 minutes run. The dependent variable was physical fitness. The independent variable was core stability exercise. Physical fitness was measured by 12 minutes run test. Mean difference of physical fitness of military soldiers after intervention between groups was analyzed by independent t-test.
Results: Mean score difference of physical fitness before and after intervention in the core stability exercise group (Mean= 4.38; SD= 1.41) was higher than control group (Mean= 2.42; SD= 2.04) and it was statistically significant ($p<0.001$).
Conclusion: Core stability exercise can be used to improve physical fitness in military soldiers.

Keywords: physical fitness, core stability exercise, 12 minutes run, military soldiers

Correspondence:
Feny Oktaviyani. Universitas Esa Unggul. South Jakarta, Indonesia. Email: fenyokta8-@gmail.com.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.25

THE EFFECT OF HIV STATUS ON THE MEDICATION FAILURE IN TUBERCULOSIS PATIENTS: A META ANALYSIS

Riski Anisa

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: HIV and Tuberculosis (TB) interact synergistically, speeding the progression of illness and increasing the likelihood of death. The presence of HIV enhances the reactivation and progression of latent *M. tuberculosis* to overt TB disease, and having TB disease accelerates HIV disease progression. It also alters the clinical presentation of TB and complicates the treatment follow-up. Therefore to reduce the burden of HIV in TB patients, HIV testing and acting upon one's HIV status is mandatory. For this reason a TB clinic can be an extremely important entry point for HIV prevention, care and treatment. This study aimed to
Subjects and Method: A systematic literature search was conducted in multiple databases including PubMed, Science Direct, Google Scholar, to identify studies published from 2016 to 2021. The following search terms were used: "HIV status" AND "Unseccessful TB Treatment" AND "TB patients" AND "Cohort". The articles were filtered using PICO model, including: (1) Population= Tuberculosis patients, (2) intervention= positive HIV status, (3) comparison= negative HIV status, and (4) outcome= Tuberculosis treatment failure. The inclusion criteria were English or Indonesian full-text, cohort study, and reported adjusted odds ratio (aOR). The study instrument for assessing smoking cessation was Fagerstrom test for nicotine dependence. The systematic review was carried out according to the PRISMA guidelines. Data analysis were performed using RevMan 5.3.
Results: There were 5 studies from Malaysia, Ethiopia, Thailand, Nigeria, and Papua New Guinea that met the eligible criteria for meta-analysis. This study reported that HIV-positive status elevated the risk of TB treatment failure (aOR= 2.20; 97% CI= 1.17 to 4.17; p= 0.010).
Conclusion: HIV-positive status elevates the risk of TB treatment failure.

Keywords: HIV status, TB treatment failure

Correspondence:
Riski Anisa. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 51726, Central Java. Email: riskianisa93@gmail.com. Mobile: +62857-49027212.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.26

EFFECTS OF DUST EXPOSURE ON LUNG FUNCTION CAPACITY OF TILE INDUSTRY WORKERS IN SUKOHARJO, CENTRAL JAVA

Aurina Firda Kusuma Wardani, Sunardi, Nine Elissa Maharani

Faculty of Public Health, Universitas Veteran Bangun Nusantara

ABSTRACT

Background: Occupational lung disease is a major concern and it has been listed as one of the priority problems in occupational health. Airborne dusts are being potentially harmful for workers in occupational environment. Exposure to respirable dust is the most important concern in textile workers for the widespread of occupational lung diseases. The purpose of this study was to examine effects of dust exposure on lung function capacity of tile industry workers.
Subjects and Method: This was an analytic observational study with a cross sectional design. The study was carried out at roof tiles industrial village in Mojolaban, Sukoharjo, Central Java, Indonesia, in August 2019. A sample of 32 roof tiles workers was selected by purposive sampling. The dependent variable was lung functional capacity. The independent variable was dust exposure. Dust exposure was measured using personal dust sampler. Lung functional capacity was measured by spirometry. The data were analyzed by Chi square.
Results: Mean of dust exposure was 2.21 mg/m^3. Dust exposure increased the risk of poor lungs functional capacity in roof tiles workers and it was statistically significant (OR= 5.80; 95% CI= 2.61 to 12.87; p= 0.011).
Conclusion: Dust exposure increases the risk of poor lungs functional capacity in roof tiles workers.

Keywords: dust exposure, lung functional capacity, roof tiles workers

Correspondence:
Aurina Firda Kusuma Wardani. Faculty of Public Health, Universitas Veteran Bangun Nusantara. Jl. Letjend Sujono Humardani 1, Sukoharjo, Central Java. Email: firdakw-@gmail.com. Mobile: 082135012135.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.27

META-ANALYSIS: THE EFFECT OF SMARTPHONE USE ON THE INCIDENCE OF LOW BACK PAIN IN ADOLESCENTS

Yenni Kurniawati, Bhisma Murti

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: The smartphone is one of the most popular technological devices among many ages worldwide. Innovations in smartphone models, including surfing the internet, social media apps, gaming apps, portable media players, compact digital cameras, and high-resolution touchscreens, have been a factor in the frequent use of and "addiction" to smartphones. Addiction to smartphones can cause serious problems, especially for students, such as incorrect posture, musculoskeletal disorders, and low back pain. This study aimed to examine the effect of smartphone use on the incidence of low back pain in adolescents.
Subjects and Method: This was a systematic review and meta-analysis. A systematic review was conducted using the Google Scholar, PubMed, and ScienceDirect databases and the following search criteria: "Smartphone" OR "Mobile Phone" OR "Handphone" AND "Low Back Pain" OR AND "Adolescent" OR "Teenage" AND "logistic regression". The articles were filtered using PICO model, including: (1) Population= adolescents, (2) Intervention= smartphone use ≥6 hours/ day, (3) Comparison= smartphone use <6 hours/ day, and (4) Outcome= low back pain. The inclusion criteria were full text, case control study, published from 2014 to 2021, and reported adjusted Odds Ratio (aOR). The systematic review was carried out according to the PRISMA guidelines. Quantitative data were assessed by meta-analysis using RevMan 5.3.
Results: A meta-analysis involved 7 primary studies from Brazil, China, Ethiopia, Saudi Arabia, Switzerland, and Thailand. The result of this study was smartphone use ≥6 hours/ day increased the risk of low back pain in adolescents (aOR= 3.80; 95% CI= 2.56 to 5.65; p <0.001).
Conclusion: Smartphone use ≥6 hours/ day increases the risk of low back pain in adolescents.

Keywords: smartphone , mobile phone, low back pain, adolescents

Correspondence:
Yenni Kurniawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Yenni.kurniawati27@student.uns.-ac.id. Mobile: 082226247289.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.28

DURATION OF HORMONAL CONTRACEPTIVE USE AND ITS CORRELATION WITH BLOOD PRESSURE

Mumpuni Intan Pertiwi, Niken Meilani, Yuliantisari Retnaningsih

Study Program in Midwivery, Health Polytechnics, Ministry of Health Yogyakarta

ABSTRACT

Background: Over few past decades, oral contraceptive containing estrogen has been commonly and routinely preferred by women of reproductive age. Studies have reported current hormonal contraceptive use is associated with adverse cardiovascular outcomes, including high blood pressure. This study aimed to examine duration of hormonal contraceptive use and blood pressure.
Subjects and Method: A cross sectional study was conducted in Gunungkidul, Yogyakarta, Indonesia. A number of 115 women of reproductive age with hormonal contraceptive was selected randomly. The dependent variable systolic blood pressure. The independent variable was hormonal contraceptive. Data on hormonal contraceptive was obtained from family planning register card. The other variables were collected by questionnaire. The data were analyzed by a multiple linier regression.
Results: Hormonal contraceptives uptake in 2 years elevated systolic blood pressure (b= 1.32; 95% CI= 0.36 to 2.29; p= 0.007) after controlling systolic blood pressure 2 years ago, age, and body mass index.
Conclusion: Hormonal contraceptives uptake in 2 years elevated systolic blood pressure in women of reproductive age.

Keywords: hormonal contraception, systolic blood pressure, women of reproductice age

Correspondence:
Mumpuni Intan Pertiwi. Study Program in Midwivery, Health Polytechnics, Ministry of Health Yogyakarta. Jl. Tatabumi 3, Banyuraden, Gamping, Sleman, Yogyakarta. Email: mumpuni.ip@gmail.com. Mobile: +6285325638182

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.29

DIABETES MELLITUS ON THE SEVERITY OF COVID-19: META-ANALYSIS

Okky Nurlita Sari

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Considering the prognosis of the COVID-19, approximately 80% of patients have mild illness, 14% have severe illness and 5% critical illness. The initial symptoms do not seem to differ by the presence of comorbidities and the mild clinical presentation of cases was similar in different countries and at different ages. Despite that, studies have shown a worse prognosis for individuals with chronic diseases, such as diabetes mellitus, hypertension, or cardiovascular disease. The aim of this study was to evaluate the impact of diabetes mellitus on the severity of COVID-19 cases.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, Pubmed, and Science Direct databases, published from 2020 to 2021. Keywords used "diabetes mellitus" AND "severity" AND "COVID-19" OR "SARS-CoV-2" AND "cohort". Eligibility criteria were defined using the PICO model as follows, (1) population: COVID-19 patients, (2) intervention: diabetes mellitus, (3) comparison: non-diabetes mellitus, and (4) outcome: severity of COVID-19. Articles that met the criteria were analyzed by Revman 5.3.
Results: The current search found a total of 9 studies using 13,143 confirmed COVID-19 patients from China, South Korea, and United States, were met the inclusion criteria for the meta-analysis. This study found that diabetes mellitus comorbidity increased severity of COVID-19 patients (aOR= 1.82; 95% CI= 1.27 to 2.61; $p<0.001$). I^2= 99% represent high heterogeneity between studies. Therefore, the random effects model was used to combine the studies' results.
Conclusion: Diabetes mellitus comorbidity increased severity of COVID-19 patients.

Keywords: covid-19, diabetes melitus, severity

Correspondence:
Okky Nurlita Sari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: okkynurlita.s@student.uns.ac.id. Mobile: 082242312116.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.30

META ANALYSIS: THE SMOKING EFFECT ON GASTRO-ESOPHAGEAL REFLUX DISEASE IN ADOLESCENTS

Septyandi Ramadhan, Bhisma Murti

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Recent studies have shown the effects of lifestyle modifications on gastroesophageal reflux disease and reflux symptoms, including smoking. Smoking acutely increase the rate at which acid reflux events occurred. It is occurred by transient lower oesophageal sphincter relaxations. The purpose of this study was to investigate the effect of smoking on gastroesophageal reflux disease in adolesccents.
Subjects and Method: This was a meta-analysis of smoking with gastroesophageal reflux disease. This study was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, Pubmed, and Science Direct databases, published from 2020 to 2021. Keywords used "smoking" OR "cigarette smoke" OR AND "GERD" OR AND "Adolescent" OR "Teenage" AND "logistic regression". Eligibility criteria were defined using the PICO model as follows, (1) population: adolescents, (2) intervention: smoking, (3) comparison: non smoking, and (4) outcome: gastroesophageal reflux disease. Articles that met the criteria were analyzed by Revman 5.3.
Results: A meta-analysis combined six studies articles from China, United States, Saudi Arabia, Australia, and Netherlands showed that smoking increased the risk of gastroesophageal reflux disease in adolescents (aOR= 1.81; 95% CI= 1.55 to 2.13; p<0.001).
Conclusion: Smoking increases the risk of gastroesophageal reflux disease in adolescents.

Keywords: acid reflux, gastroesophageal reflux disease, smoking

Correspondence:
Septyandi Ramadhan. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: septyandiramadhan@student.-uns.ac.id. Mobile: 081936553398.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.31

META-ANALYSIS: CORRELATION BETWEEN HYPERTENSION AND SEVERITY OF COVID-19 INFECTION

Lisa Safaah Novia Larsiani

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Recent studies found that the virus uses angiotensin-converting enzyme (ACE)-2 as the cell entry receptor and that hypertension as well as cardiovascular disorders frequently coexist with COVID-19 have generated considerable discussion on the management of patients with hypertension. This study aimed to investigate the correlation between hypertension and severity of COVID-19 infection.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from PubMed, Science Direct, Google Scholar, and Springer link databases. Keywords used "Hypertension" OR "High Blood Plessure'' AND "Severe COVID-19". Eligibility criteria were defined using the PICO model as follows, (1) population: COVID-19 patients, (2) intervention: high blood pressure or hypertension, (3) comparison: normotension, and (4) outcome: severity of COVID-19. The inclusion criteria were full text observatioal study. Articles that met the criteria were analyzed by Revman 5.3.
Results: 8 studies from America and China were included into this meta-analysis. 2 cross sectional studies found that hypertensive patients had higher risk of severe COVID-19 infection 1.57 times than non-hypertensive patients (aOR= 1.57; 95% CI= 1.19 to 2.07; p= 0.001). A meta-analysis from cohort studies found hypertensive patients had higher risk of severe COVID-19 infection 1.77 times than non-hypertensive patients (aOR= 1.77; CI 95%= 1.16 to 2.71; p= 0.009).
Conclusion: Hipertension increased the risk of severity of COVID-19 infection.

Keywords: COVID-19, hypertension, severity

Correspondence:
Lisa Safaah Novia Larsiani. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: nl.lisasafaah18@-student.uns.ac.id.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.32

META-ANALYSIS: EFFECT OF *ARTEMETHER LUMEFANTRINE* ON MALARIA STATUS IN PREGNANT WOMEN

Siti Nur Hanifah[1)], Uki Retno Budihastuti[2)], Eti Poncorini Pamungkasari[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)] Department of Obstetrics and Gynecology, Dr. Moewardi Hospital, Surakarta
[3)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Artemisinin-based combination therapies are now the recommended first-line treatment of falciparum malaria globally, because they rapidly decrease parasitemia, hasten recovery, and reduce chances of development of drug resistance. It also recommended by the World Health Organization to treat uncomplicated falciparum malaria during the second and third trimesters of pregnancy, and quinine plus clindamycin during the first trimester This study aimed to explore effect of Artemether lumefantrine on malaria status in pregnant women using meta-analysis.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, ScienceDirect, and Google Scholar databases. The determination of selected articles based on eligible criteria using PICO: (1) Population= pregnant women, (2) Intervention= Artemether lumefantrine, (3) Comparison= Dihydroartemisinin-piperaquine, and (4) Outcome= malaria. Keywords used "*Artemether Lumefantrine*" or "AL" or "*Dihydroartemisinin-piperaquine*" or "malaria" and "pregnant women". The inclusion criteria were full text, randomized controlled trial, and published from 2016 to 2021. The articles were collected by PRISMA flow diagram. The selected articles were quantitatively assessed using Review Manager 5.3.
Results: A random effect model (I^2= 97%) involved 5 studies from sub-Saharan Africa, Thailand-Myanmar, and United states. This study found that Artemether lumefantrine increased recovery from malaria in pregnant women than *Dihydroartemisinin-piperaquine* (RR= 1.10; 95% CI= 1.07 to 1.13; p<0.001).
Conclusion: *Artemether lumefantrine* consumtion increases rcovery from malaria in pregnant women than *Dihydroartemisinin-piperaquine*.

Keywords: *Artemether lumefantrine*, malaria, pregnant women

Correspondence:
Siti Nur Hanifah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: sitinurhanifah21@yahoo.com. Mobile: 085204219736.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.33

Underweight and Its Correlation with the Risk of Malaria in Children Under Five at Sanggeng Health Center, West Papua

Nurtiyani Rahayu[1)], Dwi Iryani[2)], Priscilla Jessica Pihahey[2)]

[1)] Midwifery student, School of Health Polytechnics Sorong
[2)] School of Health Polytechnics Sorong

ABSTRACT

Background: Malaria is an infectious disease caused by the Plasmodium parasite that reproduces in human blood cells. Malaria can affect adults, children, toddlers, and infants. This study aimed to determine the relationship between the nutritional status of children under five and the risk of malaria infection.
Subjects and Method: A cross-sectional study was carried in Sanggeng Health Centre, West Papua in Mei 2021. A sample of 71 children under five was selected for this study by fixed-disease sampling divided into 34 children under five with control 37 children under five were not sick with malaria by having body mass index data. The dependent variable was malaria. The independent variable was nutritional status. The data were analyzed by multiple logistic regression.
Results: A total of 23 children under five (67,65%) with underweight nutritional status experienced malaria. underweight in children under five are three times more likely to have malaria than children with ideal body weight and it was statistically significant (b=3.06; 95% CI= 1.15 to 8.11; p= 0.024).
Conclusion: Underweight in children under five is positively associated with the risk of malaria.

Keywords: nutritional status, underweight, malaria, children under five

Correspondence:
Nurtiani Rahayu. Midwifery student, School of Health Polytechnics Sorong. Jl. Slamet Riyadi Kampung Ambon Atas. Email: nurtiani56@gmail.co. Mobile: +6281245957527

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.34

IMPLEMENTATION OF MATERNAL AND NEONATAL ELIMINATION PROGRAM AT BANJARMASIN HEALTH CENTER, SOUTH BORNEO, INDONESIA

Susanti Suhartati, Lisda Handayani

Professional Education for Midwives, Faculty of Health, Sari Mulia University

ABSTRACT

Background: Increasing tetanus toxoid (TT) coverage with the implementation of the Maternal and Neonatal Tetanus Elimination (MNTE) program was intended to prevent tetanus in women and infants. All Health Centers implement the MNTE program as the first service for the implementation of TT. This study aimed to describe the causes of low TT coverage at Community Health Center in Banjarmasin and the obstacles in implementing the Maternal and Neonatal Tetanus Elimination (MNTE) program.
Subjects and Method: This was a descriptive study with cross-sectional design conducted in Banjarmasin Health Center, South Borneo, from February to August 2021. A total of 150 pregnant women and 25 midwives were selected for this study by accidental sampling. Data were collected by questionnaire and analyzed descriptively.
Results: A total of 28 (18.7%) pregnant women never received TT immunization, 6 pregnant women (4%) with TT 4 status, and 54 pregnant women (36%) pregnant women with TT 1 status. A total of 78 pregnant women (52%) had poor knowledge of TT immunization. 88 pregnant women (58.6%) had negative attitudes towards TT immunization, 59.4% of pregnant women stated that the role of officers was still lacking in explaining TT immunization. Documentation of immunization services was only centered on service providers, and was inaccessible or iilegible by service recipients. Low parity needed more efforts in promoting TT immunization. Lack of information and knowledge had caused negative attitudes towards immunization among pregnant women.
Conclusion: Increasing promotion efforts and media documentation are needed in optimizing MNTE services at the Banjarmasin Health Center.

Keywords: tetanus toxoid, immunization, Maternal and Neonatal Tetanus Elimination

Correspondence:
Susanti Suhartati. Professional Education for Midwives, Faculty of Health, Sari Mulia University. Jl. Pramuka 2, Banjarmasin, South Borneo, Indonesia. Email: suhartati-susanti@gmail.com. Mobile: +62 823-1238-3320

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.35

IS THE WHOQoL-BREF INSTRUMENT RELIABLE FOR MEASURING THE QUALITY OF LIFE HEALTH DURING THE COVID-19 PANDEMIC?

Windy Mariane Virenia Wariki[1)], Cicilia Pali[2)], Muhammad Awaludin[3)]

[1)]Department of Community Medicine, Faculty of Medicine
Universitas Sam Ratulangi, Manado, North Sulawesi
[2)]Department of Psychology, Faculty of Medicine, Universitas Sam Ratulangi
Manado, North Sulawesi
[3)]Department of Internal Medicine, Faculty of Medicine
Universitas Sam Ratulangi, Manado, North Sulawesi

ABSTRACT

Background: The World Health Organization Quality of Life-BREF (WHOQoL-BREF) has been used worldwide as a valid and reliable instrument to measure the quality of life on various age groups and types of disease. However, there remained a lack of information about is validity and reliability when it is used in Indonesia during COVID-19 pandemic. This study aimed to assess the reliability of the WHOQoL-BREF questionnaire as a tool to measure the quality of health life during the COVID-19 pandemic in Indonesia.
Subjects and Method: This was a cross-sectional study conducted in Tomohon, North Sulawesi, from April to October 2021. A total of 434 subjects was selected by non-probability sampling. The WHOQoL-BREF was a 26-item scale in which items were answered in five-point responses, ranging from 1 to 5. It contained four domains, including physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items). It also contained QOL and general health (2 items). The reliability data were analyzed by Pearson correlation and Cronbach alpha.
Results: The test instrument showed overall reliability of WHOQoL-BREF with high Cronbach alpha, including physical health, psychological health, social relationships, and environmental health, and general health domains (α=0.90; $p < 0.001$)
Conclusion: The WHOQoL-BREF shows overall reliability when it is used in Indonesia during the COVID-19 pandemic.

Keywords: quality of life, reliability, COVID-19, WHOQoL-BREF

Correspondence:
Windy Mariane Virenia Wariki. Department of Community Medicine, Faculty of Medicine Universitas Sam Ratulangi. Jl. Kampus Bahu, Manado, North Sulawesi. Email: wwariki@-unsrat.ac.id. Mobile: +6282191436307

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.36

THE ASSOCIATION BETWEEN ATTITUDE AND ADHERENCE TO TAKE ANTI-TUBERCULOSIS DRUGS IN TUBERCULOSIS PATIENTS IN KUPANG HEALTH CENTER, EAST NUSA TENGGARA

Bringiwatty Batbual[1)], Wanti[1)], Kusmiyati[1)], Jefrin Sambara[1)], Irfan[1)], Florentianus Tat[1)], Petrus Belarminus[1)], Yohan Charles[2)]

[1)]Health Polytechnics Ministry of Health, Kupang, East Nusa Tenggara
[2)]Kupang District Health Office, East Nusa Tenggara

ABSTRACT

Background: Based on data from Perdaki NTT (2021), the absolute number of TB case finding in 2018-2020 in NTT in 2018 was 7,632 cases. In 2019 there were 7,575 cases and in 2020 there were 5,126 cases. This decrease in case finding could be due to the decreased number of tracing due to the impact of COVID-19. This study aimed to determine the relationship between the attitudes of TB patients and adherence to taking antituberculosis drugs.
Subjects and Method: This was a cross-sectional study conducted at Tarus, Naibonat, and Camplong Health Centers, Kupang, East Nusa Tenggara, Indonesia, from July to October 2021. A number of 40 TB patients was selected purposively. The dependent variable was adherence to take anti-TB drugs. The independent variable was attitude. The data were collected by medical record and questionnaire. The data were analyzed by Pearson correlation.
Results: Most of TB patients had positive attitude (92.5%) and adherent to take anti-TB drugs (95.0%). Positive attitude was associated with improved adherence to take anti-TB drugs ($r= 0.56$; $p < 0.001$).
Conclusion: Positive attitude is associated with improved adherence to take anti-TB drugs.

Keywords: tuberculosis, attitude, compliance.

Correspondence:
Bringiwatty Batbual, Health Polytechnics, Ministry of Health, Kupang, East Nusa Tenggara, Jl Piet A. Tallo, Liliba, Kupang, East Nusa Tenggara. Email: wattybatbual-155@gmail.com Mobile: +6282147293150.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.37

SUNLIGHT AND HYPERBILIRUBINEMIA: A SYSTEMATIC REVIEW

Maki Zamzam[1)], Lidia Ekiq Kurniavie[2)]

[1)]Faculty of Public Health, Universitas Airlangga
[2)]Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Babies with jaundice are often treated with phototherapy lamps, which emit blue-green light that alters the bilirubin (yellow substance found naturally in the baby's blood) so that it can be more easily excreted. Sunlight emits light in a similar spectrum. This study aimed to review systematically the relative efficacy of sunlight in comparison with phototherapy unit for the reduction of bilirubin concentration in neonates with jaundice.
Subjects and Method: This was a systematic review. The research question formulated in PICO was as follows. Population: newborn baby. Intervention: sunlight with or without filtering. Comparison: phototherapy. Outcome: bilirubin concentration. The primary study articles between 2016-2020 were searched from databases including PubMed, Wiley, Science Direct, and Cochrane. The inclusion criteria was research articles published full-text in English. The keywords were "sunlight" and "hyperbilirubinemia". The data were reported systematically using PRISMA.
Results: A total of 5 research articles from USA, Africa, and India met the inclusion criteria and included in this review. Sunlight with or without filtering was more effective than a phototherapy unit to reduce bilirubin concentration in neonates with jaundice.
Conclusion: Sunlight with or without filtering is more effective than a phototherapy unit to reduce bilirubin concentration in neonates with jaundice.

Keywords: sunlight, hyperbilirubinemia.

Correspondence:
Maki Zamzam. Univeristas Airlangga. Surabaya, East Java, Indonesia. Email: makizz47-7@gmail.com. Mobile: +6285852540575.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.38

A LITERATURE REVIEW OF HOUSEHOLD-LEVEL RISK FACTORS FOR DIARRHEA AND UPPER RESPIRATORY INFECTION IN INDONESIA

Tities Puspita[1)], Aparna Lal[2)]

[1)]Center for Health Research and Development of Public Health Effort, National Institute of Health Research and Development, Jakarta, Indonesia
[2)]School of Population Health Research, The Australian National University, Canberra, Australia

ABSTRACT

Background: Globally, diarrhea and respiratory infection are major causes of morbidity and mortality, especially in the under-fives. Household physical environment is a known risk factor for both diseases. However, a review of the published literature reporting this link in Indonesia is limited. This study aimed to synthesize and review evidences related to household physical environmental risk factors for diarrhea and upper respiratory infection in Indonesia.
Subjects and Methods: Literature in English and in Indonesian was collected from PubMed and Google Scholar. The searching inclusion criteria had been set to yield articles from five nationally accredited and peer-reviewed health journals by the National Institute for Health Research and Development, the Indonesian Ministry of Health. Specific search terms were used without date restrictions during the literature search in 2017.
Results: The final review included eleven journal articles from 1994 to 2016 with cohort, case-control, and cross-sectional designs. The national survey data were analyzed in the majority of the studies. Bivariate and/or multivariate were the method of analysis. Seven studies reported the relationship of household physical characteristics with diarrhea, sanitation, in-house density, and drinking water-related factors. Four articles discussed the associations of indoor air pollution, animal corral, floor type, and the unhealthy indoor environment with an upper respiratory infection.
Conclusions: Risk factors for diarrhea are sanitation, housing density and factors related to drinking water. Risk factors for upper respiratory tract infection are indoor air pollution, animal cages, type of floor and unhealthy indoor environment.

Keywords: household, diarrhea, respiratory infection, physical environment, Indonesia

Correspondence:
Tities Puspita. Centre of Health Research and Development for Public Health Efforts, National Institute of Health Research and Development, Jakarta, Indonesia. Email: tiespuspita@gmail.com. Mobile: +6281283774865.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.39

APPLICATION OF SYNDEMICS THEORY IN UNDERSTANDING HEALTH AND ECONOMIC IMPACTS OF GLOBAL PANDEMIC FOR THERAPISTS IN MASSAGE PARLORS

Yulsy Agatha

Occupational Health and Safety, Faculty of Public Health,
Universitas Esa Unggul, Jakarta

ABSTRACT

Background: Syndemic or pandemic synergy refers the impact of a pandemic on more than one aspect of human life. One aspect affected by the COVID-19 pandemic is entrepreneurship, especially massage services because its business activities are closely related to physical contact between therapists and customers. This study aimed to analyze the health and economic impacts of COVID-19 pandemic experienced by therapists at massage parlors.
Subjects and Method: A cross-sectional study was conducted in Tangerang, Banten, Indonesia. A sample of 75 massage therapists was selected for this study. The dependent variables were health (length of absence from work due to illness) and economic (amount of income/month). The independent variable was the COVID-19 pandemic. The data were collected by questionnaire. Data were analyzed using the Wilcoxon test.
Results: There were difference of health and economic condition before and during the COVID-19 pandemic ($p < 0.001$). The average day off work due to illness before the COVID-19 pandemic was 2 days, with the highest cause was low back pain (40.0%). The average day off work due to illness during the COVID-19 pandemic was 14 days, with the highest cause was COVID-19 infection (60.0%). The average income during the COVID-19 pandemic (Mean= IDR 1,800,000) was lower than before the COVID-19 pandemic (Mean = IDR 3,000,000).
Conclusion: COVID-19 pandemic has health and economic impacts in massage therapists.

Keywords: syndemic, occupational health, massage therapist.

Correspondence:
Yulsy Agatha. Universitas Esa Unggul. Jl. Arjuna Utara 9, Jakarta, Indonesia. Email: yulsy.email@gmail.com. Mobile: +6282111192989.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.40

INVESTIGATION OF FOOD POISONING OUTBREAK FROM FACTORY-PROVIDED LUNCH CATERING

Arik Iskandar, Nur Hayati

Master of Public Health Program, Faculty of Public Health,
Universitas Gadjah Mada, Yogyakarta

ABSTRACT

Background: On January 9, 2021, Tegalrejo Community Health Center reported suspect food poisoning. It is postulated that the food poisoning stem from gastro-intestinal illness resulting from the consumption of lunch provided by factory. This study aimed to investigate the presence of an outbreak and to determine the source and mode of transmission.
Subjects and Method: This was a case-control study conducted with 1:2 case-control ratio. A total sample of 167 was selected. Cases were those who consumed lunch from catering on January 8, 2021 and experienced symptoms such as diarrhea, nausea, and stomach ache on January 8-9, 2021. Likewise, controls were those who consumed lunch from catering on January 8, 2021 but had no symptoms. Data was collected through interviews using questionnaires and google forms. Food handlers were interviewed for environmental investigation. Attack rate (AR) was used to describe the risk of poisoning. Odds ratio was used to estimate food with the highest risk for poisoning. Food samples were sent to a laboratory in Yogyakarta.
Results: 53 people were found ill (AR= 31.7%; n=167). Out of the 53 people who were ill, 98.1% experienced diarrhea and 28.3% had stomach ache. The average incubation time was 12 hours, with a minimum of 4 hours and maximum of 19 hours 35 minutes. Vegetable fritter was suspected to be the source of poisoning (OR=2.17; 95% CI= 1.00 to 4.73; p= 0.049). *Bacillus cereus* was found in the vegetable fritter. Lack of hygiene in the kitchen, improper food handling and storage, might have facilitated contamination and spore growth. Investigation results were reported to the public health official to prevent polemic within the community.
Conclusion: The food poisoning outbreak in a factory was caused by Bacillus cereus in the vegetable fritter. The caterer needs to implement standard health and safety food handling and procedure, and the district health office should provide training on these to ensure safe food for the community.

Keywords: food poisoning, bacillus cereus, vegetable fritter.

Correspondence:
Arik Iskandar. Master of Public Health Program, Faculty of Public Health, Universitas Gadjah Mada, Yogyakarta. Jl. Farmako, Senolowo, Sekip Utara, Depok, Sleman, Yogyakarta 55281Email: arikiskandar24@gmail.com. Mobile: 082325044859.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.41

DOES HEALTH WORKER SUPPORT IMPROVE TREATMENT ADHERENCE IN TUBERCULOSIS PATIENTS DURING THE COVID-19 PANDEMIC?: A SYSTEMATIC REVIEW

Ni Nyoman Elfiyunai, Nursalam

Faculty Of Nursing Sciences, Universitas Airlangga, Indonesia

ABSTRACT

Background: Tuberculosis is one of the ten leading causes of death in the world. The duration of TB treatment is 6 to 8 months which requires discipline and social support. Health workers need support to provide motivation, health information, and follow-up of TB treatment during the COVID-19 pandemic to help improve TB treatment adherence. One form of support is through communication tools using the telephone or SMS reminder messages. This study aimed to provide an overview of whether social support from health workers by telephone can help to improve treatment adherence of TB patients during the COVID-19 pandemic.
Subjects and method: This study was a systematic review conducted by using three electronic databases, including Scopus, PubMed, and Science Direct. The dependent variable was TB patient medication adherence. The independent variable was social support from health workers by telephone. The keywords used were "Tuberculosis" AND "Health Workers" AND "Message Reminder" AND "Medication Adherence". The iclusion criteria were full-text articles written in English, published between 2015 and 2021. The selection of articles used PRISMA flow diagram. The total of 235 articles were identified.
Results: A total of six articles from Northwest Ethiopia, Cameroon, Anhui Province of China, Rural Uganda, India, Africa, and Pakistan was selected for this study. The social support provided by health workers using cell phones can help to motivate TB patients for treatment adherence, especially for the patients without having someone for reminder or the patient is far from family. The support of health workers using mobile phones can also help to reduce the spread of COVID-19 between health workers and patients during the pandemic time.
Conclusion: Social support from health workers using the telephone is quite effective to increase the patient compliance in treatment during the COVID-19 pandemic. It can reduce the rate of dropouts and forgetness of taking medication, and can increase the patient awareness about the importance of maintaining health during the COVID-19 pandemic.

Keywords: tuberculosis, social support, health worker, COVID-19, telephone

Corresponding:
Ni Nyoman Elfiyunai. Faculty Of Nursing Sciences, Universitas Airlangga, Indonesia. Jl. Otto Iskandar Dinata 76C, East Besusu, East Palu 94111, Central Sulawesi, Indonesia. Email: ni.nyoman.elfiyunai-2020@fkp.unair.ac.id. Mobile: 085241230800.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.42

POPULATION ATTRIBUTABLE FRACTION AND PREDICTORS OF TYPE 2 DIABETES MELLITUS INCIDENCE IN ADULT POPULATION IN BOGOR, WEST JAVA

Woro Riyadina[1)], Ekowati Rahajeng[1)], Iwan Ariawan[2)], Pradana Soewondo[3)]

[1)]National Institute of Health Research and Development, Ministry of Health Republic Indonesia
[2)]Faculty of Public Health, Universitas Indonesia
[3)]Endocrine Department, Faculty of Medicine, Universitas Indonesia

ABSTRACT

Background: In Indonesia, the incidence rate of type 2 Diabetes Mellitus (T2DM) was higher than other non-communicable diseases. As such the disease needs the best intervention. This study aimed to estimate Population Attributable Fraction (PAF) and predictors in adults.
Subjects and Method: This retrospective cohort study was conducted from 2012 until 2018 in five Districts, Bogor City, West Java. An adult population of 4,074 subjects aged ≥25 years was selected. The dependent variable was T2DM incidence. The independent variables included hypertension, obesity, and triglyceride levels. The dependent and independent variables were measured by physical examination and laboratory tests. The data were analyzed using Hazard Ratio and Cox proportional hazard model.
Results: PAF of obesity was 34.27%, so it was able to reduce 607 T2DM cases. PAF of obesity and hypertension was 47.12%, so it was able to reduce 835 T2DM cases. PAF of obesity, hypertension, and triglyceride levels altogether was 56.1%, so it was able to reduce 995 T2DM cases. Predictors of T2DM included hypertension (HR= 1.54; 95% CI= 1.27 to 1.86; p= 0.001), obesity (HR= 2.00; 95% CI= 1.62 to 2.48; p<0.001), and triglyceride levels (HR= 1.86; 95% CI= 1.53 to 2.26; p= 0.001).
Conclusion: Obesity, hypertension, and triglyceride levels are predictors of T2DM in adults. Primary prevention of T2DM incidence should be targeted to reducing obesity, hypertension, and triglyceride levels.

Keywords: population attributable fraction, predictors, T2DM, adults.

Correspondence:
Woro Riyadina. National Institute of Health Research and Development, Ministry of Health, Indonesia. Jl. Percetakan Negara 29, Central Jakarta. Email: w.riyadina02@gmail.com. Mobile: 081297673074.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.43

DETERMINANTS OF HEARING LOSS IN WORKERS AT PRODUCTION UNIT OF A FACTORY

Decy Situngkir, Mia Mutingah

Universitas Esa Unggul, Jakarta, Indonesia

ABSTRACT

Background: Occupational hearing loss is the most common work-related illnesses globally. Based on the results of the audiometric test at a factory, as many as 139 out of 826 workers in production unit had hearing loss. This study aimed to determine factors associated with hearing loss in workers.
Subjects and Method: This was a cross-sectional study conducted at a factory in Jakarta, from March to July 2018. A sample of 51 workers who worked in production unit was selected for this study using stratified random sampling. The dependent variable was hearing loss. The independent variables were age, length of work, and personal protection equipment (PPE) use. Hearing loss was measured by audiometry examination, which information was obtained from the medical record. The data for independent variables were collected using observational sheet and a set of questionnaires. Bivariate data analysis was performed by chi-square, with prevalence ratio (PR) as the measure of association.
Results: The risk of hearing loss in workers from production unit at a factory increased with older age (PR= 1.83; 95% CI= 1.07 to 3.12; p= 0.025), longer work (PR= 2.20; 95% CI= 1.16 to 4.18; p= 0.009), and poor PPE use (PR= 2.60; 95% CI = 1.20 to 6.20; p= 0.012)
Conclusion: The risk of hearing loss in workers from production unit at a factory increases with older age, longer work, and poor PPE use.

Keywords: hearing loss, age, PPE, length of work, workers

Correspondence:
Decy Situngkir. Universitas Esa Unggul. Jl. Arjuna Utara 9, Kebun Jeruk, Jakarta Barat. Email: decy.situngkir@esaunggul.ac.id. Mobile: 08983697021

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.44

THE ASSOCIATION BETWEEN ANXIETY AND COPING STRATEGY IN GENERAL INDONESIAN POPULATION DURING COVID-19 PANDEMIC

Indri Yunita Suryaputri, Tri Wuri Sastuti, Rofingatul Mubasyiroh

National Institute of Health Research and Development,
Ministry of Health, Republic of Indonesia

ABSTRACT

Background: Anxiety is a feeling of fear, worry, or unease. It can be reaction to stress, or it can occur in people who are unable to identify significant stressors in their life. Coping strategies are a set of cognitive and behavioral efforts made to interpret and correct a stressful situation and reduce its resulting suffering. The study aimed to assess the association between anxiety and coping strategies in Indonesian people during COVID-19 pandemic.
Subjects and Method: This was a cross-sectional study conducted online with population across Indonesia in May 2020. A sample of 2,189 people aged 15 years old or above who had smart phones was selected for this study. The dependent variable was anxiety. The independent variables were spiritual activity, exercise, recreation, and smoking/ alcohol drinking. Anxiety was measured by Generalized Anxiety Disorder (GAD-7). The data were analyzed by a multiple logistic regression.
Results: The risk of anxiety decreased with spiritual activity (OR= 0.34; 95% CI= 0.12 to 0.95; p= 0.045), doing exercise (OR= 0.27; 95% CI= 0.15 to 0.48; p< 0.001), and recreation (OR= 0.26; 95% CI= 0.15 to 0.48; p< 0.001). The risk of anxiety increased with smoking/ alcohol drinking (OR= 2.17; 95% CI= 1.04 to 4.52; p= 0.039).
Conclusion: The risk of anxiety decreases with spiritual activity, doing exercise, and recreation during COVID-19 pandemic, but increases with smoking/ alcohol drinking.

Keywords: anxiety, coping strategy, exercise, COVID-19 pandemic

Correspondence:
Indri Yunita Suryaputri. National Institute of Health Research and Development, Ministry of Health, Republic of Indonesia. Jl. Percetakan Negara 29, Jakarta, Indonesia. Email: indri.ysp@gmail.com. Mobile: +62 81316865446.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.45

THE ASSOCIATION BETWEEN ADAPTABILITY AND ANXIETY AMONG HOSPITAL NURSES DURING COVID-19 PANDEMIC

Lydia Moji Lautan, Elisabeth Wahyu Savitri

Nursing Academics Dharma Insan, Pontianak, West Kalimantan

ABSTRACT

Background: Adaptability means the ability to be flexible and adjust to changing factors, conditions or environments. Being adaptable is highly valued in almost all workplaces, since every industry and business can be unpredictable. While stress might be an inevitable part of life for most, there are numerous ways to adapt. Stress crumbles in the face of those who choose to look at it more positive, which is why adaptability is key. Anxiety is a feeling of fear, worry, or unease. It can be reaction to stress, or it can occur in people who are unable to identify significant stressors in their life. The study aimed to determine the association between adaptability and anxiety among hospital nurses during COVID-19 pandemic.
Subjects and Method: This was a cross-sectional study conducted in Pontianak hospital, West Kalimantan, Indonesia, from May to July 2021. A sample of 129 nurses was selected for this study. The dependent variable was anxiety. The independent variable was the adaptability to new situation. Stress and anxiety were measured by Depression Anxiety Stress Scales (DASS). The data were analyzed by odds ratio and Chi-square.
Results: Adaptability to a new situation was associated with lower level of anxiety among hospital nurses (OR= 0.04; 95% CI= 0.02 to 0.09; p= 0.008).
Conclusion: Adaptability to a new situation is associated with lower level of anxiety among hospital nurses during COVID-19 pandemic.

Keywords: anxiety, adaptability, new situation, COVID-19, hospital nurses

Correspondence:
Lydia Moji Lautan. Nursing Academics Dharma Insan. Jl. Merdeka 55 Pontianak, West Kalimantan. Email: lydiamojilautan@akperdharmainsan.ac.id. Mobile: +62852819-00080.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.46

IMPLEMENTATION OF RESTORING EFFECTIVE SLEEP TRANQUILITY (REST) ON SLEEP QUALITY AND RESTORATION OF MOTOR ABILITY IN POST-STROKE PATIENTS

Hendri Kurniawan, Roh Hastuti

Department of Occupational Therapy, Health Polytechnics, Ministry of Health, Surakarta

ABSTRACT

Background: The majority of post-stroke patients experience sleep disturbances and is thought to be the cause of fatigue, emotional, and cognitive (memory) disturbances. This situation affects the patient's participation in the rehabilitation program so that it has an impact on the process of neuronal plasticity and motor recovery. Restoring Effective Sleep Tranquility (REST) is an occupational therapy intervention program based on cognitive behavioral therapy to treat sleep disorders. The purpose of this study was to examine the effect of restoring effective sleep tranquility (REST) on sleep quality and motor skills of post-stroke patients in a neurorehabilitation program.
Subjects and Method: This was a quasi-experimental pre-test & post-test with control design conducted at the Mandiri Center and Neurorehabilitation Clinic, Jakarta, from July to September 2019. A sample of 40 post stroke patients was selected at random and were divided into treatment groups (20 people) and control (20 people). The dependent variables were sleep quality and motor skills. The independent variable was REST. The data of sleep quality was measured by Pittsburg Sleep Quality Index (PSQI) and Modified Motor Assessment Scale (MMAS). The data were analyzed by paired t test and Mann Whitney.
Results: The majority of the samples were male (60%), stroke onset >2 years (52.5%), and had sleep disturbances (100%). In the treatment group, the mean of PSQI and MMAS scores before intervention was Mean= 9.55; SD= 2.58 and Mean= 7.90; SD= 2.47, and that in after intervention was Mean= 19.60; SD= 1.03 and Mean= 25.65; SD= 1.09. In the control group, the mean of PSQI and MMAS scores before intervention was Mean= 9.40; SD= 1.69 and Mean= 8.65; SD= 1.59, and that in after intervention was Mean= 19.95; SD= 1.20 and Mean= 23.80, SD= 1.25. Those mean differences were statistically significantly ($p<0.050$). The mean change in PSQI (Mean= 0.75; SD= 0.55) and MMAS (Mean= 6.05; SD= 2.09) scores in the treatment group was higher than PSQI (Mean= 0.75; SD= 0.55) and MMAS (Mean= 3.85; SD= 1.35) scores in the control group. The comparative test showed a significant difference (p= 0.001) in changes in PSQI and MMAS scores between the treatment and control groups.
Conclusion. REST has a significant effect on improving sleep quality and restoring motor skills in post-stroke patients.

Keywords: stroke, restoring effective sleep tranquility, neurorehabilitation

Correspondence:
Hendri Kurniawan. Department of Occupational Therapy, Health Polytechnics, Ministry of Health Surakarta. Jl. Capt. Adisoemarmo, Karanganyar 57173, Central Java. Email: kurnia_hyckle@yahoo.co.id. Mobile: +628156753959.

https://doi.org/10.26911/AB.Epidemiology.ICPH.08.2021.47

TOPIC II :
HEALTH PROMOTION AND BEHAVIOR

PATH ANALYSIS ON THE EFFECT OF BULLYING ON ANXIETY AND SOCIAL INTERACTION DISORDER AMONG SENIOR HIGH SCHOOL STUDENTS IN YOGYAKARTA

Hainas Sani Privetera[1)], Soemanto[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Social and Political Sciences, Universitas Sebelas Maret
[3)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: It has been knew that the high category of psychological violence was excommunication, verbal violence (*bullying*), and physical violence. Previous studies showed that bullying can make teens will feel anxious and frightened, it also affecting concentration in learning and lead them to avoid school. This study aimed to evaluate the effect of bullying on anxiety and social interaction disorder among senior high school using path analysis model.
Subjects and Method: A cross sectional study was carried out in Sleman, Yogyakarta, in August 2019. A sample of 200 senior high school students was selected by stratified random sampling. The dependent variables were bullying and anxiety. The independent variables were parental education, residence, social media, self concept, and social interaction disorder. The data were collected by questionnaire and analyzed by path analysis run on Stata 13.
Results: The risk of bullying in adolescents increased with parental education <Senior high school (b= 3.50; 95% CI= 0.88 to 3.12; p< 0.001), urban area (b= 3.28; 95% CI= 0.75 to 2.99; p= 0.001), active in social media (b= 4.40; 95% CI= 1.37 to 3.50; p< 0.001), negative self concept (b= 3.05; 95% CI= 0.63 to 2.92; p= 0.002), and social interaction disorder (b= 3.62; 95% CI= 0.91 to 3.05; p<0.001). Anxiety in adolescents increased with bullying (b= 3.11; 95% CI= 0.64 to 2.84; p= 0.002).
Conclusion: The risk of bullying in adolescents increases with parental education <Senior high school, urban area, active in social media, negative self concept, and social interaction disorder. Anxiety in adolescents increases with bullying.

Keywords: bullying, self concept, social interaction disorder

Correspondence:
Hainas Sani Privetera. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: sariprivitera@gmail.com. Mobile: +6281263333609.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.01

INDIVIDUAL FACTORS AND CONTEXTUAL EFFECTS OF PEER GROUP ON SMOKING BEHAVIOR AMONG THE HIGH SCHOOL STUDENTS IN EAST LAMPUNG, LAMPUNG: A MULTILEVEL ANALYSIS EVIDENCE

Retno Sulistiani[1)], Setyo Sri Rahardjo[2)], Pawito[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret
[3)]Faculty of Social and Political Sciences, Universitas Sebelas Maret

ABSTRACT

Background: Cigarettes contain 4,000 chemicals with 200 types of which are carcinogenic and can cause cancer and even death. The data from the Central Statistics Agency in 2018, prevalence of smoking behavior in Lampung Province were 35.95%. This study aimed to analyze the determinants of smoking behavior in male adolescents.
Subjects and Method: This was a cross sectional study. The study was conducted in East Lampung, Sumatera, Indonesia, from Oktober to November 2020. A sample of 200 male adolescents was selected by simple random sampling. The dependent variable was smoking behavior. The independent variables were parental influence, peers, media exposure, pocket money, cigarette price, intention, and attitude, and school. The data were collected by questionnaire and analyzed by a multiple multilevel logistic regression run on Stata 13.
Results: Family influence (b= 2.88; 95% CI= 0.73 to 3.85; p= 0.004), peers (b= 2.85; 95% CI= 0.65 to 3.52; p= 0.004), media exposure toward cigarette (b= 3.04; 95% CI= 0.78 to 3.62; p= 0.002), high pocket money (b= 3.22; 95% CI= 0.87 to 3.59; p= 0.001), cigarette price (b= 2.73; 95% CI= 0.54 to 3.28; p= 0.006), strong intention to smoke (b= 2.80; 95% CI= 0.69 to 3.95; p= 0.005), and positive attitude on smoking (b=3.83; 95% CI= 1.80 to 5.58; p<0.001) increased smoking behavior in male adolescents School had contextual effect on smoking behavior in adolescents (ICC= 21.83%).
Conclusion: Family influence, peers, media exposure toward cigarette, high pocket money, cigarette price, strong intention to smoke, and positive attitude on smoking increase smoking behavior in male adolescents School had contextual effect on smoking behavior.

Keywords: smoking behavior, male adolescents, school

Correspondence:
Retno Sulistiani. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: retnosulistiani91@gmail.com. Mobile: +6285867006699.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.02

EDUTAINMENT TO INCREASE KNOWLEDGE, ATTITUDE, AND BEHAVIOR TOWARD SELF-CARE IN PREGNANT WOMEN

Shalsabilla Tiara Firdausia[1)], Uki Retno Budihastuti[1)], Yulia Lanti Retno Dewi[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Obstetrics and Gynecology, Dr. Moewardi Hospital
[3)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Playing or studying in a pleasant atmosphere is an important factor in education. Through edutainment, pregnant women can facilitate understanding and be able to influence and motivate people's behavior. Learning with the Edutainment method should be able to provide positive benefits to pregnant women in order to make learning right on target not only cognitive but also affective. Health promotion with a learning method called Edutainment which is expected to provide new solutions in the process of providing education to pregnant women. This study aimed to test edutainment versus conventional health education method to improve maternal knowledge, attitude, and behavior toward self-care.
Subjects and Method: This was a pretest-postest control group experimental study with a randomized controlled trial. The study was conducted at Banguntapan I community health center. A sample of 100 pregnant women in experiment group and 100 pregnant women in control group was selected randomly. Pregnant women in experiment group received edutainment method and control group received conventional health education method. The dependent variables were knowledge, attitude, and behavior. The independent variable was edutainment method. The data were collected by questionnaire and analyzed by mean different test run on Stata 13.
Results: Knowledge toward self care in pregnant women after received edutainment (Mean= 40.54; SD= 2.18) was higher than those who received conventional method (Mean= 39.32; SD= 2.26), and it was statistically significant (p<0.001). Maternal attitude toward self-care after received edutainment (Mean= 44.15; SD= 1.40) was higher than before (Mean= 42.28; SD= 2.87), and it was statistically significant (p< 0.001). Maternal behavior on self-care after received edutainment (Mean= 45.53; SD= 0.74) was higher before (Mean= 42.57; SD= 2.58), and it was statistically significant (p< 0.001).
Conclusion: Edutainment is effective to improve education, attitude and behavior toward self-care in pregnant women.

Keywords: edutainment, self-care, edutainment

Correspondence:
Shalsabilla Tiara Firdausia. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta, Central Java, Indonesia. Email: shalsabillatiarafitdausia@gmail.com. Mobile: 08222363555.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.03

SOCIAL COGNITIVE THEORY: IMITATION AS A PREDICTOR FOR THE ADHERENCE TO PAY HEALTH INSURANCE PREMIUM

Nazilla Ade Nurlia[1)], Bhisma Murti[1)], Didik Gunawan Tamtomo[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Health insurance offers health care coverage to household members if all of them have paid their respective contributions, with the exception of any member insured under other medical insurance schemes. Membership is effective when each household member has, personally or through a third party, paid the required contribution regularly. This study aimed to examine the imitation as a predictor for the adherence to pay health insurance premium using social cognitive theory.
Subjects and Method: A cross sectional study was conducted at 31 sub-districts in Jember, East Java, from July to September 2020. A sample of 200 national health insurance was selected randomly. The dependent variable was adherence to pay health insurance premium. The independent variables were willingness to pay, imitation to reference group, and number of family member. The data were collected by questionnaire and analyzed using a multiple logistic regression.
Results: Adherence to pay was positively affected by willingness to pay (b= 4.19; 95% CI= 2.19 to 8.04; p<0.001), imitation of reference group (b= 2.59; 95% CI= 1.39 to 4.85; p=0.003), and number of family member (b= 1.90; 95% CI= 1.02 to 3.56; p= 0.044).
Conclusion: Adherence to pay is positively affected by willingness to pay, imitation of reference group, and number of family member.

Keywords: Adherence to pay, willingness to pay, imitation, social cognitive theory

Correspondence:
Nazilla Ade Nurlia. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: nazillaade29@gmail.com. Mobile: +6281230004195.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.04

THE EFFECTIVENESS OF CONSTRAINT-INDUCED MOVEMENT THERAPY TO IMPROVE FUNCTIONAL ABILITY OF HANDS IN CHILDREN WITH UNILATERAL CEREBRAL PALSY: A META-ANALYSIS

Mutiana Agustin Sholikah[1)], Agus Kristiyanto[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Sport Education, Universitas Sebelas Maret
[3)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Constraint-induced movement therapy is an intervention designed to improve the upper-limb function. It is performed for individuals who experience functional loss in their impaired limb, such as stroke, cerebral palsy, traumatic brain injury, and multiple sclerosis. This study aimed to examine the effectiveness of constraint-induced movement therapy to improve functional ability of hands in children with unilateral cerebral palsy.
Subjects and Method: A systematic review and meta analysis study was conducted by collecting articles from Science Direct, AJOT, PubMed, Google Scholar, and Springer Link databases, with a range of publication years from 2010 to 2020. Keywords used "constraint-induced movement therapy", "hand function", "cerebral palsy", "constraint-induced movement therapy" AND "hand function", "constraint-induced movement therapy" AND "cerebral palsy". The inclusion criteria for this study were randomized control trial (RCT). Quantitative synthesis data was assessed using Review Manager 5.3 (RevMan 5.3) software.
Results: A total of 16 studies were included for meta-analysis. The results of meta analysis showed that CIMT improved hands functional ability in children with unilateral cerebral palsy (SMD= 0.45; 95% CI= 0.11 to 0.80; p= 0.01).
Conclusion: CIMT can improve hands functional ability in children with unilateral cerebral palsy.

Keywords: constraint-induced movement therapy, hands functional ability, unilateral cerabral palsy, meta analysis

Correspondence:
Mutiana Agustin Sholikah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: mutiana.ash@gmail.-com. Mobile: 081215038686.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.05

THE ASSOCIATION OF CLEAN AND HEALTHY BEHAVIOR ON NUTRITIONAL STATUS IN CHILDREN UNDER FIVE IN WANGAPU, EAST SUMBA, EAST NUSA TENGGARA

Stevani Rambu Kudu[1)], Yulia Lanti Retno Dewi[2)], Setyo Sri Rahardjo[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Studies hyphotesized the correlation between infections and fecal pathogens in the etiology of stunting. It indicates that clean and healthy behavior, clean drinking water, sanitation facilities that hygienically separate feces from human contact, and appropriate hygiene behaviors, such as handwashing with soap can reduce exposures to harmful enteric pathogens of human. Poor sanitation and unhealthy behavior can lead to environmental enteric dysfunction, a chronic condition that reduces intestinal nutrient absorption.
Subjects and Method: A cross sectional study was carried out at community health center in Waingapu, East Sumba, East Nusa Tenggara, Indonesia, in April 2021. A sample of 200 mothers with their children was selected randomly. The dependent variable was child nutritional status. The independent variable was clean and healthy behavior. The data were collected by questionnaire and analyzed by a simple logistic regression.
Results: Clean and healthy behavior increased child nutritional status 5.50 times than those with poor clean and healthy behavior (OR= 5.50; 95% CI= 1.19 to 25.43; p= 0.029).
Conclusion: Clean and healthy behavior increases child nutritional status.

Keywords: clean and healthy behavior, nutritional status

Correspondence:
Stevani Rambu Kudu. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Stevanir09@student.uns.ac.id. Mobile: 08222643161.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.06

META-ANALYSIS: ASSOCIATION BETWEEN SOCIAL SUPPORT AND THE ADHERENCE TO ANTIRETROVIRAL THERAPY IN ADULTS PATIENTS WITH HIV/AIDS

Musta'inul Habibi[1)], Setyo Sri Rahardjo[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: HIV/AIDS is a international health issue due to its high incidence. HIV infection is strongly marked by stigma, prejudice and rejection by society, which can lead to social and family isolation, and consequent undermining of social networks and health monitoring. The absence of social support has been associated with negative effects on psychological and physical well-being in people lovong with HIV/AIDS, such as depression, lower self-esteem, inadherent to therapy or medical treatment, and progression to the final stage of the disease. This study aimed to investigate the association between social support and the adherence to antiretroviral therapy in adults with HIV/AIDS.
Subjects and Method: This was a systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, PubMed, Springer Link, Clinical key, and ProQuest databases. Keywords used "Social Support or family support and adherence antiretroviral". The inclusion criteria were full text, articles were published from year 2020 to 2021, cross-sectional studies, used English language, and reported adjusted Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: A meta-analysis from 9 observational study reported that strong social support increased adherence to antiretroviral therapy 1.4 times than patients with low social support (aOR= 1.46; 95% CI= 1.08 to 1.97; p= 0.010).
Conclusion: Strong social support increases adherence to antiretroviral therapy 1.4 times than patients with low social support.

Keywords: adherence, antiretroviral therapy, HIV/AIDS, social support

Correspondence:
Musta'inul Habibi. Masters Program in Public Health, Universitas Sebelas Maret. Jl .Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Mustainul87@gmail.com. Mobile: 085649959811

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.07

EFFECT OF AEROBIC EXERCISE ON BLOOD PRESSURE IN PATIENTS WITH HYPERTENSION: A META-ANALYSIS

Khairunissa[1)], Didik Gunawan Tamtomo[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret
[3)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: In recent years there has been increasing evidence that aerobic exercise is associated with blood pressure. Regular physical exercise reduces blood pressure and is broadly recommended by World Health Organization. A systematic review and meta-analysis was conducted to explore the effect of aerobic exercise on blood pressure in patients with hypertension.
Subjects and Method: A systematic review and meta analysis study was conducted by collecting articles from PubMed, Science Direct, Research Gate, and Google Scholar databases, that published from 2010 to 2020. Keywords used "aerobic exercise" OR "aerobic training" AND "blood pressure" AND hypertension OR hypertensive OR "patients with hypertension" AND "randomized controlled trial". Quantitative study was analyzed using Review Manager 5.3 (RevMan 5.3) software.
Results: A meta analysis from 11 randomized control trial (RCT) studies showed that aerobic exercise reduced systolic blood pressure (SMD= -0.93; 95% CI= -1.33 to -0.53; $p<0.001$) and diastolic blood pressure (SMD= -0.56; 95% CI= -0.92 to -0.20; $p = 0.002$).
Conclusion: Aerobic exercise reduces blood pressure in hypertensive patients.

Keywords: Aerobic exercise, blood pressure, hypertension, meta analysis

Correspondence:
Khairunissa. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: khairunissahabibi02@gmail.com Mobile: 081779226622.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.08

META ANALYSIS THE EFFECT OF SCHOOL BASED INTERVENTION TOWARD PHYSICAL ACTIVITY ON BODY MASS INDEX

Wulandari[1)], Yulia Lanti Retno Dewi[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Nutrition, Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: The lack of physical activity and increasing time spent in sedentary behavior during childhood place importance on developing low cost and easy to implement interventions to increase physical activity in children. Researchers have identified schools as a strategic place to promote physical activity. The purpose of this study was to investigate the effect of school based intervention toward physical activity on body mass index among high school students.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, ScienceDirect, and Google Scholar databases. The determination of selected articles based on eligible criteria using PICO: (1) Population= high school students with obesity, (2) Intervention= school based intervention for physical activity, (3) Comparison= no intervention, and (4) Outcome= body mass index. Keywords used "School- based intervention" AND"Physical activity" "AND "Obesity " AND "BMI" OR "Body Mass Index" AND "Randomized Controlled Trial". The inclusion criteria were full text and randomized controlled trial study. The articles were collected by PRISMA flow diagram. The selected articles were quantitatively assessed using Review Manager 5.3
Results: There were 8 studies included for meta-analysis. This study showed that school based intervention for physical activity lowered body mass index (Standardized Mean Difference= -0.22; 95% CI= -0.45 to 0.0 p= 0.005). Funnel plot did not show bias publication.
Conclusion: School based intervention for physical activity lowers body mass index.

Keywords: school based intervention, physical activity, obesity, body mass index.

Correspondence:
Wulandari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Wulan074@gmail.com.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.09

META-ANALYSIS THE EFFECT OF SEXUAL EDUCATION USING SCHOOL BASED INTERVENTION ON THE RISK OF PREGNANCY IN ADOLESCENTS

Jatu Kartika Akmala[1)], Eti Poncorini Pamungkasari[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Public Health, Faculty of Medicine, Universitas Sebelas Maret
[3)]Health Polytechnics, Minsitry of Health Surakarta

ABSTRACT

Background: Sexually active young people are at high risk of HIV infection. School-based sexual and reproductive health programmes are widely accepted as an approach to reducing high-risk sexual behavior in adolescents. This study was conducted to evaluate the effects of school-based intervention on the risk of pregnancy in adolescents.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, Science Direct, BMJ, and Google Scholar databases. The determination of selected articles based on eligible criteria using PICO: (1) Population= adolescents, (2) Intervention= school based sexual education, (3) Comparison= non school based sexual education, and (4) Outcome= unintended pregnancy. Keywords used “school-based sexual education" OR "school-based sex education" AND "unwanted pregnancy" OR "unintended pregnancy" AND adolescent AND "randomized controlled trial". The inclusion criteria were full text and randomized controlled trial study. The articles were collected by PRISMA flow diagram. The selected articles were quantitatively examined by Review Manager 5.3
Results: 9 studies involving from Malawi, Zimbabwe, South Africa, United States, United Kingdom, Scotland, and Ghana showed that school-based sexual education improved unintended pregnancy in adolescents (OR= 1.04; 95% CI= 0.95 to 1.13; p= 0.42).
Conclusion: School-based sexual education improves unintended pregnancy in adolescents.

Keywords: school-based sexual education, unintended pregnancy, adolescents

Correspondence:
Jatu Kartika Akmala. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: jatu.kartika@student.uns.ac.id.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.10

EFFECT OF RESIDENCE ON KNOWLEDGE TOWARD COVID-19 PANDEMIC IN THE GENERAL POPULATION: A META-ANALYSIS

Riyesti Hero Fresna[1)], Bhisma Murti[1)], Hanung Prasetya[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Lockdown measures were perceived as necessary to curb the spread of the virus as rapid human-to-human transmission occurred and much about the virus remained unknown. Due to the obscurity of this novel virus, there has been a lot of confusion and misunderstanding about the virus itself, how it can spread and the necessary precautions that should be taken to prevent infection. This becomes increasingly challenging with the vast amount of misinformation and disinformation shared on social media that is clouding people's understanding of COVID-19. This study aimed to examine the effect of residence on knowledge toward covid-19 pandemic in the general population.
Subjects and Method: A systematic review was conducted using the PubMed, ScienceDirect, and Google Scholar databases and the following search criteria: "knowledge of COVID-19" AND "residence" AND "general population", "knowledge of COVID-19" AND "residence" OR "rural and urban" AND "general population" OR "global population". Selected full text published from 2019 to 2021 were analyzed using Revman 5.3.
Results: A meta-analysis involved 10 studies. This study showed that urban people had the possibility to have good knowledge 1.85 times than rural people (aOR= 1.85; 95% CI= 1.15 to 2.97; p= 0.001).
Conclusion: Urban people have higher knowledge 1.85 times than rural people.

Keywords: knowledge of COVID-19, residence, general population

Correspondence:
Riyesti Hero Fresna. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36, Surakarta 57126, Central Java. Email: riyestiherofresna01@gmail.com. Mobile +6281227831443.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.11

ASSOCIATION BETWEEN SELF CONTROL AND PREMARITAL SEXUAL BEHAVIOR IN JUNIOR HIGH SCHOOL STUDENTS NEAR LOCALIZATION AREA

Nindita Arum Veibiani[1)], Anisa Catur Wijayanti[2)], Izzatul Arifah[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Study Program of Public Health, Faculty of Health Sciences,
Universitas Muhammadiyah Surakarta

ABSTRACT

Background: The sexual behavior of adolescents is one of the health priorities of society because of a high prevalence of HIV/AIDS, sexually transmitted infections (STIs), and unwanted pregnancies. Recently, low self-control has been associated with early sexual initiation and with risky sexual behaviors. The purpose of this study was to examine the association between self-control and premarital sexual behavior in junior high school students near localization area.
Subjects and Method: A cross sectional study was conducted at Junior High Schools that located near localization area in Semarang, Central Java, Indonesia. The study population was junior highs school students. A number of 264 students was selected for this study by cluster random sampling. The dependent variable was premarital sexual behavior. The independent variable was self-control. The data were collected by questionnaire and analyzed by Chi square test.
Results: Lower self control increasds the risk premarital sexual behavior in adolescents and it was statistically significant (OR= 0.26; 95% CI= 0.15 to 0.44; p<0.001).
Conclusion: Lower self control increases the risk premarital sexual behavior in adolescents.

Keywords: self control, premarital sexual behavior, adolescents

Corespondence:
Nindita Arum Veibiani. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: nindita.veibiani@gmail.com. Mobile: +6285800216969.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.12

EFFECT OF COVID-19 HEALTH CARE PROVISION ON ANXIETY LEVEL AMONG NURSES IN HOSPITAL: META-ANALYSIS

Andang Sudarmono

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: COVID-19 disease has great effects on healthcare workers, especially nurses, and leads to psychological distress during care of COVID-19 patients. They regularly are in direct contact with patients from the time of admission to the discharge. This study aimed to explore the effect of COVID-19 health care provision on anxiety level among nurses in hospital using meta-analysis.
Subjects and Method: This was a systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from PubMed, Google Scholar, and Science Direct databases. Keywords used "Anxiety" AND "Nurses" AND "COVID-19". Article search is carried out by considering the eligibility criteria, including population= nurse, intervention= COVID-19 health care service, comparison= non COVID-19 health care service, and outcome= anxiety. The inclusion criteria were full text, articles were published from year 2020 to 2021, cross-sectional studies, used English language, and reported adjusted Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: 6 studies from Iran, Jordan, Saudi Arabia, South Korea, Italia, were analyzed for meta-analysis. Nurse in COVID-19 health care unit had higher risk to anxiety 1.52 times (aOR= 1.52; 95% CI= 1.16 to 1.97; p= 0.002).
Conclusion: Nurse in COVID-19 health care unit has higher risk to anxiety than those who work in the general health care unit.

Keywords: anxiety, COVID-19, health care, nurse

Correspondence:
Andang Sudarmono. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: andan_cf@yahoo.co.id. Mobile: 08156701457.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.13

BULLYING AND ITS IMPACT ON LONELINESS IN ADOLESCENTS: A META-ANALYSIS

Fitriah[1)], Bhisma Murti[1)], Didik Gunawan Tamtomo[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: It is hypothesized that adolescents who suffered from traditional bullying and cyberbullying reported increasing levels of negative emotions (e.g., sadness and loneliness feelings over time). Empirical evidence has suggested that most adolescents who are bullied or cyberbullied tend to experience higher loneliness (attributed itself to a lack of social connectedness). This effect, in turn, served as a vulnerability factor for suicidal ideation. This study aimed to investigate bullying and its impact on loneliness in adolescents.
Subjects and Method: A systematic review and meta analysis was conducted using the PubMed, Science Direct, and Clinical Key, published from 2010 to 2020. The following search terms were used: "bullying and loneliness", "bullying and loneliness and adolescent and cross sectional study", "bullying and loneliness and adolescent and cross sectional study and adjusted odd ratio". The inclusion criteria were full-text and observational study. The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: The meta-analysis included 14 studies from Indonesia, Tanzania, Vietnam and Malaysia. Bullying elevated the risk of loneliness feelings in adolescents (aOR= 1.92; CI 95%= 1.49 hingga 2.49; p<0.001).
Conclusion: Bullying elevates the risk of loneliness feelings in adolescents.

Keywords: bullying, loneliness, adolescents

Correspondence:
Fitriah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: fitriahbaharuddin@gmail.com. Mobile: +6282350701936.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.14

IMPROVING KNOWLEDGE AND PERSONAL HYGIENE IN FEMALE ADOLESCENTS DURING MENSTRUAL PERIOD USING BOOKLET : A SYSTEMATIC REVIEW

Anisya Fajar Rahmawati[1)], Maulida Rahmawati Emha[2)], Arif Tirtana[2)]

Study Program of Nursing, School of Health Sciences Madani Yogyakarta

ABSTRACT

Background: Adolescent is an essential period where females are preparing and adjusting themselves to manage their menstrual bleeding in safe and clean way. However, most adolescent girls (girls with age ranges of 10 to 19 years old) enter to their puberty stage (maturity) without preparing themselves due to the shortage of adequate information. This study aimed to investigate the effectiveness of booklet media to improve knowledge and personal hygiene in female adolescents during menstruation.
Subjects and Method: A systematic review was conducted using the PubMed, Google Schoolar, and Researchgate databases and the following search criteria: "health education" and "booklet" and "menstrual hygiene" and "knowledge" and "behavior". Articles published from 2010 to 2020 were collected for this study.
Results: 7 articles was systematically reviewed. This study showed that health education using booklet media has an effect to elevate knowledge and personal hygiene during menstrual period in female adolescents. Booklet has the following advantages: (1) simple and self-study information, (2) attractive, (3) understandable, (4) easy to carry), and (5) applicable.
Conclusion: Health education using booklet media on menstrual hygiene is effective to improve knowledge in maintain menstrual hygiene in female adolescents.

Keywords: health education, booklet media, menstrual hygiene, knowledge, behavior

Correspondence :
Anisya Fajar Rahmawati. Study Program of Nursing, School of Health Sciences Madani Yogyakarta. Jl. Karanggayam, Bantul 55792, Yogyakarta, Indonesia. Email: anisyafajar-25@gmail.com. Mobile: 085715840985.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.15

FEMALE ADOLESCENTS WITH PHYSICAL DISABILITY PREPAREDNESS ON MENARCHE AT *PEMBINAAN ANAK CACAT* FOUNDATION, SEMARANG, CENTRAL JAVA

Pringga Widya[1)], Dyah Ayu[2)], Isy Royhanaty[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Study Program of Applied Midwifery, School of Sciences Karya Husada, Semarang

ABSTRACT

Background: The gynecological health needs of girls with disabilities is an issue related to their rights as individuals. Physical and emotional changes in adolescents tends to bring more difficulties among girls with disabilities due to their compromised learning and motor abilities. This study aimed to investigate female adolescents with physical disability preparedness on menarche.
Subjects and Method: A qualitative study with phenomenology was conducted at foundation for the development of disabled children in Semarang, Central Java, from October to November 2015. The key informants were 6 quadriplegic female adolescents. the study variable was preparedness menarche in female adolescent with disability. The data were collected by in-depth interview.
Results: Thid study found that several aspects menarche preparedness in female adolescents with physical disability, included (1) understanding aspect, and (2) readiness aspect. They understand that menarche is the first bleeding from the female genitalia at the age of 10-16 years which is characterized by changes in hip and breast enlargement, and growth of armpit and genital hair. Female adolescents feel ready to face menarche.
Conclusion: Female adolescents have sufficient knowledge and readiness when facing menarche.

Keywords: female adolescent, diability, menarche

Correspondence:
Pringga Widya Pusparini. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir Sutami 36A, Surakarta 57126, Central Java. Email: pringgawidya93@-gmail.com. Mobile: +6282297585452.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.16

EFFECTIVENESS OF COUNSELING USING AUDIO VISUAL COMPARED WITH CONVENTIONAL COUNSELLING TO IMPROVE INTENTION TO VOLUNTARY COUNSELING AND TESTING IN HOUSEWIVES

Bani Dianika[1)], Tanjung Anitasari Indah Kusumaningrum[2)], Anisa Catur Wijayanti[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Departement of Public Health, Muhammadiyah University, Surakarta, Indonesia

ABSTRACT

Background: The low uptake of HIV voluntary counselling and testing (VCT) has hindered global attempts to prevent new HIV infections and has limited scale-up of HIV care and treatment. However, less studies on the effectiveness of counseling method to establish the most effective method to increase the intention to VCT testing. The purpose of this study was to examine the effectiveness of counseling using audio visual compared with conventional counseling to improve intention to VCT in housewives.
Subjects and Method: This was a randomized controlled trial. A sample of 122 housewive women was selected for this study and divided into two groups: (1) 61 women received counseling using audio visual, and (2) 61 women received counseling without any media. The dependent variable was intention to VCT uptake. The independent variables were counseling using audio visual or without audio visual. Intention to VCT uptake before and after intervention were measured by questionnaire. Mean difference of intention to VCT uptake between groups was examined using independent t-test.
Results: After intervention, mean of intention to VCT uptake in the audio visual group (Mean= 32.77; SD= 3.84) was higher than in the control group (Mean= 30.44; SD= 2.55), and it was statistically significant ($p < 0.005$).
Conclusion: Counseling using audio visual improves intention to VCT uptake in housewive women higher than without audio visual.

Keywords: HIV/AIDS, voluntary counseling and testing, housewive, counseling, audio visual

Correspondence:
Bani Dianika. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: banidianika@gmail.com. Mobile: 082227339349

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.17

META-ANALYSIS: THE EFFECT OF LESBIAN, GAY, BISEXUAL, AND TRANSGENDER VIDEO IN SOCIAL MEDIA ON THE ESCALATION OF FUJOSHI

Kusmirawati[1,2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Social media sites offer critical opportunities for lesbian, gay, bisexual, trans, queer, (LGBTQ+) and other sexual and/or gender minority youth to enhance well-being through exploring their identities, accessing resources, and connecting with peers. Even engaging more passively with social media (such as watching LGBTQ+ YouTube content) enables individuals to learn about identity-specific issues and be inspired in their coming out process, increasing identity confidence. It may increase the opportunities for adolescents to develop imitating behaviors, such as becoming a fujoshi. Fujoshi was originally assumed meant to refer to women's love of unique and deviant acts of imagining and expressing romantic relationships between men. This study aimed to investigate the effect of lesbian, gay, bisexual, and transgender video in social media on the escalation of fujoshi.

Subjects and Method: A systematic review and meta analysis was conducted using the Google Scholar, PubMed, Science Direct, and Springerlink databases, published from 2011 to 2021. Eligibility criteria were defined using the PICO model as follows, (1) population: female adolescents, (2) intervention: LGBT video, (3) comparison: non LGBT video, and (4) outcome: fujoshi behavior. The following search terms were used: "lesbian, gay, bisexual, and transgender video on social media" AND "fujoshi". The inclusion criteria were English full-text, randomized controlled trial, published from 2015 to 2021, and reported mean and standard deviation. The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.

Results: Eleven articles from Australia, America, Taiwan, and China, were included for meta-analysis. This study found that LGBTQ+ video in social media increased Fujoshi behavior in female adolescents (Standardized mean difference= 0.69; 95% CI= 0.02 to 1.35; p= 0.04).

Conclusion: lesbian, gay, bisexual, and transgender video in social media reduces Fujoshi behavior.

Keywords: lesbian, gay, bisexual, transgender, social media, fujoshi behavior

Correspondence:
Kusmirawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: cicipkusmirawati@gmail.com. Mobile: +6281228005990.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.18

META-ANALYSIS: THE EFFECT OF REMINISCENCE THERAPY ON FUNCTIONAL COGNITIVE IN ELDERLY WITH DEMENTIA

Ayu Fitriyaningsih

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Cognitive impairments frequently occur among the elderly, with the global occurrence increasing to unprecedented levels in the elderly population. Dementia is an irreversible condition presenting not only cognitive dysfunction, depression, and behavioral and psychological symptoms of dementia, but also dysfunction in activities of daily living. Reminiscence is believed to be effective in improving the cognition and mood of demented people. This study aimed to examine the effect of reminiscence therapy on functional cognitive in elderly with dementia.
Subjects and Method: A systematic literature search was conducted in multiple databases including Science Direct, AJOT, PubMed, Google Scholar, Springer Link, and complemented by cross-referencing to identify randomized control trial published from 2016 to 2021. The following search terms were used: "reminiscence therapy" or "reminiscence" AND "cognition" or "cognitive function" AND "dementia". Study instrument for assessing functional cognitive was mini mental state examination (MMSE). The systematic review was carried out according to the PRISMA guidelines. Data analysis were performed using RevMan 5.3.
Results: A meta-analysis included 9 studies from United States, Japan, Korea, and Turkey. This study showed that reminiscence therapy improved functional cognitive in the elderly with dementia (Standardized mean difference= 0.45; 95% CI= 0.11 to 0.80; p= 0.010).
Conclusion: Reminiscence therapy improves functional cognitive in the elderly with dementia.

Keywords: reminiscence therapy, cogitive function, dementia

Correspondence:
Ayu Fitriyaningsih. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ayufitriya03@students.uns.ac.id. Mobile: +6281228530733.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.19

COVID-19 HEALTH EDUCATION DEVELOPMENT USING "SMART PUNAKAWAN" IN SURAKARTA

Eti Poncorini Pamungkasari[1)], Bulan Hermasari[1)], Hartono[1)],Sri Mulyani[2)], Sri Parwatiningsi[2)], Lely Tri Pangesti[3)], Arsyi Ramadhan[1)]

[1)]Faculty of Medicine, Universitas Sebelas Maret
[2)]Vocational Program, Universitas Sebelas Maret
[3)]Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: The ongoing pandemic has clearly shown community that there is a need to further strengthen health promotion to elevate knowledge and engage COVID-19 prevention behavior in community. Studies report a comprehensive empirical investigation of the nature and correlates of anti-mask attitudes during the COVID-19 pandemic. This represents the low level of public understanding of the importance of preventing COVID-19 behavior. This study aimed to develop health education strategy specific COVID-19 prevention behavior.
Subjects and Method: This was a qualitative study. Situation analysis is carried out as an early stage of developing a health education strategy. The key informants were 13 people consisted of epidemiolog, medical practitioners, and public health staffs. The data were collected by focus group discussion (FGD). FGD was carried out by online meeting on zoom. An assissted FGD instrument was used to probe prevention of COVID-19 transmission.
Results: The health education strategy on COVID-19 prevention that will be developed needs to include cultural elements so that people are more receptive. The use of "wayang" (Indonesian traditional puppet) figures as a role model, named *Punakawan*, is considered an extension of health workers to convey health messages about COVID-19. The FGD determined the use of the term "SMart-Punakawan" as a method of health promotion. Punakawan has the meaning of "servant" of the knights but has an important role as an advisor, so it really represents the function of health workers. The educational content in this health promotion model focuses on the importance of vaccination and re-emphasizes the importance of washing hands, wearing face masks, maintaining distance, as prevention of COVID-19 transmission. The media used are videos, brochures, and banners. It is hoped that with this health promotion model it can reach a wider community.
Conclusion: Smart-Punakawan has been developed as a health education strategy regarding COVID-19 with cultural wisdom to approach the community in order to reduce the transmission of COVID-19.

Keywords: "Smart Punakawan", COVID-19, health promotion model

Correspondence:
Lely Tri Pangesti. Masters program in Public health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: lellytrip@gmail.com. Mobile: 082223360202.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.20

META-ANALYSIS: THE EFFECT OF BUPROPION ON THE EFFORT TO QUIT SMOKING

Muhammad Zainul Lafif[1)], Bhisma Murti[1)], Hanung Prasetya[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Smoking remains the single most important cause of premature death in both developed and developing countries. Many approaches to increase smoking cessation rates have been studied, including use of antidepressant medications. Recent studies have reported that bupropion hydrochloride, an antidepressant chemically unrelated to other antidepressants, may be useful in increasing smoking cessation rates among smokers. The objective of this study was to investigate the effect of bupropion on the effort to quit smoking.
Subjects and Method: A systematic literature search was conducted in multiple databases including PubMed, Science Direct, Google Scholar, Springerlink, and complemented by cross-referencing to identify randomized control trial published from 2011 to 2021. The following search terms were used: ("bupropion") AND ("smoking cessation") AND ("randomized controlled trial"). The articles were filtered using PICO model, including: (1) population= adult active smokers aged ≥18 years, (2) intervention= bupropion, (3) comparison= placebo, and (4) outcome= smoking cessation. The inclusion criteria were English full-text, randomized controlled trial, and reported mean and standard deviation. The study instrument for assessing smoking cessation was Fagerstrom test for nicotine dependence. The systematic review was carried out according to the PRISMA guidelines. Data analysis were performed using RevMan 5.3.
Results: This study involved 6 studies from United States, United Kingdom, and Turkey. This study showed that bupropion reduced smoking behavior 0.29 units than placebo (SMD= -0.29; 95% CI= -0.46 to -0.12; p= 0.005).
Conclusion: Bupropion reduces smoking behavior than placebo.

Keywords: bupropion, smoking cessation, quitting smoking

Correspondence:
Muhammad Zainul Lafif. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: zainullafif@student.uns.ac.id. Mobile: +6282137179433.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.21

THE EFFECTIVENESS OF ACCEPTANCE AND COMMITMENT THERAPY ON ANXIETY REDUCTION IN CANCER PATIENTS: META-ANALYSIS

Prajna Pramitha Purba

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Cancer is a life threatening disease, the diagnosis and treatment of which can be very disruptive in patients quality of life. In recent years, there has been increased attention to Acceptance and Commitment Therapy (ACT) for cancer patients. Compared with other psychological interventions, ACT is less focused on symptoms of psychopathology and pays more attention to acceptance and values as influences on cancer patients' emotions, thus better addressing the idiosyncratic and dynamic nature of cancer adjustment. This study aimed to investigate the effectiveness of ACT on anxiety reduction in cancer patients.
Subjects and Method: A systematic literature search was conducted in multiple databases including PubMed, Science Direct, Google Scholar, Springerlink, and complemented by cross-referencing to identify randomized control trial published from 2016 to 2021. The following search terms were used: "Acceptance and Commitment Therapy" OR "Anxiety disorder" OR "Distress" OR "Cancer survivors". The inclusion criteria were English full text and randomized controlled trial. The articles were filtered using PICO model, including: (1) Population= cancer patients, (2) intervention= acceptance and commitment therapy, (3) comparison= non acceptance and commitment therapy, and (4) outcome= anxiety. The inclusion criteria were English full-text and reported mean and standard deviation. The study instrument for assessing anxiety was the Acceptance and Action Questionnaire II (AAQ-II). The systematic review was carried out according to the PRISMA guidelines. Data analysis were performed using RevMan 5.3.
Results: A meta-analysis involved 761 cancer patients divided into two groups, (1) 379 patients in the ACT group, and 382 patients in the non-ACT group. This study showed that acceptance and commitment therapy lowered anxiety in cancer patients, but it was statistically non-significant (Standardized mean difference= -0.19; 95% CI= -0.61 to 0.23; p= 0.370).
Conclusion: Acceptance and commitment therapy lower anxiety in cancer patients, but it was statistically non-significant.

Keywords: acceptance and commitment therapy, anxiety, cancer patients

Correspondence:
Prajna Pramitha Purba. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: pramitha.purba@gmail.com Mobile: 082332787519.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.22

GENDER DIFFERENCE ON MENTAL HEALTH IN STUDENTS DURING COVID-19 PANDEMIC

Muna Maimunah Salsabila

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: COVID-19 pandemic was negatively affected mental health in college students across the world. It brings uncertainty regarding academic success, future careers, and social life during college, amongst other concerns. Studies exploring adolescents' responses to pandemic have generally found poorer mental health for some sub-groups following the event, such as gender. However, such findings are not consistent across the literature. The purpose of this study was to investigate gender difference on mental health in students during COVID-19 pandemic.
Subjects and Method: A systematic literature search was conducted in multiple databases including PubMed, Google Scholar, Scopus, and complemented by cross-referencing to identify cross-sectional study published from 2020 to 2021. The following search terms were used: "Mental Health" OR Mental Health Disorders OR Psychological Impact) AND (College Students OR University Students) AND Pandemic COVID-19. The inclusion criteria were English full text and randomized controlled trial. The articles were filtered using PICO model, including: (1) Population= college students, (2) intervention= female, (3) comparison= male, and (4) outcome= mental health disorder. The inclusion criteria were English full-text and reported adjusted odds ratio (aOR). The systematic review was carried out according to the PRISMA flowchart. Data analysis were performed using RevMan 5.3.
Results: A meta-analysis included 9 studies involving 88,058 students from China, Egypt, France, Pakistan, Ethiopia, and Bangladesh. This study found that female students had higher risk on mental health disorder than male students during COVID-19 pandemic (aOR= 1.66; 95% CI= 1.29 to 2.13; $p<0.001$).
Conclusion: Female students have higher risk on mental health disorder than male students during COVID-19 pandemic.

Keywords: mental health, psychological impact, college students, COVID-19, gender

Correspondence:
Muna Maimunah Salsabila. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: munamaimunahs@gmail.com. Mobile: +6285728565926.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.23

META-ANALYSIS: THE EFFECT OF FAMILY HISTORY OF BREAST CANCER ON EARLY DETECTION BEHAVIOR USING MAMMOGRAPHY

Amanda Via Maulinda[1)], Bhisma Murti[1)], Rita Benya Adriani[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Several well-established risk factors have been shown to be associated with screening practices among women, including socioeconomic status, demographic factors, health behavior, as well as cultural and psychosocial factors. However, less studies has examined the association between family history of breast cancer and screening practices in women. A variety of screening tests are used to detect breast cancer e.g., mammography, ultrasound, MRI, clinical breast examination, and breast-self examination. This study aimed to investigate the effect of family history of breast cancer on early detection behavior using mammography.
Subjects and Method: This was a systematic review and meta-analysis. This study was conducted in multiple databases including PubMed, Science Direct, Google Scholar, Springerlink, and complemented by cross-referencing to identify cross-sectional studies published from 2009 to 2018. The following search terms were used: Mammography AND "family history breast cancer" AND "cross sectional". The inclusion criteria were English full text and randomized controlled trial. The articles were filtered using PICO model, including: (1) Population= women of reproductive age, (2) intervention= family history of breast cancer, (3) comparison= no family history of breast cancer, and (4) outcome= early detection behavior using mammography. The inclusion criteria were full-text and reported adjusted Odds Ratio (aOR). The systematic review was carried out according to the PRISMA guidelines. Data analysis were performed using RevMan 5.3.
Results: 6 studies from Taiwan, Japan, United States, Mexico, Qatar, Turkish, and Hong Kong were involved for meta-analysis. This study showed that family history of breast cancer elevated early breast cancer detection behavior using mammography (aOR= 1.59; 95% CI= 1.40 to 1.80; p<0.001).
Conclusion: Family history of breast cancer elevates early breast cancer detection behavior using mammography.

Keywords: family history, breast cancer, breast cancer detection, behavior, mammography

Correspondence:
Amanda Via Maulinda. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: viaamanda80@student.uns.ac.id. Mobile: 085736228812.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.24

META-ANALYSIS: EFFECT OF SCREEN TIME ON OBESITY IN CHILDREN AND ADOLESCENTS

Salwa Annisaa[1)], Yulia Lanti Retno Dewi[2)], Eti Poncorini Pamungkasari[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: A number of observational studies and rigorous experimental trials tested the effects of reducing children's screen media exposure on weight gain. Current evidence suggests that screen media exposure leads to obesity in children and adolescents through increased eating while viewing (exposure to high-calorie, low-nutrient food and beverage marketing that influences children's preferences, purchase requests, consumption habits) and reduced sleep duration. This study was conducted to investigate the effect of screen time on obesity in children and adolescents.
Subjects and Method: This was a systematic review and meta-analysis. The study was conducted in multiple databases including PubMed, Science Direct, Google Scholar, Springerlink, and complemented by cross-referencing to identify randomized control trial published from 2011 to 2021. The following search terms were used: obesity OR obese OR overweight AND "fast foods" OR snacks OR "fried foods" AND "social media" OR "screen time" OR television AND child OR adolescent. The inclusion criteria were full text, cross-sectional study, and reported adjusted odds ratio (aOR). The articles were filtered using PICO model, including: (1) Population= children and adolescents, (2) intervention= screen time ≥3 hours, (3) comparison= screen time <3 hours, and (4) outcome= obesity. The inclusion criteria were English full-text and reported mean and standard deviation. The systematic review was carried out according to the PRISMA flow diagram. Data analysis were performed using RevMan 5.3.
Results: 11 eligible articles from Ethiopia, Italy, Tanzania, China, Canada, Saudi Arabia, Nepal, and Pakistan were included for meta analysis. This study showed that screen time ≥3 hours elevated the risk of obesity in children and adolescents 1.40 times than screen time <3 hours (aOR= 1.40; 95% CI= 1.21 to 1.62; p= 0.001).
Conclusion: Screen time ≥3 hours elevates the risk of obesity in children and adolescents 1.40 times than screen time <3 hours.

Keywords: obesity, screen time, children, adolescents

Correspondence:s
Salwa Annisaa. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: salwaannisaa@student.uns.ac.id. Mobile: 081541180488.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.25

CORRELATION BETWEEN DURATION OF GADGET UPTAKE AND QUALITY OF SLEEP IN STUDENT IN SENIOR HIGH SCHOOL IN YOGYAKARTA

Zadia Dara Cynintya Teha[1)], Dheska Arthya Palifiana[2)], A.M Bandi Utama[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Diploma IV of Teaching Midwivery, Universitas Respati Yogyakarta
[3)]Universitas Negeri Yogyakarta

ABSTRACT

Background: Empirical evidence demonstrates an association between sleep and the consolidation of cognitive performance, which is required for executive functioning including abstract reasoning, goal directed behavior, and creative processing. However, recent studies reported that excessive use of smartphones may reduce sleep time. Insufficient sleep, poor sleep quality, and sleepiness are common problems in children and adolescents being related to learning, memory and school performance. This study aimed to examine correlation between duration of gadget uptake and quality of sleep in senior high school students.
Subjects and Method: This was a cross sectional study carried out at Senior High School 1 in Depok, Sleman, Yogyakarta. A sample of 128 students was selected for this study randomly. The dependent variable was quality of sleep. The independent variable was duration of gadget use. Quality of life was measured by Pittsburgh Sleep Quality Index (PSQI). Duration of gadget use was measured by questionnaire. The data were analyzed using a multiple linier regression.
Results: Longer gadget use lowered quality of sleep in students 0.03 units and it was statistically significant (b= 0.03; 95% CI= 0.01 to 0.05; p= 0.020).
Conclusion: Longer gadget use lower quality of sleep in students.

Keywords: gadget use, quality of sleep, senior high school students

Correspondence:
Zadia Dara Cynintya Teha. Diploma IV of Teaching Midwivery, Universitas Respati Yogyakarta. Jl. Raya Tajem 1.5, Sleman, Yogyakarta. Email: Cynintya@gmail.com Mobile: +6283857619108.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.26

RELATIONSHIPS OF INFORMATION AND COUNSELING CENTER, KNOWLEDGE OF REPRODUCTIVE HEALTH, AND SEXUALLY COMPREHENSIVE EDUCATION IN ADOLESCENTS

Izdihar Azzah Paramastri, Izzatul Arifah

Faculty od Health Sciences, Universitas Muhammadiyah Surakarta

ABSTRACT

Background: Sexual and reproductive health problems in adolescents are a high burden worldwide. However, they had limited access to reproductive health information center services. World Health Organization considers adolescents-friendly services when every obstacle hindering adolescents to receive sexual and reproductive health are being cleared. The main characteristics of adolescent-friendly reproductive health services are (1) accessible, (2) acceptable, (3) equitable, (4) appropriate, and (5) effective. The study objective was to investigate relationships of information and counseling centers, knowledge of reproductive health, and sexually comprehensive education in adolescents.
Subjects and Method: A cross sectional study was carried out at two Senior High Schools in Sukoharjo, Central Java, in April 2019. A sample of 360 students was selected randomly. The dependent variable was knowledge on the reproductive health and sexual comprehensive. The independent variable was youth information and counseling center availability. The data were collected by questionnaire and analyzed by independent t-test.
Results: Mean of knowledge on the reproductive health and sexual comprehensive in students who study at school that provide youth information and counseling center (Mean= 17.82; SD= 3.15) was higher than those who study at school without youth information and counseling center (Mean= 16.16; SD= 3.39), with $p<0.001$.
Conclusion: Youth information and counseling center at school improves knowledge on the reproductive health and sexual comprehensive in senior high school students.

Keywords: youth information and counseling center, knowledge, reproductive health, sexual comprehensive, senior high school students

Correspondence:
Izdihar Azzah Paramastri. Faculty od Health Sciences, Universitas Muhammadiyah Surakarta. Jl. A. Yani Tromol Pos I, Pabelan. Email: astizdihar@gmail.com. Mobile: +6285707838939.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.27

HUSBAND SUPPORT REDUCES ANXIETY IN PRE-MENOPAUSE WOMEN

Hepti Widia Ningsih, Yuli Isnaeni

Study Program of Midwivery, Universitas 'Aisyiyah Yogyakarta

ABSTRACT

Background: The potential effect of stress on menopause symptoms is of importance to understand: midlife is often a highly stressful time for women, with many major life events coinciding with one another, such as parental death, children leaving home, and divorce. Previous research suggests that a strong social network and higher levels of social support throughout the menopausal transition may reduce menopause symptom frequency and severity. This study aimed to examine the effect of husband support in reducing anxiety in pre-menopause women.
Subjects and Method: This was a cross sectional study. The study was conducted in Sleman, Yogyakarta, Indonesia, in May 2019. A sample of 60 premenopausal women aged 45-50 years was selected for this study by simple random sampling. The dependent variable was anxiety. The independent variable was husband support. The data were collected by questionnaire and analyzed by Chi square.
Results: Strong husband support reduced the risk of anxiety in premenopausal women (OR= 0.13; 95% CI= 0.03 to 0.50; p= 0.001).
Conclusion: Strong husband support reduces the risk of anxiety in premenopausal women.

Keywords: husband support, anxiety, premenopause

Correspondence:
Hepti Widia Ningsih. Study Program of Midwivery, Universitas 'Aisyiyah Yogyakarta. Jl. Siliwangi 63 Sleman, Yogyakarta, Indonesia. Email: hepti_widia@yahoo.com. Mobile: +6285729442615.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.28

THE EFFECT OF HEALTH EDUCATION ON THE INTEREST OF WOMEN OF REPRODUCTIVE AGE IN PERFORMING A VISUAL INSPECTION OF ACETIC ACID

Diana Ode[1,2)]

[1)]Universitas Respati, Yogyakarta
[2)]Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background : Cervical cancer is the second most common cancer next to breast cancer. Despite the high burden of the disease and availability of free screening services, uptake is still trivial. This study aims to identify the effect of health education on the interest of women of reproductive age in performing a visual inspection of acetic acid (VIA).
Subjects and Method: A quasy experiment with no control group was conducted at Moro Bangun village, Sleman, Yogyakarta, Indonesia, in July 2019. A sample of 58 women of reproductive age was selected by purposive sampling. The dependent variable was interest to VIA uptake. The independent variable was health education. Interest to VIA uptake was measured by questionnaire. Mean of interest to VIA uptake before and after intervention was assessed by paired t-test.
Results: Mean score of interest to VIA uptake after health education intervention (Mean= 81.5; SD= 7.77) was higher than before (Mean= 69.29; SD= 7.91), with $p<0.001$.
Conclusion: Health education improves interest to VIA uptake in women of reproductive age.

Keywords: health education, interest, visual inspection acetic acid, women of reproductive age

Correspondence:
Diana Ode. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Dianaodef161@gmail.com. Mobile: 085395912173.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.29

KNOWLEDGE AND STUNTING PREVENTION BEHAVIOR IN MOTHER WHO HAD CHILDREN AGED 7 TO 23 MONTHS

Anggraini Ambarsari

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: There is a strong scientific case that intervention strategies designed to improve child nutrition should be implemented during the first 1,000 days of life. Many of those suggested interventions require some level of behavior change by the maternal caregiver and other household members. Whether that means going to the health center for supplementation (e.g., vitamin A, iron, zinc, multiple micronutrients) or adhering to health promotions and education (e.g., exclusively breastfeeding from 0 to 5 months, complementary feeding from 6 to 23 months, hygiene promotion). This study aimed to investigate maternal knowledge and stunting prevention behavior in mother who had children aged 7 to 23 months.
Subjects and Method: A cross sectional study was conducted at Sentolo 2 health center, Kulon Progo, Yogyakarta, in February 2019. A sample of 40 mothers with children aged 7 to 23 months was selected by total sampling. The dependent variable was stunting prevention behavior. The independent variable was knowledge. The data were collected by questionnaire and analyzed by a simple linier regression.
Results: High knowledge improved stunting prevention behavior in children aged 7 to 23 months (b= 0.27; p<0.001).
Conclusion: High knowledge improves stunting prevention behavior in children aged 7 to 23 months.

Keywords: knowledge, prevention behavior, stunting

Correspondence:
Anggraini Ambarsari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: aanggraini.ambarsari29-@gmail.com. Mobile: 085600184363.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.30

META ANALYSIS THE EFFECT OF HEALTH BELIEF MODEL ON IMPLEMENTATION OF BREAST SELF-EXAMINATION IN WOMEN

Fauzia Ichlasul Sekar[1)], Hanung Prasetya[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: The health belief model (HBM) is frequently utilized examine the beliefs about breast cancer screening behavior using breast self-examination. The dimensions included are perceived susceptibility, seriousness, benefit, barrier, cues for action, self-efficacy, and health motivation. A systematic review and a meta-analysis were performed to determine the effect of health belief model on implementation of breast self-examination in women
Subjects and Method: Literature search was performed using PubMed, Google Scholar, Springer Link, and Scopus databases. The study population was adult women. Intervention was high perceived benefit with comparation was low perceived benefit. The study outcome was breast self-examination. Keywords used "health belief model" OR "health belief" OR "belief" AND "breast self-examination" OR "breast cancer screening". Pooled adjusted odds ratios were calculated using Revman 5.3.
Results: A meta analysis using 5 primary studies from Turkey, Ethiopia, and Indonesia reported that perceived benefit had weak effect on the implementation of breast self-examination in women (aOR= 1.07; 95% CI= 0.94 to 1.20; p= 0.300).
Conclusion: Perceived benefit has weak effect on the implementation of breast self-examination in women.

Keywords: breast cancer, breast self-examination, health belief model, perceived benefit

Correspondence:
Fauzia Ichlasul Sekar. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: fauziasekar10@gmail.com. Mobile: 082324756260.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.31

META ANALYSIS: ANXIETY DISORDER TOWARD COVID-19 PANDEMIC IN PREGNANT WOMEN

Alfi Makrifatul Azizah[1)], Yulia Lanti Retno Dewi[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: The COVID-19 pandemic and related restrictions substantially altered daily lives of pregnant women, exaggerating the prevalence of anxiety compared with the pre-COVID-19 studies. The purpose of this study was to investigate anxiety disorder toward covid-19 pandemic in pregnant women.
Subjects and Method: This was a systematic review and meta-analysis. Using the PubMed and Google Scholar database, a literature search was conducted for cross-sectional full-text studies on the effect of COVID-19 pandemic on anxiety in pregnant women. The following search terms were used: "COVID-19" AND "pregnancy" AND "Anxiety". Eligibility criteria were defined using the PICO model as follows, (1) population: pregnant women, (2) intervention: COVID-19 pandemic, (3) comparison: non pandemic, and (4) outcome: anxiety. The systematic review was carried out according to the PRISMA guidelines. Data analysis were performed using RevMan 5.3.
Results: There were 6 studies from Iran, China, and United States involved for meta-analysis. This study showed that COVID-19 pandemic increased anxiety in pregnant women 2.59 times than non pandemic (OR= 2.59; 95% CI= 1.95 to 3.45; p<0.001).
Conclusion: COVID-19 pandemic increases anxiety in pregnant women.

Keywords: COVID-19 pandemic, anxiety, pregnant mothers

Correspondence:
Alfi Makrifatul Azizah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: alfimakrifatulazizahh@gmail.com. Mobile: 085375335480.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.32

RELATIONSHIPS OF KNOWLEDGE TOWARD GLAUCOMA AND QUALITY OF LIFE OF GLAUCOMA PATIENTS IN JEMBER HOSPITAL, EAST JAVA

Reza Ramadhana Tahta Firmansyah

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Glaucoma is a non - communicable, chronic eye disease which needs the principles of long-term care. The asymptomatic nature along with the irreversible blindness it causes makes glaucoma a public health challenge and the second cause of avoidable blindness globally. Glaucoma blindness imposes significant economic burden, increases healthcare cost, impairs quality of life, and increases rehabilitation cost for the blind. Public awareness and knowledge of glaucoma plays a significant role in raising public health seeking behavior for regular eye check and increases the chance of identifying undetected cases. This study aimed to examine relationships of knowledge toward glaucoma and quality of life of glaucoma patients.
Subjects and Method: A cross sectional study was carried out at Baladhika Husada Hospital, Jember, East Java, Indonesia, from January to February 2020. A sample of 71 glaucoma patients was selected by purposive sampling. The dependent variable was quality of life. The independent variable was knowledge. Quality of life was measured by the Glaucoma Quality of Life-15 (GQL-15). Other variables were measured by questionnaire. The data were analyzed by a simple linier regression.
Results: Good knowledge on glaucoma improved quality of life in glaucoma patients (b= 0.60; 95% CI= 0.51 to 0.69; p<0.001).
Conclusion: Good knowledge on glaucoma improves quality of life in glaucoma patients.

Keywords: glaucoma, knowledge, quality of life

Correspondence:
Reza Ramadhana Tahta Firmansyah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java, Indonesia. Email: ramadhanatahta@gmail.com. Mobile: 082228390930.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.33

FACE MASK-WEARING BEHAVIOR TO PREVENT COVID-19 TRANSMISSION: META-ANALYSIS

Andi Siswanto

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: SARS-CoV-2 is highly contagious. The human-to-human transmission of this infection through coughing, sneezing, and the spread of respiratory droplets or aerosols. Staying at home, avoiding any direct contact with any healthy or infected person, avoiding crowded public places, avoiding shaking hands when greeting others, frequently washing hands with soap and water or hand sanitizer, and using disposal medical mask and or face shield have been recommended to prevent COVID-19 transmission. A systematic review and meta-analysis was conducted to investigate the effect of face mask-wearing behavior to prevent COVID-19 transmission.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, Pubmed, and Science Direct databases. Keywords used mask OR Surgical mask OR cloth mask AND "covid" AND adjusted odds ratio. Eligibility criteria were defined using the PICO model as follows, (1) population: general population, (2) intervention: face mask-wearing behavior, (3) comparison: did not wear face mask, and (4) outcome: COVID-19 transmission. The inclusion criteria were full text, reported adjusted odds ratio, published from year 2020 to 2021. Articles that met the criteria were analyzed by Revman 5.3.
Results: 7 studies from Ethiopia, China, Uganda, Japan, Unites States, and Taiwan. This study showed that face mask-wearing behavior mitigated the COVID-19 transmission 1.51 times (aOR= 1.51; 95% CI= 1.23 to 1.85; p<0.001).
Conclusion: Face mask-wearing behavior mitigate the COVID-19 transmission.

Keywords: face mask-wearing behavior, COVID-19 transmission

Correspondence:
Andi Siswanto. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: andisiswae@gmail.com. Mobile: +6281329238155.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.34

CORRELATION BETWEEN WORK ATTITUDE AND THE RISK OF LOW BACK PAIN IN BRICK MAKERS IN NGAWI, EAST JAVA

Faried Effendi Surono

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Since low back pain represents the third leading cause of self-perceived disability due to various diseases, identifying risk factors, appears to be of high importance for implementing suitable prevention programs. Specific working postures and low back pain were highly explored by recent studies. This study aimed to explore correlation between work attitude and the risk of low back pain in brick makers.
Subjects and Method: A cross-sectional study was conducted at the brick factory in Ngawi, East Java, Indonesia. A sample of 32 brickmakers was selected randomly. The dependent variable was low back pain. The independent variable was work attitude. Low back pain was measured by a visual analogue scale (VAS). Work attitude was measured by a questionnaire. Correlation between work attitude and low back pain was assessed by Chi-square.
Results: Poor work attitude increased the risk of low back pain in brick makers, and it was statistically significant (OR = 7.44; 95% CI= 1.12 to 52.51; p= 0.012).
Conclusion: Poor work attitude increases the risk of low back pain in brick makers.

Keywords: work attitude, low back pain

Correspondence:
Faried Effendi Surono. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: fariedeffendi@student.-uns.ac.id. Mobile: +6281328772748.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.35

KNOWLEDGE OF HYGIENE DURING MENSTRUATION IN FEMALE ADOLESCENTS AT JUNIOR HIGH SCHOOL 1 BOYOLANGU, EAST JAVA, INDONESIA

Raras Indung Palupi[1)], Shanty Natalia[2)], Candra Wahyuni[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Study Program in Midwivery, Health Sciences Institute Surya Mitra Husada, Kediri, East Java

ABSTRACT

Background: Menstruation is a normal physiological process of females at their reproductive age. However, it is still common surrounded with social taboos and beliefs. The poor knowledge and understanding of menstruation may lead to unsafe hygienic practice in female adolescents. The purpose of this study was to examine correlation between knowledge and menstrual hygiene in female junior high school students.
Subjects and Method: This was a cross-sectional study conducted at Boyolangu 1 Senior High School, Tulungagung, East Java, in September 2019. A sample of 87 female adolescents was selected by simple random sampling. The dependent variable was menstrual hygiene. The independent variable was knowledge. The study instrument was questionnaire. The measurement scale was continous, but for data analysis it was transformed into dichotomous, as follows: (1) Knowledge, 0 for low and 1 for high, and (2) menstrual hygiene, 0 for poor hygiene and 1 for good hygiene. Correlation between knowledge and menstrual hygiene was analyzed using Chi-square.
Results: Good knowledge about reproductive health improved good menstrual hygiene behavior in female adolescents (OR= 3.14; 95% CI= 1.29 to 7.65; p= 0.011).
Conclusion: Good knowledge about reproductive health improves good menstrual hygiene behavior in female adolescents.

Keywords: menstruation, menstrual hygiene, female adolescents

Correspondence:
Raras Indung Palupi. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Palupiraras05@gmail.com. Mobile: +628337540058.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.36

EFFECTIVENESS OF COGNITIVE FUNCTIONAL THERAPY IN CHRONIC LOW BACK PAIN: META-ANALYSIS

Arif Fadli[1)], Hanung Prasetya[2)], Agus Kristyanto[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Acupunctur, Health Polytechnic, Ministry of Health Surakarta
[3)]Faculty of Sport, Universitas Sebelas Maret

ABSTRACT

Background: Cognitive functional therapy is an integrated behavioral approach for individualizing care for people with low back pain. It targets physical, lifestyle, and psychological barriers to help them self-manage chronic low back pain. The purpose of this study was to investigate the effectiveness of cognitive functional therapy in chronic low back pain using meta-analysis.
Subjects and Method: This was a systematic review and meta-analysis. The study was conducted by collecting randomized control trial on the effectiveness of cognitive functional therapy in chronic low back pain in chronic low back pain from Pubmed, Googlescholar, Willey Online Library, Research Gate, and Science Direct online databases. The data were analyzed by Revman 5.3.
Results: There were 2 studies reported that cognitive functional therapy reduced pain (Mean differece= -5.03; 95% CI= -12.66 to 2.60; p <0.001) and disability index (Mean= -5.71; 95% CI= -14.09 to 2.67; p <0.001).
Conclusion: Cognitive functional therapy reduced pain and disability index in patients with chronic low back pain.

Keywords: chronic low back pain, cognitive functional therapy, disability index, pain

Correspondence:
Arif Fadli. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Ariffadli950@gmail.com. Mobile: +6281-355377050.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.37

DETERMINANTS OF PUBLIC WILLINGNESS TO RECEIVE COVID-19 VACCINE IN SURAKARTA

Annita Viesta Nirmala Dewi, Alya Ayu Kharisma, Nailah Salma Inas, Chusna Habiba, Okti Indriyani, Caroline Dharmawan, Syarrifah Jihadillah, Hibah Mujahidah, Kharisma Trisiadewi, Nabila Ramadhani, Revi Gama Hatta Novika, Nurul Jannatul Wahidah

Study Program in Midwifery, Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: One of the government's efforts in tackling the COVID-19 pandemic is implementing vaccination program. However, this program received various responses from the public, some have accepted and others have rejected the COVID-19 vaccine. This study aimed to determine the factors that influence a person willingness to receive COVID-19 vaccination.
Subjects and Method: This was a descriptive and analytic study using cross sectional design conducted in Surakarta, Central Java, from September to October 2021. A total of 130 subjects was selected randomly from the general population. The dependent variable was willingness to use COVID-19 vaccine. The independent variable was knowledge about vaccination. The data were collected by a questionnaire and analyzed using Odds Ratio and Chi-Square.
Results: As many as (36%) of the study population were <20 years of age, 52% were 20-40, and 12% >40 years of age. As many as (8%) of the study population had completed Junior High School, 70% Senior High School, 9% Diploma Degree, 10% Bachelor's Degree, and 2% the Masters Degree. Knowledge about vaccination was positively associated with willingness to use COVID-19 vaccine, and it was statistically significant (OR=6.89; 95% CI= 0.44 to 0.62; p<0.001)
Conclusion: Knowledge about vaccination is positively associated with willingness to use COVID-19 vaccine, and it is statistically significant.

Keywords: knowledge, willingness, rejection, vaccination, COVID-19, public

Correspondence:
Annita Viesta Nirmala Dewi. Study Program in Midwifery, Faculty of Medicine, Universitas Sebelas Maret. Jl. Ir Sutami 36A, Surakarta 57126, Central Java. Email: contact.-anitaviee@gmail.com. Mobile: +6285103027268.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.38

BEST PRACTICE RELIGIOUS APPROACH IN INTERVENTION OF METABOLIC DISORDER AT COMMUNITY LEVEL

Hilmi Sulaiman Rathomi[1)], Rizky Suganda Prawiradilaga[2)], Mia Kusmiati[3)], Rizki Perdana[4)]

[1)]Department of Public Health, Faculty of Medicine
Universitas Islam Bandung, West Java
[2)]Department of Nutrition and Biochemistry, Faculty of Medicine
Universitas Islam Bandung, West Java
[3)]Department of Medical Education, Bioethics, and Humanities
Faculty of Medicine, Universitas Islam Bandung, West Java
[4)]Department of Anatomy, Faculty of Medicine
Universitas Islam Bandung, West Java

ABSTRACT

Background: World Health Organization states that obesity is a health condition of top priority in post COVID-19 pandemic era. As a contribution in controlling metabolic disorder at the community level, Faculty of Medicine Universitas Islam Bandung, West Java, has introduced a religion-based approach intervention in Bandung area, namely the Islamic *Eating Pattern* for a Better Metabolic Conditions (INTERFAST) program. This study aimed to determine the effectiveness of INTERFAST program to control metabolic disorder.
Subjects and Method: This was a quasi-experimental study conducted in Sukaraja, Bandung, West Java, from April to October 2021. A total of 52 subjects with metabolic disorder was selected for this study. The dependent variables were knowledge and eating behavior pattern. The independent variable was a multi-method intervention, including hands-on education, WhatsApp group formation, educational videos, and metabolic tests. The data on knowledge and eating behavior pattern were collected by a set of questionnaire. These two dependent variables were measured before and after intervention. The mean difference before and after intervention was tested by paired t-test. The percent difference before and after intervention was tested by chi-square.
Results: Mean knowledge score after intervention (Mean= 5.70; SD= 0.50) was higher than before intervention (Mean= 4.90; SD= 0.90), and it was statistically significant (p= 0.042). Percent of total fat content after intervention (35.3%) was lower than before intervention (41.3%), and it was statistically significant (p= 0.037). Percent of eating 3 hours before bedtime after intervention (52%) was lower than before intervention (76%), and it was statistically significant (p= 0.013). Percent of overweight after intervention (23%) was lower than before intervention (25%), and it was statistically significant (p= 0.034).
Conclusion: INTERFAST is effective to increase knowledge, as well as to reduce total fat content, eating 3 hours before bedtime, and overweight.

Keywords: INTERFAST, knowledge, metabolic disorder, diet

Correspondence:
Hilmi Sulaiman Rathomi. Department of Public Helath, Faculty of Medicine, Universitas Islam Bandung. Jl. Tamansari 22, Tamansari, Bandung, West Java. Email: hilmi.thomi-@gmail.com. Mobile: +62811 2251649.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.39

THE EFFECT OF COGNITIVE-BEHAVIORAL THERAPY ON THE HEALTH-RELATED BEHAVIOR IN PATIENTS WITH CARDIOVASCULAR DISEASE: A SYSTEMATIC REVIEW

Israfil[1)], Ah Yusuf[2)], Ferry Efendi[2)]

[1)]Nursing Doctoral Program, Universitas Airlangga, Surabaya, East Java
[2)]Faculty of Nursing, Universitas Airlangga, Surabaya, East Java

ABSTRACT

Background: Cardiovascular disease is one of the leading causes of death in the community. Cardiovascular disease that is not treated correctly can be life-threatening for the patient. Cognitive-Behavioural Therapy (CBT) is one of strategy that may increase the positive behavior. This study aimed to determine the effect of Cognitive-Behavioural Therapy (CBT) on health related behavior in patient with cardiovascular disease.
Subjects and Method: A systematic review was conducted by searching published articles from several electronic databases including Scopus, Science Direct, and PubMed, from 2016 to 2021. The research question in PICO was as follows. Population= patients with cardiovascular disease. Intervention= cognitive behavioral therapy. Comparison= usual care. Outcome= adaptive behavior. The keywords for this review were "Cognitive Behavioural Therapy" AND "cardiovascular". The Critical Appraisal Joanna Brigs Institute was used to assess the quality of the included studies.
Results: a total 8 studies were included in this review. Five articles stated that CBT was effective in reducing anxiety, stress and depression. CBT was also effective in increasing physical activity, healthy diet, smoking cessation, and improved the quality of life in patients with cardiovascular disease. Two articles stated that CBT was effective to treats insomnia, enhances the duration and quality of sleep patients. One article was stated that CBT reduced alcohol consumption behavior.
Conclusion: CBT is effective to increase the health related behavior in patients with cardiovascular disease.

Keywords: Cognitive-Behavioural Therapy, CBT, cardiovascular disease

Correspondence:
Israfil. Nursing Doctoral Program, Universitas Airlangga, Surabaya, East Java. Jl. Mulyorejo, Surabaya, Indonesia. Email: israfil2020@fkp.unair.ac.id. Mobile: +6285253950064.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.40

PERSONAL PROTECTIVE EQUIPMENT USE IN THE PRIVATE MIDWIFERY CLINICS DURING THE COVID-19 PANDEMIC: A DESCRIPTIVE STUDY

Lisda Handayani, Susanti Suhartati

Professional Education for Midwives, Faculty of Health, Universitas Sari Mulia

ABSTRACT

Background: During the COVID-19 pandemic, the use of personal protective equipment (PPE) is a must for healthcare workers to prevent the transmission of COVID-19. This study aimed to determine the PPE used by midwives when performing midwifery care.
Subjects and Method: This was a descriptive study conducted at a private midwifery clinic in Banjarmasin from April to August 2021. A total of 48 midwives were selected by accidental sampling. The data were collected by a set of questionnaire and analyzed descriptively.
Results: A total of 38 midwives (79.9%) did not use complete PPE and 10 midwives (20.1%) were used complete PPE. The kind of PPE used by midwives included 100% medical masks (100%), gloves (93.8%), gowns (75%), boots (63.5%), face shields (58.3%), and head protection (54.2%).
Conclusion: The majority of midwives have not used complete PPE during delivery health service in prevent COVID-19 transmission.

Keywords: personal protective equipment, Midwife, COVID-19

Correspondence:
Lisda Handayani. Professional Education for Midwives, Faculty of Health, Universitas SariMulia. Jl. Pramuka 2, Banjarmasin. Email: lisdada.sm@gmail.com. Mobile: +62878-14326567.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.41

INTENTION TO SEEK MENTAL HEALTH SERVICES DURING COVID-19 PANDEMIC AMONG ADULTS POPULATION

Rofingatul Mubasyiroh, Indri Yunita Suryaputri, Sri Idaiani

National Institute of Health Research and Development, Ministry of Health, Jakarta

ABSTRACT

Background: COVID-19 pandemic has affected not only physical health condition but also mental health. However, mental health services are still unattractive to the public, so treatment gaps are still high. This study aimed to determine the factors related to people's intention to seek mental health services to overcome mental health problem.
Subjects and Method: This was a cross-sectional study conducted from May to September 2020. A total sample was 3,983 study subjects over 15 years of age was selected for this study. The dependent variable was intention to seek mental health service. The independent variables were social support and disease condition. An online questionnaire was randomly distributed and snowballed throughout 34 provinces in Indonesia. The data were analyzed using multivariate logistic regression.
Results: Intention to seek mental health service increased with the presence of psychiatric history (OR= 4.74; 95% CI= 3.25 to 6.93; p<0.001), history of infectious disease (OR= 4.90; 95% CI= 2.21 to 10.84; p<0.001), talking to others (OR= 1.38; 95% CI= 1.07 to 1.58; p=0.007), peer support (OR= 1.38; 95% CI= 1.07 to 1.78; p=0.014), and moderate anxiety (OR= 1.73; 95% CI= 1.08 to 2.79; p= 0.024). Mild depression (OR= 0.66; 95%CI= 0.51 to 0.86; p= 0.002) and moderate depression (OR= 0.62; 95% CI= 0.38 to 1.00; p=0.053) prevented a person from seeking health services.
Conclusion: Intention to seek mental health service increases with the presence of psychiatric history, history of infectious disease, talking to others, peer support, and moderate anxiety. Mild and moderate depression prevents a person from seeking health services.

Keywords: mental health services, intentions to seek, COVID-19 pandemic

Correspondence:
Rofingatul Mubasyiroh. National Institute of Health Research and Development, Ministry of Health, Indonesia. Jl. Percetakan Negara 29, Jakarta 10560, Indonesia. Email: rofi.litbang@gmail.com. Mobile: 081389236405.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.42

HANDWASHING COMPLIANCE IN HEALTH WORKERS AT DR. KARIADI HOSPITAL, SEMARANG

Septi Dewi Muninggar, Elyana Sri Sulistyowati, Verarica Silalahi

Central General Hospital Dr. Kariadi Semarang, Indonesia

ABSTRACT

Background: During COVID-19 pandemic, improving hand hygiene practices for health care workers is a core strategy to reduce infection in health care settings. This study aimed to examine the difference in handwashing adherence between SARS-CoV-2 infected and non-infected health workers at Dr. Kariadi Hospital, Semarang.
Subjects and Method: This was a case-control study. The population was SARS-CoV-2 infected and non-infected health workers at Dr. Kariadi Hospital, Semarang, Central Java. The dependent variable was handwashing compliance. The independent variable was SARS-CoV-2 infection. The data were analyzed using Mann Whitney.
Results: There was no statistically significant difference in age between SARS-CoV-2 infected (Mean= 34.60; SD= 8.09) and non-infected health workers (mean= 33.90; SD= 7.46), with p=0.322. Generally, handwashing compliance was poorer in health workers SARS-CoV-2 infected than not SARS-CoV-2 infected, except a few other types of health workers, including medical staff (53.4% vs. 60.2%; p<0.05), nurses (30.7% vs. 31.8%; p<0.05), midwives (4.5% vs. 1.7%; p>0.05), pharmacist (0.6% vs. 1.1%; p<0.05), nutritionist (1.1% vs. 1.7%; p<0.05), physical therapist (1.4% vs. 1.1%; p>0.05), and others (7.4% vs. 4.0%; p>0.05).
Conclusion: Handwashing compliance is poorer in health workers who are SARS-CoV-2 infected than not SARS-CoV-2 infected, except a few other types of health workers.

Keywords: handwashing, compliance, health workers, confirmed, COVID-19

Correspondence:
Septi Dewi Muninggar. Central General Hospital Dr. Kariadi Semarang, Indonesia. Jl. Dr. Sutomo No.16 Semarang. Email: septimuninggar@yahoo.com. Mobile: 085225933880.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.43

DOES HEALTH EDUCATION INCREASE SELF-EFFICACY IN DIABETIC PATIENTS? A SYSTEMATIC REVIEW

Yanty Tindika

Masters Program of Nursing, Universitas Hasanuddin, Makassar

ABSTRACT

Background: As many as 422 million people worldwide have diabetes, particularly in low-and middle-income countries. Self-efficacy is needed to undertake the complex DM treatment and the long-term intervention. Health education was hypothesized to increase self-efficacy. This systematic review aimed to identify and evaluate the effectiveness of health education on increasing self-efficacy, reducing HbA1C, increasing knowledge, physical activity, self-management, and quality of life.
Subjects and Method: This was a systematic review of RCT (Randomized Controlled Trial) and quasi-experiment. Online articles between 2015 and 2020 were obtained from the PubMed, ProQuest, Wiley, and ScienceDirect databases. Keywords Diabetes" OR "Diabetic" AND "Education" OR "Education Program" OR "Education Intervention" AND "Self-Efficacy." PICO was as follows. Population: diabetic patients. Intervention: education. Comparison: standard service. Outcomes: self-efficacy, knowledge, self-management, physical activity, quality of life, and HbA1C. CASP Critical Appraisal was used to evaluate the quality of study.
Results: A total of 5 articles from Thailand, the United States, China, Pakistan, and Lebanon, were identified and reviewed in this study. The results showed that education increased self-efficacy, reduced HbA1C, increased knowledge, physical activity, self-management, and quality of life.
Conclusion: Education can increase self-efficacy, reduce HbA1C, increase knowledge, physical activity, self-management, and quality of life.

Keywords: education, self-efficacy, diabetes

Correspondence:
Yanty Tindika. Universitas Hasanuddin. Perintis Kemerdekaan 11 Makassar, South-Celebes. Email: yantytindika05@gmail.com. Mobile:085255104251.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.44

THE ASSOCIATION BETWEEN SELF-ESTEEM AND RESILIENCE IN PEOPLE LIVING WITH HIV/AIDS AT THE PELITA ILMU FOUNDATION

Ida Ayu Iswari Pramestigiri[1)], Mustofa[2)], Priscilla Jessica Pihahey[1)]

[1)] School of Health Polytechnic, Ministry of Health Sorong, West Papua
[2)] School of Health Sciences Indonesian Maju, Jakarta

ABSTRACT

Background: People with HIV/AIDS (PLWHA) experience some physical, social, and psychological obstacles. Resilience is important to improve positive psychological condition so that it can improve mental and physical health, and PLWHAs are able to survive. The hypothesis of this study was that resilience was positively correlated with self-esteem. This study aimed to determine the effect of self-esteem on the resilience of HIV/AIDS persons.
Subjects and Methods: This was a cross-sectional study conducted in November-December 2017 at the Pelita Ilmu Foundation, South Jakarta. The population in this study were all people PLWHA who were taken care at the Pelita Ilmu Foundation. A sample of 60 PLWHA was selected randomly for this study. The dependent variable was resilience. The independent variable was self-esteem. The data were collected by a questionnaire and analyzed by Pearson correlation.
Result: Resilience was positively correlated with self-esteem among PLWHA, and it was statistically significant (r= 0.53; p= 0.027).
Conclusion: Resilience is positively correlated with self-esteem among PLWHA, and it is statistically significant.

Keywords: self-esteem, resilience, PLWHA

Correspondence:
Ida Ayu Iswari Pramestigiri. School of Health Polytechnic, Ministryof Health Sorong, West Papua. Jl. Slamet Riyadi Kampung Ambon Atas Manokwari, West Papua. Emai: dayuesti-@gmail.com Mobile: 081218307870.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.45

PATIENT SELF-EFFICACY AND ITS ASSOCIATION WITH THE QUALITY OF LIFE IN CANCER PATIENTSRECEIVING CHEMOTHERAPY AT PIRNGADI HOSPITAL, MEDAN

Agustina Boru Gultom, Indrawati

Department of Nursing, Health Polytechnics,
Ministry of Health, Medan, Indonesia

ABSTRACT

Background: The quality of life is one of the most concerning health issues for oncology patients. Self-efficacy is a mechanism through which self-management can be achieved. Quality of life is adversely impacted by multi-mobility but could be improved by effective self-management. This study aimed to analyze the relationship between self-efficacy and the quality of life of cancer patients following chemotherapy.
Subject and Method: This was a cross-sectional study conducted at Pirngadi Hospital, Medan, North Sumatera. A total of 47 cancer patients who underwent at least a second chemotherapy aged ≥18 years was selected. The dependent variable was the quality of life. The independent variable was self-efficacy. Self-efficacy was measured by Cancer Behavior Inventory-B. Quality of life was measured by FACT-G Version-4. The data were analyzed using odds ratio and the chi-square test.
Results: Quality of life was positively associated with self-efficacy in cancer patients (OR= 2.37; p= 0.023).
Conclusion: Quality of life is positively associated with self-efficacy in cancer patients.

Keywords: self-efficacy, quality of life, cancer, chemotherapy

Correspondence:
Agustina Boru Gultom. Department of Nursing, Health Polytechnics, Ministry of Health. Jl. Bunga Ncole 95, Victory Tani Village, Medan Tuntungan District, Medan, Indonesia. Email: agustinagultom203@gmail.com. Mobile: 08126420182.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.46

FACTORS ASSOCIATED WITH CAREGIVER ABILITY IN REDUCING THE RECURRENCY IN PEOPLE WITH A HISTORY OF MENTAL HEALTH DISORDER IN KEDIRI, EAST JAVA

Agustin Widyowati[1,2], Bhisma Murti[3], Aris Sudiyanto[4], Suminah[2]

[1]School of Health Sciences Ganesha Husada, Kediri, East Java
[2]Doctoral Program in Community Development and Empowerment, Universitas Sebelas Maret
[3]Masters Program in Public Health, Universitas Sebelas Maret
[4]Department of Psychiatric, Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: In Indonesia, the prevalence of people with mental health disorders remains high, reaching 7 people per 1,000 population. Relapse prevention in mental health care is important. Utilizing the strengths of families can be a valuable approach in relapse prevention. This study aimed to examine the factors associated with caregiver ability in reducing the recurrency of people with a history of mental health disorder in Kediri, East Java.
Subjects and Method: This was a cross-sectional study conducted in Kediri City, East Java, in August 2018. A sample of 76 family members of people with a history of mental disorders was selected purposively. The dependent variable was the recurrence of mental health disorders. The independent variables were caregiver's ability in early detection of relapse, coping mechanism of caregivers, drug taking supervision, and emotional expression. The data were collected by questionnaire and analyzed by multiple logistic regression.
Results: The recurrence of people with a history of mental health disorder increased with (1) Low caregiver's ability in early detection of relapse (OR= 39.77; 95% CI= 4.94 to 320.13; p= 0.001); (2) Lack of drug taking supervision (OR= 8.54; 95% CI= 1.20 to 60.86; p= 0.032); (3) Weak coping mechanism of caregivers (OR= 7.80; 95% CI= 1.07 to 56.72; p= 0.042); and (4) High emotional expression (OR= 6.97; 95% CI= 1.16 to 41.79; p= 0.034).
Conclusion: The risk of recurrence in people with a history of mental health disorder increases with low caregiver ability in early detection of relapse, lack of drug taking supervision, weak coping mechanism of caregivers, and high emotional expression.

Keywords: caregiver ability, recurrence, people with mental health disorder

Correspondence:
Agustin Widyowati. School of Health Sciences Ganesha Husada. Jl. Budaya Cipta 2 No. 02, Sukorejo, Ngasem, Kediri, East Java. Email: agustwidy@gmail.com. Mobile: 085735399728.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.47

IMPROVING NUTRITION KNOWLEDGE IN ADOLESCENTS USING "GIZIKU BAIK" APPLICATION IN SENIOR HIGH SCHOOLS IN SEMARANG, CENTRAL JAVA

Vilda Ana Veria Setyawati[1)], Arif Kurniadi[2)]

[1)]Department of Public Health, Faculty of Health Sciences, Universitas Dian Nuswantoro
[2)]Department of Medical Record and Health Information System, Faculty of Health Sciences, Universitas Dian Nuswantoro

ABSTRACT

Background: The use of gadgets is increasing in teenagers, accompanied by negative impacts. Developing a good nutrition application with an attractive appearance is intended to increase the teenage nutrition knowledge in improving their nutrition status. This study aimed to determine the acceptance and barrier to using "Giziku Baik" nutrition application by both teenagers and teachers as users.
Subjects and Method: This was a qualitative study conducted at the Laboratory High School, Universitas PGRI, Semarang in September 2021. A total of 11 informants, consisting of 8 students, 2 teachers, and 1 school principal was selected for this study. The study variable was the acceptance and barrier to "Giziku Baik" nutrition application. The data were collected by focus group discussion (FGD) and observation. The degree of acceptance was measured by User Acceptance Testing (UAT). The data were described in percent.
Results: All informants accepted *Giziku Baik* app. The app was installed on their respective smartphones, except those IOS users. The results of FGD showed: (1) There is the need for improvements in the appearance of the app features so that it can increase the interest of teenage users; (2) The educational feature needs to be shortened so that it can convey the more focused nutritional messages; and (3) There should have notification/ reminder such as alarm so that it can save input data every month on the same date. The school teachers and principal said that the *Giziku Baik* app could support the school health effort program being initiated by the school, which was established five years ago. The degree of acceptance for various aspects of *Giziku Baik* app were as follows: (1) usefulness (70%), (2) ease of use (80%), (3) content (50%), (4) accuracy (50%), (5) format (50%), (6) convenience (60%), and (7) timeliness (70%).
Conclusion: The Giziku Baik app can be used by users and synergized with the school health program to improve nutrition status in adolescent. However, it needs some modifications to be accepted and used by users in the broader scope.

Keywords: teacher, acceptance, nutrition knowledge, *Giziku Baik* app, teenager

Correspondence:
Vilda Ana Veria Setyawati. Department of Public Health, Universitas Dian Nuswantoro. Jl. Imam Bonjol 207, Pendrikan Kidul, Semarang, Central Java. Email: vilda.setyawati@-dsn.dinus.ac.id. Mobile: +6282134912185.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.48

ADHERENCE TO TREATMENT IN PATIENTS WITH MALARIA AT SANGGENG PUSKESMAS, MANOKWARI, WEST PAPUA

Deasy Erawati[1,2)], Febriza Dwiranti[1)], Rina A. Mogea[1)]

[1)]Graduate School, Universitas Papua
[2)]School of Health Polytechnic, Ministry of Health, Sorong, West Papua

ABSTRACT

Background: Manokwari is an endemic malaria area. Health workers confirm malaria diagnosis through microscopic examination, which is the gold standard for malaria infection. Monitoring patients taking drugs until they run out needs to be done so that plasmodium resistance to malaria drugs does not occur. This study aimed to analyze the compliance of anti-malaria treatment among malaria patients.
Subjects and Method: This was a qualitative descriptive study conducted in Sanggeng, Manokwari, West Papua, from November to December 2019. A total sample of 35 malaria patients in the health center. The dependent variable was adherence to taking malaria medication. The patient's medication adherence was seen from the examination of the preparations and the patient's follow-up. The data was collected by interview and microscopic examination. The research instrument used a malaria card and a medication adherence questionnaire. The data were analyzed descriptively.
Results: The patient's medication adherence were followed up and evaluated on days 4, 7, 14, 21, and 28. A total of 28 (80%) patients were positively diagnosed with *Plasmodium vivax*. Twenty-three patients came on day 4, 7 patients came on day 14, and 1 patient came on day 21.
Conclusion: Most malaria patients are disobedient to follow anti-malaria treatment at health facilities.

Keywords: malaria, microscopic examination, anti-malarial drugs, adherence

Correspondence:
Deasy Erawati. School of Health Polytechnic, Ministry of Health, Sorong, West Papua. Jl. Slamet Riyadi, Kampung Ambon Atas, Manokwari, West Papua. Email: deasyerawati2-@gmail.com. Mobile: 082238169023.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.49

NURSING STUDENTS AS A ROLE MODEL FOR THEIR FAMILIES IN THE MIDST OF THE COVID-19 PANDEMIC: A QUALITATIVE STUDY

Florida Listavia, Christianus Eko, Agustinus

Dharma Insan Nursing Academy Pontianak, West Kalimantan

ABSTRACT

Background: Healthcare professionals have to deal with multiple roles. They are often considered as role models, regarding health, while they are expected to excel in such behaviors. This study aimed to explore the role model of nursing students in promoting healthy behavior in their families.
Subjects and Method: This was a descriptive qualitative study conducted at Dharma Insan School of Nursing, Pontianak, West Kalimantan. A sample of 5 nursing students were selected for this study. The data were collected by an in-depth interview.
Results: Students had acted as a role model for their families by being a good example in the family in washing hand, using face mask, taking a shower immediately after traveling, social distancing, and exercising with the family to prevent COVID-19.
Conclusion: Nursing students can promote community health and prevent COVID-19 transmission by playing their roles as a change agent to bring about healthy behavior in their families.

Keywords: COVID-19, role model, health behavior, family, nursing students

Correspondence:
Florida Listavia Panggus. Dharma Insan Nursing Academy. Jl. Hasanuddin 115 C, Sungai Jawi Dalam, Pontianak, West Kalimantan. Email: florida.listavia@akper-dharmainsan.ac.id. Mobile: 081219516769.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.50

DIGITAL HEALTH EDUCATION INCREASES MOTIVATION, BELIEF AND HEALTHY LIFE BEHAVIOR IN WOMEN OF REPRODUCTIVE AGE

Emy Suryani, Sri Wahyuni, Henik Istikhomah

Health Polytechnics, Ministry of Health Surakarta, Central Java

ABSTRACT

Background: Applications Digital for health promotion attract more attention to the community and health service providers so that they have the potential to overcome the challenges of people's motivation to change behavior healthy living. The number of women of childbearing age in 2018 was 151,983 people in Surakarta. This study aimed to prove that digital health education has more influence on motivation, belief, and healthy living behavior in women of reproductive age.
Subjects and Method: This was a quasy experiment with design one group pretest-posttest. A sample of 120 women of reproductive age was recruited from Health Center of Mojosongo, Surakarta, Central Java. The dependent variables were digital health education and leaflet. The independent variables were motivation, health belief, and healthy behavior. The data were analyzed using independent t-test.
Results: Mean of motivation score in digital health education (Mean=29.6; SD= 3.07) was lower than leaflet (Mean= 30.90; SD= 2.78) with p= 0.017. Positive health belief in digital health education (Mean= 12.12; SD = 1.25) was lower than leaflet (Mean= 13.15; SD= 2.02) with p= 0.017. Healthy life behavior in digital health education (Mean=0.25; SD= 0437) was lower than leaflet (Mean=0.87; SD= 0.43) with p=0.017.
Conclusion: Digital health education and leaflet can be used to improve motivation, health belief, and healthy behavior in women of reproductive age.

Keywords: digital health education, motivation, belief, behavior

Correspondence:
Emy Suryani. Health Polytechnics, Ministry of Health Surakarta**.** Jl. Letjend Soetoyo Mojosongo, Surakarta, Central Java. Email: emyyani@yahoo.com. Mobile: 0819-15305005.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.51

Trend Analysis of the Mobile Health Covid-19 Application as a Preventive Strategic in the Era Of Pandemic Covid-19

Aris Widiyanto, Joko Tri Atmojo, Rina Tri Handayani

School of Health Sciences Mamba'ul 'Ulum Surakarta

ABSTRACT

Background: Digital technology innovation is believed to increase the effectiveness of the health system's response to epidemics. Some of the potential benefits of mobile Health (mHealth) applications for managing the coronavirus 2019 (COVID-19) pandemic have been explored. This study aimed to determine the trend of using mobile health applications during the COVID-19 pandemic in Surakarta, Central Java.
Subjects and Methods: This study was descriptive and analytical study conducted in Surakarta, Central Java, from February to August 2021. A sample of 184 subjects aged 15 to 64 years was selected in this study. Data were collected using a questionnaire through an online survey. Data were presented in descriptive-analytical form based on the characteristics of gender, age, occupation, and education.
Results: The majority of study subjects were women (84.78%), with an average age (Mean = 20.61; SD = 0.12). As many as 55.98% had used the COVID-19 mobile health application. 51.45% were satisfied with the COVID-19 mobile health application service used. As many as 60.19% of the subjects felt it was faster to get information about COVID-19. 73.78% of the study subjects reported the mobile health application could improved knowledge about preventing transmission of COVID-19. As many as 71.84% reported that the application could assist in implementing health protocols.
Conclusion: The mobile health COVID-19 application accelerates the dissemination of health information, increases knowledge about preventing transmission of COVID-19 and implementation of health protocols.

Keywords: mobile health, COVID-19, application, prevention

Correspondence:
Aris Widiyanto. School of Health Sciences Mamba'ul 'Ulum Surakarta, Central Java. Email: widiyanto.aris99@gmail.com. Mobile: +628139209095.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.52

RESILIENCE IN PREGNANT MOTHERS WITH HIV DURING POST-COVID-19 PANDEMIC

Erlin Kiriwenno[1)], Suryo Ediyono[2)], Nur Alam[3)], Andris Noya[4)]

[1)]Diploma Midwifery Study Program, Institute of Health Science Maluku Husada
[2)]Faculty of Cultural Sciences, Universitas Sebelas Maret
[3)]Undergraduate Midwifery and Midwifery Profession, Universitas Mohammad Husni Thamrin
[4)]Faculty of Religious Social Sciences IAKN Ambon

ABSTRACT

Background: The recent COVID-19 pandemic has had significant psychological and social effects on the population. Pregnant women with HIV are vulnerable group to this disease. One way that pregnant women with HIV can do during a pandemic or post-pandemic is resilience. This study aimed to examine the resilience of pregnant women with HIV after the COVID-19 pandemic.
Subjects and Method: This was a qualitative study with a phenomenological approach. This study was conducted in Ambon, Maluku in June to August 2021. Two HIV-positive pregnant women were selected using the snowball sampling technique. The dependent variable was HIV. The independent variable was resilience. Data were collected using in-depth interview.
Results: Pregnant women with HIV can create resilience within themselves. Resilience was carried out to maintain physical and psychological health. There were four types of resilience: (1) Pregnant women with HIV remained productive after the COVID-19 pandemic; (2) Pregnant women with HIV were able to manage stress; (3) Pregnant women with HIV established good social relationships; and (4) Pregnant women with HIV drew closer to God.
Conclusion: Pregnant women with HIV perform resilience in the post-COVID-19 pandemic. Resilience maintains physical and psychological health in the daily life.

Keywords: resilience, HIV, post-pandemic, pregnant women.

Correspondence:
Erlin Kiriwenno. Diploma Midwifery Study Program, Institute of Health Science Maluku Husada. Jl. Waiselang-Kairatu Ceram Cross. West Seram Regency. Maluku. Email: kiriwennoe@gmail.com: Mobile: +6281344220098.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.54

COMMUNITY ACCEPTANCE OF THE COVID-19 VACCINATION USING HEALTH BELIEF MODEL: A LITERATURE REVIEW

Maria Yeny Eskawati

Institute of Science and Health Technology Insan Cendekia Medika Jombang

ABSTRACT

Background: Vaccination aims to give protection to the community against an infectious disease. However, this effort may face obstacle if the community refuse to receive vaccination. This study aimed to investigate factors affecting community acceptance of COVID-19 vaccination using health belief model (HBM).
Subjects and Method: This article review began by collecting relevant sources regarding the acceptance of public perceptions of the COVID-19 vaccine. The articles were reviewed using Cochrane.
Result: Public acceptance of the COVID-19 vaccine was strongly influenced by the public's perception of how beneficial the vaccine is, its impact, and the perception of severity when exposed to COVID-19. The decision to accept vaccination depended upon information about the vaccine itself, and the public trust in the system and current medical equipment.
Conclusion: Perceived severity, perceived benefit, perceived impact, public trust in the system and the medical equipment, are factors affecting acceptance of COVID-19 vaccination.

Keywords: perception, health belief model, vaccination, COVID-19

Correspondence:
Maria Yeny Eskawati. Institute of Science and Health Technology Insan Cendekia Medika Jombang, East Jawa. Email: mariayenyeskawati@gmail.com. Mobile: +6289796348186.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.54

DIET PERCEPTION AND EATING PRACTICE AMONG DIABETIC MEMBERS OF THE INDONESIAN DIABETES ASSOCIATION IN BOGOR, WEST JAVA

Nazarina[1)], Ratna Djuwita[2)], Risatianti Kolopaking[3)], Krisnawati Bantas[4)], Ahmad Syafiq[5)]

[1)]Health Research and Development Agency, Jakarta
[2)]Faculty of Health Community, Universitas Indonesia
[3)]Faculty of Psychology, Universitas Syarif Hidayatullah, Jakarta

ABSTRACT

Background: Diet is an essential diabetes management. Unfortunately, diabetic people often resist to adopt a new dietary regimen. This resistance may relate to their misperception regarding diabetes diet and eating practice. This study aimed to explore the perception and eating practice among diabetics related to diabetes diet.
Subjects and Method: This study was qualitative using focus group discussion (FGD) for data collection. The study was conducted in Bogor, West Java. Thirty participants were purposively selected from members of the diabetic association in Bogor. The participants were divided into 5 groups by gender and age. FGD was conducted in each group lasting for 60 to 90 minutes. The discussion was recorded and transcribed. Thematic analysis was carried out by reading all transcripts and identifying the frequently emerging themes. To cross validate FGD information, in-depth interview was carried out with some family members of the diabetic people.
Results: Many participants had misperception regarding the correct diet and eating practice. As opposed to the recommended diet regimen, they ate less frequently but more amount of food. Social-culture, like food gathering, sharing, and cooking, was associated with this misperception and unfavorable dietary practice.
Conclusion: Many diabetic people practice inappropriate diabetes dietary regimen. Therefore, diabetic educator and nutrition counselor are recommended to provide health education to the diabetic people.

Keywords: dietary perception, eating practice, culture, diabetic people.

Correspondence:
Nazarina. Health Research and Development Agency, Jakarta. Jl Dr. Semeru 63. 16112. Bogor. West Java. Email: arina_ruth@yahoo.com. Mobile: +6281316046870.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.55

PHARMACIST PERCEPTION ON THE PHARMACEUTICAL SERVICES DURING COVID-19 PANDEMIC: MIXED-METHOD STUDY

Shahiroh Haulaini[1)], Anna Wahyuni Widayati[2)], Susi Ari Kristina[2)]

[1)]Masters Program of Pharmacy Management, Universitas Gadjah Mada, Yogyakarta
[2)]Faculty of Pharmacy, Universitas Gadjah Mada, Yogyakarta

ABSTRACT

Background: COVID-19 is a global pandemic originating from Wuhan, China at the end of 2019. Pharmacists have an important role when a disaster occurs by ensuring the supply of medicines, medical devices, and medical materials. This study aimed to understand the perception of pharmacists on their role in providing pharmaceutical services to the community during the COVID-19 pandemic.
Subjects and Method: This was a mixed-method study. The qualitative research was carried out using the Focus Groups Discussion (FGD) involving 15 informants representing pharmacists in the hospital, health centers, clinics, and pharmacies. The data were analyzed by inductive content analysis. The quantitative research was conducted by cross-sectional design with a sample of 115. The dependent variables were the pharmacist's role in the management of drugs, medical devices and medical consumables, as well as the pharmacist role in the clinical pharmacy services. The independent variables were age, gender, length of practice experience, place of practice, number of training/seminars related to COVID-19 attended. The independent variables also included the external factors affecting the role and practice of pharmacists during the pandemic.
Results: The qualitative study found some aspects were related to the perception of pharmacists in the pharmaceutical services during a pandemic, including the role of pharmacists in the management of pharmaceutical preparation, medical devices and medical consumables, the role of pharmacists in clinical pharmacy services, public consumption behavior towards pharmaceutical preparation, the role and capacity of the pharmacists, and other external factors affecting the role and practice of the pharmacists.
Conclusion: Pharmacists practicing the pharmaceutical services view their role as the same before and after the COVID-19 pandemic, with the development of their roles and capacities. Changes in people consumption behavior and external support also affect the pharmacists.

Keywords: perception, role, pharmacist, pandemic, COVID-19.

Correspondence:
Shahiroh Haulaini. Masters of Pharmacy Management, Universitas Gadjah Mada. Jl. Sekip Utara, Sleman 55281, Yogyakarta. Email: Shahirohhaulaini95@mail.ugm.ac.id. Mobile: +6282312211617.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.56

THE EFFECT BREAKFAST HABITS AND CLEAN HEALTHY BEHAVIOR ON CHILD NUTRITIONAL STATUS

Uswatun Khasanah[1)], Eni Suhaeni[2)], Catur Setiya Sulistiyana[3)]

[1)]Department of Epidemiology and Biostatistics,
Faculty of Medicine, Universitas Swadaya Gunung Jati
[2)]Department of Public Health, Faculty of Medicine,
Universitas Swadaya Gunung Jati
[3)]Department of Medical Education, Faculty of Medicine,
Universitas Swadaya Gunung Jati

ABSTRACT

Background: Nutritional status reflects the balance between food intake and nutritional requirement for the body's metabolism. Many Indonesian children had nutritional problems. Efforts had been taken to improve breakfast habit and to practice clean and healthy behavior. This study aimed to determine the effect of breakfast habit and clean and healthy living behavior on nutritional status.
Subjects and Method: This was a cross-sectional study conducted at an elementary school in Jatisura Majalengka, West Java. A total of 180 primary students from grades 1 to 6 were selected for this study. The dependent variable was nutritional status. The independent variables were breakfast habit and clean healthy behavior. Nutritional status was measured based on body mass index. The other data were obtained by questionnaire. The data were analyzed using *Spearman rank test*.
Results: A total of 121 children (67.2%) had good nutritional status, meanwhile 27 children (15.0%) were underweight, and 18 children (10%) were obese. A total of 124 children (68.9%) had good clean healthy behavior habits and only 2 children (1.10%) had bad clean healthy behavior. Breakfast habit was correlated with nutritional status and it was statistically significant (p= 0.001). Clean healthy behavior had non significantly correlation with child nutritional status (p= 0.848).
Conclusion: Good breakfast habit positively affects nutritional status of children.

Keywords: nutritional status, breakfast habit, clean healthy behavior.

Correspondence:
Uswatun Khasanah. Faculty of Medicine, Universitas Swadaya Gunung Jati. Jl. Canal Pemuda, 1 A Cirebon, West Java, Indonesia. Email: uswatunhasanah7@gmail.com. Mobile: +6281320001650.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.57

FACTORS ASSOCIATED WITH MEDICAL TREATMENT OBEDIENCE IN HYPERTENSIVE PATIENTS AT PASIR PANJANG COMMUNITY HEALTH CENTER, KUPANG, EAST NUSA TENGGARA, INDONESIA

Maria Prisila Sirik, Serlie Kristindriani Littik, Dominirsep Ovidius Dodo

Faculty of Public Health, Universitas Nusa Cendana, Kupang,
East Nusa Tenggara, Indonesia

ABSTRACT

Background: The control of hypertension aims to reduce cardiovascular morbidity and mortality. Although making the diagnosis may considered easy and efficient treatment measures exist, the effective maintenance and control of the therapeutic regimen related to hypertension has been an arduous task. This situation has been experienced by the individuals affected by the condition, their family members, healthcare professionals and organizations. This study aimed to investigate factors associated with medical treatment obedience in hypertensive patients.
Subjects and Method: This was a cross-sectional study conducted at Pasir Panjang community health center in Kupang, East Nusa Tenggara, Indonesia. A sample of 59 hypertensive patients was selected by random sampling. The dependent variable was medical treatment obedience. The independent variables were education, knowledge, family support, and health personnel role. The data were collected by medical record and questionnaire. The data were analyzed by Chi-square.
Results: High education (OR= 10.82; 95% CI=2.86 to 40.96; p= 0.002), high knowledge (OR= 7.00; 95% CI= 2.66 to 18.43; p= 0.001), strong family support (OR= 26.57; 95% CI= 6.98 to 101.10; p< 0.001), and active health personnels (OR= 40.96; 95% CI= 8.64 to 194.27; p= 0.003) increased medical treatment obedience in hypertensive patients.
Conclusion: High education, high knowledge, strong family support, and active health personnels increase medical treatment obedience in hypertensive patients.

Keywords: hypertension, treatment obedience, family support, health personnel role

Correspondence:
Serlie K.A. Littik. Faculty of Public Health, Universitas Nusa Cendana, Kupang, East Nusa Tenggara, Indonesia. Jl. Adisucipto Penfui Kupang. Email: serlie.littik@staf.-undana.ac.id. Mobile: 081339100780.

https://doi.org/10.26911/AB.Promotion.ICPH.08.2021.58

TOPIC III :
MATERNAL AND CHILD HEALTH

PATH ANALYSIS ON THE SOSIOECONOMIC DETERMINANTS OF ANEMIA IN FEMALE HIGH SCHOOL STUDENTS IN KLATEN CENTRAL JAVA

Nurmala Dewayanti[1)], Endang Sutisna Sulaeman[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Iron deficiency anemia affects a large number of women in developing countries, especially during reproductive age. Anemia negatively affects academic performance, productivity, and general wellbeing of adolescents. This study aimed to explore socioeconomic determinants of anemia in female high school students.
Subjects and Method: A cross sectional study was conducted in Klaten, Central Java, in February 2020. A sample of 200 female adolescents aged 15 to 19 years was selected by probability sampling. The dependent variable was anemia. The independent variables were knowledge, family income, menstrual pattern, iron intake. Hemoglobin level was measured by Hemoglobinometer. The other variables were measured by questionnaire. The data were analyzed by a multiple linier regression run on STATA 13.
Results: The risk of anemia in female adolescents increased with low knowledge (b= 2.72; 95% CI= 0.45 to 2.84; p= 0.007), low family income (b= 2.64; 95% CI= 0.41 to 2.82; p= 0.008), poor nutritional intake (b= 3.81; 95% CI= 1.20 to 3.74; p <0.001), irregular menstrual pattern (b= 3.30; 95% CI= 0.79 to 3.11; p <0.001), and did not consume iron tablet (b= 4.24; 95% CI= 1.73 to 4.70; p<0.001).
Conclusion: The risk of anemia in female adolescents increases with low knowledge, low family income, poor nutritional intake, irregular menstrual pattern, and did not consume iron tablet.

Keywords: anemia, female adolescent, path analysis

Correspondence:
Nurmala Dewayanti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: nurmaladewayanti@gmail.com. Mobile: +6287734875004.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.01

EXCLUSIVE BREASTFEEDING, COMPLEMENTARY FEEDING, AND THE RISK OF STUNTING IN CHILDREN UNDER FIVE IN PINRANG REGENCY, SOUTH SULAWESI

Putri Andini Muslimah[1)], Harsono Salimo[2)], Yulia Lanti Retno Dewi[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Pediatrics, Dr. Moewardi Hospital, Surakarta
[3)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Breast milk is an essential nutrition for child growth. Exclusive breastfeeding is followed of provision appropriate complementary feeding may affect linear growth in children. This study aimed to determine the effects of exclusive breastfeeding and complementary feeding on the incidence of stunting in children under five in Pinrang Regency, South Sulawesi, Indonesia.
Subjects and Method: This was an analytic observational study with a cross sectional design. The study was conducted in Pinrang Regency, South Sulawesi, Indonesia, from January to March, 2021. A sample of 200 children under five was selected randomly. The dependent variable was stunting. The independent variables were exclusive breastfeeding, complementary feeding, worm infection, maternal education, maternal height, family income, number of family member, birth weight, and birth length. The data were collected by questionnaire and analyzed by a multiple logistic regression run on Stata 13.
Results: The risk of stunting in children under five increased with non exclusive breastfeeding (OR= 2.57; 95% CI= 1.04 to 6.38; p= 0.041), inappropriate complementary feeding (OR= 3.02; 95% CI= 1.15 to 7.87; p= 0.024), had worm infection (OR= 7.55; 95% CI= 2.96 to 19.23; p <0.001), maternal education <Senior high school (OR= 2.73; 95% CI= 1.13 to 6.63; p= 0.026), low family income (OR= 2.73; 95% CI= 1.06 to 7.03; p= 0.038), family member ≥5 (OR= 7.88; 95% CI= 3.04 to 20.42; p< 0.030), maternal height <150 cm (OR= 2.66; 95% CI= 1.10 to 6.43; p= 0.030), low birth weight (OR= 3.75; 95% CI= 1.42 to 9.88; p= 0.008), and birth length <48 cm (OR= 6.28; 95% CI= 2.56 to 15.40; p<0.001).
Conclusion: The risk of stunting in children under five increases with non exclusive breastfeeding, inappropriate complementary feeding, has worm infection, maternal education <Senior high school, low family income, family member ≥5, maternal height <150 cm, low birth weight, and birth length <48 cm.

Keywords: stunting, exclusive breastfeeding, complementary feeding.

Correspondence:
Putri Andini Muslimah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ptriandn15@gmail.com. Mobile +6285331663133.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.02

ASSOCIATION BETWEEN GESTATIONAL AGE AND ASPHYXIA IN INFANTS IN KARANGANYAR HOSPITAL, CENTRAL JAVA

Yulita Endah Mayaningrum[1)], Heni Puji Wahyuningsih[2)], Nining Wiyati[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Study Program in Midwifery, Health Polytechnics Ministry of Health Yogyakarta

ABSTRACT

Background: Asphyxia has been hypothesized with hemostatic abnormalities in later stage of life. Perinatal asphyxia can occur due to maternal condition during pregnancy, uterine, or placenta and umbilical cord conditions, and prematurity. The purpose of this study was to examine the association between gestational age and asphyxia in infants in Karanganyar Hospital, Central Java, Indonesia.
Subjects and Method: A case control retrospective study was conducted in Karanganyar, Central Java, in January 2017. A sample of 204 infants was selected for this study. The study subjects were divided into two groups: (1) 102 infants with asphyxia (case group) and (2) 102 infants without asphyxia. The dependent variable was asphyxia. The independent variable was gestational age. The data were obtained from medical record. The data were assessed using Chi-square.
Results: Gestational age <37 weeks or >42 weeks increased the risk of asphyxia and it was statistically significant (OR= 3.42; p= 0.003).
Conclusion: Gestational age <37 weeks or >42 weeks increases the risk of asphyxia.

Keywords: asphyxia, gestational age, maternal age, parity

Correspondence:
Yulita Endah Mayaningrum. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: yulita.maya95@-gmail.com. Mobile: +6285817887585

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.03

COMBINATION ORAL CONTRACEPTIVE ON THE RISK OF VENOUS THROMBOEMBOLI: A META-ANALYSIS

Putri Yunita Sari[1)], Eti Poncorini Pamungkasari[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Drospirenone-containing oral contraceptives, which have become available more recently, have a mineralocorticoid-derived progestational component. Previous studies hypothesized that mineralocorticoid-derived progestational component had higher effect on the venous thromboembolism. This study aimed to assessed combination oral contraceptive on the risk of venous thromboemboli.
Subjects and Method: A systematic review and meta analysis study was conducted by collecting articles from Google Scholar, PubMed, Research Gate, Scopus, Springer Link, and Science direct databases. Keywords used oral contraceptive" OR "combined oral contraceptives" OR "risk factor" AND "venous thrombolism" OR "VTE" AND "family planning". The inclusion criteria were full text case control studies published from 2000 to 2020. The articles were assessed using RevMan 5.3 software.
Results: A review from 9 studies showed that combination oral contraceptive elevated the risk of venous thromboemboli in family planning acceptors (aOR= 2.95; 95% CI= 1.80 to 4.84; $p<0.001$). No publication bias was found in this study.
Conclusion: Combination oral contraceptive elevates the risk of venous thromboemboli in family planning acceptors.

Keywords: combination oral contraceptive, venous thromboemboli, family planning

Correspondence:
Putri Yunita Sari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: puyunita16@gmail.com. Mobile: 08818794685.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.04

THE EFFECT OF ORAL CONTRACEPTIVE ON BREAST CANCER: A META-ANALYSIS

Dilma'aarij[1)], Setyo Sri Rahardjo[2)], Eti Poncorini Pamungkasari[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Oral contraceptive is the most commonly prescribed contraceptive in women of reproductive age. Estrogen, as a component of oral contraceptives, has been postulated induce the risk of breast cancer. The purpose of this study was to assessed the effect of oral contraceptive on breast cancer using meta-analysis.
Subjects and Method: A systematic review and meta analysis study was conducted by following PRISMA flow diagram. The study collected articles from PubMed, Science Direct, and Google Scholar databases. Keywords used "Women aged 15-80 Years" OR "Women of Menopause" AND "Contraceptive Pills" AND "Breast Cancer". The inclusion criteria were full text observational studies, published from 2010 to 2020, used English language, and reported adjusted Odds Ratio. The articles that met the criteria were assessed using RevMan 5.3 application program.
Results: 10 case control studies were analyzed for meta analysis. This study found that oral contraceptive had possibility to breast cancer 1.48 times than non hormonal contraceptive (aOR= 1.48; 95% CI= 1.16 to 1.90; p= 0.002).
Conclusion: Oral contraceptive increases the risk of breast cancer 1.48 times than non hormonal contraceptive.

Keywords: oral contraceptive, breast cancer

Correspondence:
Dilma'aarij RiskiAgustia. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: dilmarij@gmail.com. Mobile: 082230100871.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.05

META-ANALYSIS: THE EFFECT OF PRENATAL YOGA ON BIRTH LABOR DURATION

Meida Siwi Riawati[1)], Uki Retno Budihastuti[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Departement of Obstetrics and Gynecology, Dr. Moewardi Hospital, Surakarta
[3)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Facilitation of a good childbirth experience requires use of self-comforting techniques that can help relieve pain and enhance labor progress. Yoga is an intervention based on mind and body interconnectedness, is one non-pharmacological method that can be used for assisting with and help women become accustomed to the natural, instinctive yoga-like positions often preferred during labor and delivery. Therefore, yoga can be an effective way to empower women during labor and to assist in attaining and maintaining their optimal level of functioning. This stduy aimed to investigate the effect of prenatal yoga on birth labor duration using systematic review and meta-analysis.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles published from 2005 to 2021. Articles search source were PubMed, Science Direct, Springer Link, Google Scholar, and Chorance Library databases. The inclusion criteria were English full text and randomized controlled trial. The articles were filtered using PICO model, including: (1) Population= pregnant women, (2) intervention= prenatal yoga, (3) comparison= non prenatal yoga, and (4) outcome= labor duration. Quantitative data analysis was processed by calculating standardized mean difference using Review Manager (RevMan 5.3).
Results: 9 articles were included for this meta-analysis. This study reported that prenatal yoga lowered labor duration (SMD= 0.88; 86% CI= -1.31 to -0.44 $p<0.001$).
Conclusion: Prenatal yoga lowers labor duration.

Keywords: labor duration, prenatal yoga, randomized controlled trial

Correspondence:
Meida Siwi Riawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: meida.siwi.r@gmail.com. Mobile: 087824093041.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.06

RELATIONSHIP BETWEEN ORAL CONTRACEPTION AND THE RISK OF BREAST CANCER

Bening Rahimi Titisari[1)], Vitri Widyaningsih[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Oral contraceptive uptake has been linked to an increased risk of breast cancer in the current studies. A systematic review and meta-analysis was conducted to investigate the relationship between oral contraception and the risk of breast cancer.
Subjects and Method: A systematic review and meta analysis was conducted to assess the association between oral contraceptive and the risk of breast cancer. This study collecting articles published from Google Scholar, PubMed, and Sciencedirect electronic databases, from 2010 to 2021. The inclusion criteria were full text, case control study, and reporting adjusted odd ratio. The selected articles were analyzed using PRISMA guideline and quantitative data were assessed by Revman 5.3 application program.
Results: 7 case control studies involved 1,809 cases and 1,829 control study subjects. Oral contraception increased the risk of breast cancer 2.51 times (aOR= 2.51; 95% CI= 2.04 to 3.07; $p < 0.001$). No publication bias was found in this study.
Conclusion: This meta analysis provides evidence of oral contraceptive use increases risk of breast cancer.

Keywords: oral contraceptive, breast cancer, meta analysis

Correspondence:
Bening Rahimi Titisari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A Surakarta 57126, Central Java. Email: dr.beningbiru@gmail.com Mobile: 082194287848.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.07

EFFECTS OF LOW AND SEVERE UNDERWEIGHT ON THE RISK OF CHILD DYING FROM HIV/AIDS: A META-ANALYSIS

Dyah Ambarwati[1)], Yulia Lanti Retno Dewi[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Malnutrition in the background of HIV/AIDS is a complex medical condition contributing to premature death and the development of comorbidities for affected children. A systematic review and meta-analysis was conducted to examine the effects of low and severe underweight on the risk of child dying from HIV/AIDS: a meta-analysis.
Subjects and Method: A meta analysis study was conducted by collecting articles from Google scholar and PubMed databases. The article search method is carried out using several methods, including boolean operators, handsearching, keywords, and MesH. The inclusion criteria were cohort study. The articles were systematically collected by PRISMA-P flow chart. Selected articles were analyzed using Review Manager 5.3 application software.
Results: Low body weight (aHR= 2.14; 95% CI= 1.92 to 2.39; p<0.001) and severe low body weight (aHR= 2.86; 95% CI= 1.76 to 4.64; p<0.001) increased the risk of child death infected by HIV/AIDS.
Conclusion: Low body weight and severe low body weight increase the risk of child death infected by HIV/AIDS.

Keywords: low body weight, severe low body weight, child death, HIV/AIDS

Correspondence:
Dyah Ambarwati. Masters Program in Public Health, Universitas Sebelas Maret, Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ambarwati.dyah27@gmail.com. Mobile: +6287735486570.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.08

SMOKING AND ITS ASSOCIATION WITH ECTOPIC PREGNANCY: A META ANALYSIS

Ridha Rossela Yanuari[1)], Eti Poncorini Pamungkasari[2)], Vitri Widyaningsih[2)]

[1)]Masters Program in Public Health,Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Over 98% of ectopic pregnancies implant in the Fallopian tube but the aetiology of tubal implantation is largely unknown. Transport of the embryo through the Fallopian tube is controlled by a combination of smooth muscle contractility and ciliary beating. Epidemiological studies have shown that cigarette smoking is a major risk factor for tubal ectopic pregnancy. Despite, the exact mechanism by which cigarette smoking leads to ectopic pregnancy remains uncertain. A systematic review and meta-analysis was conducted to explore the the association between smoking and ectopic pregnancy.
Subjects and Method: A systematic review and meta-analysis was carried out using PRISMA flow diagram. The articles were collected from PubMed, Science Direct, and Google Scholar databases, which published from 2000 to 2020. The inclusion criteria were full text, and case control study. The keywords used “smoking AND ectopic pregnancy" AND multivariate; smoking OR cigarette AND "ectopic pregnancy" OR “tubal pregnancy” AND multivariate. Articles that met the criteria were analysis using Revman 5.3 software application.
Results: Meta-analysis from 7 studies showed that smoking increased the risk of ectopic pregnancy 2.20 times in women of reproductive age than those who did not smoke (aOR= 2.20; 95% CI= 1.45 to 3.34; p= 0.002).
Conclusion: Smoking increases the risk of ectopic pregnancy.

Keywords: ectopic pregnancy, smoking, meta-analysis

Correspondence:
Ridha Rossela Yanuari. Masters Program in Public Health, Universitas Sebelas Maret, Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ridharosselayanuari@gmail.-com. Mobile: 085747311182.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.09

GESTATIONAL DIABETES MELLITUS AND ITS RELATIONSHIP WITH MACROSOMIA: A META ANALYSIS

Tantri Yunita Ratna[1)], Yulia Lanti Retno Dewi[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Fetal macrosomia was defined as a birth weight ≥4,000 g. The increased risk of macrosomia in gestational diabetes mellitus is mainly due to the increased maternal insulin resistance. In gestational diabetes mellitus, a higher amount of blood glucose passes through the placenta into the fetal circulation. As a result, extra glucose in the fetus is stored as body fat causing macrosomia. The purpose of this study was to explore the impact of gestational diabetes mellitus on fetal macrosomia.
Subjects and Method: A systematic review and meta-analysis was carried out using PRISMA flow diagram. The articles were collected from PubMed, Science Direct, and Google Scholar databases, which published from 2000 to 2020. The keywords used including "gestational diabetes mellitus" OR "diabetes in pregnancy" AND macrosomia OR "perinatal outcomes". The inclusion criteria were full text, observasional study, using English language, and reporting adjusted Odds Ratio for multivariate analysis. Articles that met the criteria were analysis using Revman 5.3 software application.
Results: 12 cohort studies were reviewed for this study. This meta analysis reported that pregnant women with gestational diabetes mellitus increased the risk to deliver macrosomia babies 1.36 times than those without gestational diabetes mellitus (aOR= 1.36; 95% CI= 1.15 to 1.60; p= 0.003).
Conclusion: Diabetes mellitus increases the risk to macrosomia than those without gestational diabetes mellitus.

Keywords: gestational diabetes mellitus, macrosomia, meta analysis

Correspondence:
Tantri Yunita Ratna. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: tantriyunita66@gmail.com. Mobile:082338868869

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.10

THE EFFECT OF ACUPRESSURE ON HYPEREMESIS GRAVIDARUM IN PREGNANT WOMEN: A META ANALYSIS

Alfira Fitriana[1)], Agus Kristiyanto[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Sport Education, Universitas Sebelas Maret
[3)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Nausea and vomiting are common complaints during early pregnancy. Many pharmacological treatments are available for hyperemesis, but concerns about their effect on fetal outcomes make many healthcare providers and pregnant women avoid or minimize the use of medications and prefer non-pharmacological therapies, such as acupressure. The purpose of this study was to determine the effects of acupressure on hyperemesis gravidarum in pregnant women.
Subjects and Method: A systematic review and meta analysis study was carried out using PRISMA flow diagram. Articles collection was obtained from Science Direct, PubMed, Google Scholar databases, which published from year 2005 to 2020. Keywords used accupresure OR pressure OR "accupuncture point" AND "hyperemesis gravidarum" OR nausea OR vomitting AND "randomized controlled trial". Quantitative data were assessed using Review Manager 5.3 (RevMan 5.3) software.
Results: 9 articles showed that acupressure was effective to reduce hyperemesis gravidarum with high heterogeneity between experiments (I^2= 83%; p<0.001). This meta-analysis used random effect model (REM). Pregnant women with acupressure therapy had hyperemesis gravidarum 0.8 units lower than those without acupressure therapy (SMD= -0.84; 95% CI= -1.18 to -0.5; p<0.001).
Conclusion: Acupressure can reduce hyperemesis gravidarum in pregnant women.

Keywords: acupressure therapy, hyperemesis gravidarum, pregnant women

Correspondence:
Alfira Fitriana. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: firafitriana01@gmail.com . Mobile: 085812071211.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.11

META-ANALYSIS THE EFFECT OF OBESITY ON POLYCYSTIC OVARY SYNDROME IN WOMEN OF REPRODUCTIVE AGE

Nabila Aulia Tsaqifah[1)], Rita Benya Adriani[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Considering that insulin resistance is a major contributor to the pathogenesis of the polycystic ovary syndrome (PCOS), obesity exacerbates hormonal and clinical features of PCOS, and women with PCOS appear at higher risk of obesity. This study aimed to explore the effect of obesity on polycystic ovary syndrome in women of reproductive age.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles from Google Scholar, PubMed, BMJ, ScienceDirect, SpingerLink, and Sage databases. The articles were filtered using PICO model, including: (1) Population= women of reproductive age, (2) Intervention= obesity, (3) Comparison= normal body weight, and (4) Outcome= PCOS. The inclusion criteria were full text, cross sectional or cohort studies, and reported adjusted odds ratio (aOR). The articles were collected using PRISMA diagram and the qualitative synthesis was assessed using Review Manager (RevMan 5.3).
Results: 4 studies were selected for qualitative synthesis using meta-analysis. This study showed that obesity in women of reproductive age increased the risk of PCOS 1.21 times than those with normal body weight (aOR= 1.21; 95% CI= 1.00 to 1.48; p= 0.050).
Conclusion: obesity in women of reproductive age increased the risk of PCOS 1.21 times than those with normal body weight.

Keywords: obesity, polycystic ovary sindrome, women of reproductive age

Correspondence:
Nabila Aulia Tsaqifah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: auliatsaqifah@gmail.com. Mobile: 085607389109.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.12

ANALYSIS OF BASIC IMMUNIZATION PROGRAM MANAGEMENT TO ACHIEVE UNIVERSAL CHILD IMMUNIZATION AT MOJOSONGO HEALTH CENTER

Tifa Aviandari[1)], Eti Poncorini Pamungkasari[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Tremendous gains have been made in immunizations over the last 40 years. Immunization managers play a critical role in addressing these challenges, as they are the ones who must skillfully manage and integrate each of the elements of a successful immunization program: cost-effective and dependable procurement processes, reliable funding, an effective cold chain, consistent monitoring of vaccine safety and efficacy, effective surveillance systems, productive and proactive communication with the public, and well-trained health workers. This study aimed to explore basic immunization program management to achieve universal child immunization at Mojosongo health center.
Subjects and Method: This was a qualitative study. Five key informants incuded head of Mojosongo health center, head of health family program division, and midwives, were selected by purposive sampling. The data were collected by in-depth interview, document review, and observation. The data is processed through the stages of data reduction, data presentation and drawing conclusions as well as triangulating sources and methods
Results: The implementation of the immunization program has not been fully implemented in accordance with the Immunization Implementation Guidelines. This study also found that: (1) the mobilization of the active role of the community has not been maximized, (2) socialization to vaccine officers has been carried out including pediatricians and midwives/ nurses implementing immunizations, (3) there has been socialization by pediatricians about post-immunization events, (4) suboptimal utilization of the use of the maternal and child handbook as monitoring the immunization schedule, (5) cold chain maintenance in immunization vaccine storage has been carried out optimally by monitoring the temperature of the vaccine storage refrigerator on a regular basis using a temperature monitoring chart.
Conclusion: The management of the immunization program has not been maximally implemented. Community health center is expected to be able to integrate data on family health programs for determining immunization targets, and maximum community participation and cross-sectoral collaboration to achieve universal child immunization.

Keywords: universal child immunization, health management

Correspondence:
Tifa Aviandari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: aviandaritifa@student.uns.ac.id. Mobile: 089682108211.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.13

META-ANALYSIS THE EFFECT OF OBESITY IN MENSTRUAL CYCLE DISORDER

Lutfi Annarahayu[1)], Yulia Lanti Retno Dewi[2)], Rita Benya Adriyani[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret
[3)]Department of Occupational Therapy, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Many women of reproductive age suffer dysmenorrhea and irregular menstrual bleeding, which can lead to serious problems even infertility. Previous studies examine the possibility that overweight and obesity play a role in menstrual problems. This study aimed to investigate the effect of obesity in menstrual cycle disorder.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles from PubMed, ScienceDirect, and Google Scholar. The study population was women of reproductive age. Intervention was obesity with comparison was normal weight. Outcome was menstrual cycle disorder. Keywords used "obesity" AND menstrual irregularity OR menstrual disorder AND cross sectional study". The inclusion criteria were full text and cross sectional study. Selected articles were assessed by Review Manager 5.3.
Results: Meta-analysis involving 8 observational studies showed that obese women of reproductive age were at risk to experience menstrual cycle disorder 4 times than those with normoweight (aOR= 4.19; 95% CI= 1.99 to 8.84; p= 0.002).
Conclusion: Obesity increases menstrual cycle disorder.

Keywords: obesity, menstrual cycle disorder

Correspondence:
Lutfi Annarahayu. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java, Indonesia. Email: Lutfi.annarahayu-@student.uns.ac.id. Mobile: 081910979054

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.14

OUTCOME OF PARENTERAL NUTRITION ON LOW BIRTH WEIGHT

Muthia Syafira[1,2], Rasmaya Niruri[1], Wahyu Sedjatiningsih[3]

[1]Masters Program in Public Health, Universitas Sebelas Maret
[2]Study Program in Pharmacy, Universitas Sebelas Maret
[3]Pharmacy Installation, Dr. Moewardi Hospital, Surakarta

ABSTRACT

Background: Infants born prematurely often fail to grow at rates similar to those estimated for the in-utero fetus. Protein and energy deficits during postnatally were directly related to subsequent postnatal growth restriction. Several studies demonstrated that early parenteral nutrition provided benefit for short-term outcomes without evidence of increased morbidity and mortality. This study aimed to investigate outcome of parenteral nutrition on low birth weight.
Subjects and Methods: A cross sectional study was carried out from February to June 2020. A number of 71 LBW infants was selected for this study. The dependent variable was infant weight and mortality. The independent variables were comorbidity, formula milk, length of formula milk consumption, and length of parenteral intake. The data were obtained from medical record and questionnaire. The data were analyzed using a multiple logistic regression.
Results: The risk or mortality in LBW infants increased with formula milk consumption (OR= 38.16; 95% CI= 8.16 to 178.54; p<0.001) and presence of comorbidity (OR= 5.72; 95% CI= 1.34 to 24.44; p= 0.019). Infant weight gain increased with length of formula milk consumption (OR= 3.29; 95% CI= 1.10 to 10.62; p= 0.041). It decreased with short length of parenteral intake (OR= 0.20; 95% CI= 0.06 to 0.63; p= 0.006).
Conclusion: The risk or mortality in LBW infants increases with formula milk consumption and presence of comorbidity. Infant weight gain increases with length of formula milk consumption but decreases with short length of parenteral intake.

Keywords: low birth weigth, parenteral nutrition, mortality, nutritional status

Correspondence:
Muthia Syafira. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: mutsyaf@student.uns.ac.id. Mobile: 085920660180.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.15

META-ANALYSIS OF CORRELATION BETWEEN IRON TABLET INTAKE AND LOW BIRTH WEIGHT

Fara Khansa Azizah, Bhisma Murti

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: During the course of pregnancy, as iron stores decrease, the absorption of dietary nonheme iron increases. However, the adequacy of this homeostatic response is limited by the amount of absorbable iron in the diet and the high iron requirements for pregnancy. Therefore, pregnant women need additional iron tablet during pregnancy. This study aimed to investigate correlation between iron tablet intake and low birth weight using meta-analysis.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, Google Scholar, and Science Direct databases. The articles were selected by the eligibility criterias, including Population= pregnant women, Intervention= iron tablet, Comparison= non irot tablet, and outcome= low birth weight. Articles that met the criteria were analyzed by Revman 5.3.
Results: 8 studies were selected for meta analysis. This study found that pregnant women who did not consume iron tablet have higher risk to deliver infants with low birth weight (OR= 2.66; CI 95%= 1.38-5.14; p= 0.001).
Conclusion: Pregnant women who do not consume iron tablet have higher risk to deliver infants with low birth weight.

Keywords: iron tablet, low birth weight, nutrional status

Correspondence:
Fara Khansa Azizah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: farakhansa96@gmail.com Mobile: 082243043940.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.16

EFFECT OF MOZART MUSIC THERAPY ON THE SUCKING REFLEX AND BODY WEIGHT GAIN IN INFANTS WITH LOW BIRTH WEIGHT

Anggun Fitri Handayani[1)], Maftuchah[2)], Hermeksi Rahayu[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Undergraduate Applied of Midwifery Science Program, Universitas Karya Husada

ABSTRACT

Background: Music, with its elements, sounds, rhythms, melody and harmony, works as an intermediate object of a relationship that enables the development of a therapeutic process. It may influence both physiological and behavioral aspects. Studies with premature infants report its influence on the reduction in heart and respiratory rates, cortisol levels, and behavioral states of stress, with an increase in oxygen saturation, in the velocity of non-nutritive sucking, and in weight gain, thus reducing hospitalization time. This study aimed to examine effect of mozart music therapy on the sucking reflex and low birth weight.
Subjects and Method: A quasy experiment with no control group was carried out at K.R.M.T Wongsonegoro hospital. A sample of 14 low birth weight infants was selected by accidental sampling. The dependent variables were sucking reflex and bdy weight gain. The independent variable was mozart classic music. The fetus is played classical music using tape recorder for 30 minutes everyday in a month. Infant body weight was measured by infant weight scale. Sucking reflex was measured by observation. Mean difference of sucking reflex and body weight gain before and after intervention were measured by paired t-test.
Results: Sucking reflex after Mozart therapy (Mean= 1.71; SD= 0.26) was higher than before (Mean= 1.07; SD= 0.46) and it was statistically significant ($p<0.001$). Body weight after Mozart therapy (Mean= 2,400.64; SD= 96.5) was higher than before (Mean= 2,280.71; SD= 108.60) and it was statistically significant ($p<0.001$).
Conclusion: Mozart therapy increases sucking reflex and body weight in infants with low birth weight.

Keyword: sucking reflex, body weight, mozart classic music, infants

Correspondence:
Anggun Fitri Handayani. Masters Program in Public Health. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Handayanianggun22@gmail.com. Mobile: +628122-5095742.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.17

OBESITY AS A RISK OF BREAST CANCER IN POST MENOPAUSE WOMEN: A META-ANALYSIS

Shofia Nur Fadhila[1)], Bhisma Murti[1)], Vitri Widyaningsih[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: A woman has an increased risk of breast cancer if her lifelong estrogen exposure is increased due to an early menarche, a late menopause, and/or an absence of childbearing. Recent epidemiological data have shown that late postmenopause has a significant effect on the risk of breast cancer. The purpose of this study was to investigate obesity as a risk of breast cancer in post menopause women.
Subjects and Method: This was a systematic review and meta-analysis. Using the PubMed, Google Scholar, SpringerLink, and Science Direct database, a literature search was conducted for observational studies (published from 2010 to 2021) on the effect of obesity and breast cancer. The following search terms were used: "obesity OR BMI OR "body mass index" AND "breast cancer" OR "breast carcinoma" AND "postmenopausal women". The inclusion criteria were English full text and reported adjusted odds ratio. The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: 10 studies from Tunisia, Africa, Nigeria, Arabia, Iran, Poland, Japan, San Francisco, Brazil, and Guatemala, were involved to meta-analysis. There was high heterogeneity between studies (I^2= 78%; p= 0.05). A random effect model found that obesity increased the risk of breast cancer in postmenopause women (aOR= 1.40; 95% CI= 0.99 to 1.96; p= 0.05).
Conclusion: Obesity increased the risk of breast cancer in postmenopause women.

Keywords: obesity, breast cancer, postmenopause

Correspondence:
Shofia Nur Fadhila. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: shofianurf@gmail.com. Mobile: 085725288680

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.18

IS LOW BIRTH WEIGHT AFFECTED BY ANXIETY DURING PREGNANCY? A META ANALYSIS

Amalia Ulfah Suparno[1)], Uki Retno Budihastuti[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Obstetrics and Gynecology, Dr. Moewardi Hospital, Surakarta

ABSTRACT

Background: Pregnancy is an emotional time, and anxiety is just one of many feelings that pregnant women experience. Untreated antenatal anxiety exposes the fetus to excess glucocorticoids, which may influence birth outcome. This study aimed to investigate the effect of anxiety during pregnancy on low birth weight and premature birth delivery using meta-analysis.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from Google Scholar, PubMed, and Science Direct databases. Keywords used “antenatal anxiety”OR “pregnancy anxiety”OR “anxiety during pregnancy” OR “anxiety disorder” OR anxiety OR pregnancy AND “perinatal outcomes”OR “adverse birth outcome” OR “neonatal outcome” OR “low birth weight”OR "infant, low birth weight” OR "Infant, Low Birth Weight". The inclusion criteria were full text cohort studies, published from 2000 to 2021, used English language, and reported adjusted Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: This meta-analysis included 10 observational studies. The study reported that high anxiety during pregnancy increased the risk of premature birth delivery 1.49 times than pregnant women with low anxiety (aOR= 1.49; 95% CI= 1.33 to 1.66; p<0.001). Meta-analysis using 7 observational studies reported that high anxiety during pregnancy increased the risk of low birth weigth 1.55 than pregnant women with low anxiety (aOR=1.55; CI 95% 1.26 hingga 1.91; p< 0.001).
Conclusion: high anxiety during pregnancy increased the risk of poor birth outcome (prematurity and low birth weight).

Keywords: anxiety, low birth weight, premature birth

Correspondence:
Amalia Ulfah Suparno. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: amaliaulfahsuparno1@gmail.-com. Mobile: 0882005711778

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.19

META-ANALYSIS: THE EFFECT OF EARLY BREASTFEEDING INITIATION ON THE HYPOTHERMIA IN INFANTS

Fristyaningrum Hidayah[1)], Yulia Lanti Retno Dewi[2)], Uki Retno Budihastuti[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Birth and immediate postpartum period pose many challenges for the newborn. For years, breast feeding has been known to be an important intervention in developing countries to reduce infant mortality from infectious diseases and malnutrition. However, less attention has been paid to the role of breast feeding in deaths during the first month of life. This study aimed to examine the effect of early breastfeeding initiation on the hypothermia in infants.
Subjects and Method: A systematic review was conducted using the PubMed, Science Direct, Google Scholar and Springerlink, published from 2009 to 2021. The following search terms were used: ("early initiation breastfeeding") AND (“neonatal” OR “infant”) AND (“hypothermia”) AND ("cross-sectional") AND ("adjusted odds ratio”). The systematic review was carried out according to the PRISMA guidelines. The inclusion criteria were English full-text, cross-sectonal study, and reported adjusted Odds Ratio (aOR). Data analyses were performed using RevMan 5.3.
Results: A total of 10 articles from Ethiopia, Uganda, India, dan Nigeria were eligible for quantitative meta-analysis. This study indicated high heterogeneity between groups (I^2= 82%). A random effect model showed that early early initiation of breastfeeding reduced the risk of hypothermia in infants (aOR= 0.37; 95% CI= 0.24 to 0.58; p <0.001).
Conclusion: Early initiation of breastfeeding reduces the risk of hypothermia in infants.

Keywords: early initiation of breastfeeding, hypothermia, meta-analisis

Correspondence:
Fristyaningrum Hidayah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: fristyaningrum95@-student.uns.ac.id. Mobile: 085745611008.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.20

FACTORS ASSOCIATED WITH STUNTING IN CHILDREN AGED 6-59 MONTHS IN SANGKRAH, SURAKARTA, CENTRAL JAVA

Ervia Fahma Dhony[1)], Kusuma Estu Werdani[2)], Purwanti[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Public Health Department, Faculty of Health Science, Muhammadiyah Surakarta University
[3)]Surakarta Health Office, Surakarta, Central Java, Indonesia

ABSTRACT

Background: Stunting results from a complex interaction of individual, household and social (environmental) factors. Epidemiological data are sugested that improvements in maternal care as an important determinant in reducing child stunting. The purpose of this study was to identify factors associated with stunting in children aged 6-59 months.
Subjects and Method: A case control study was conducted at Sangkrah health center, from January 15 to Februari 1, 2020. A number of 164 children aged 6 to 59 months was selected by fixed disease sampling, consisted of 82 stunted children and 82 normal children. The dependent variable was stunting. The independent variables were anemia during pregnancy, history of chronic energy deficiency during pregnancy, and non exclusive breastfeeding. The data were obtained from maternal and child health book and quationnaire. The data were analyzed by a multiple logistic regression.
Results: Maternal anemia during pregnancy (aOR= 2.54; 95% CI= 1.18 to 5.46; p= 0.017), history of chronic energy deficiency during pregnancy (aOR= 2.48; 95% CI= 1.22 to 5.07; p= 0.012), and non exclusive breastfeeding (aOR= 4.40; 95% CI= 2.17 to 8.97; p<0.001) increased the risk of stuting in children aged 6 to 59 months.
Conclusion: Maternal anemia during pregnancy, history of chronic energy deficiency during pregnancy, and non exclusive breastfeeding increase the risk of stuting in children aged 6 to 59 months.

Keywords: stunting, anemia, exclusive breastfeeding, chronic energy deficiency, pregnant women

Correspondence:
Ervia Fahma Dhony. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: fhmervii@gmail.com. Mobile: 082134843244.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.21

PREECLAMPSIA AND ITS CORRELATION WITH INFANT MORTALITY: A META-ANALYSIS

Ruth Apriyanti

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Management of preeclampsia often culminates in induced delivery of a preterm infant. While early termination protects the fetus from an intrauterine death, the newborn then faces increased risks associated with preterm delivery. Recent evidence suggests that preeclampsia is a major cause of perinatal morbidity and death. This study aimed to explore correlation between preeclampsia and infant mortality.
Subjects and Method: A systematic review and meta analysis was conducted using the Pubmed, Google Scholar, and Science Direct databases, published from 2011 to 2021. Eligibility criteria were defined using the PICO model as follows, (1) population: pregnant women, (2) intervention: preeclampsia, (3) comparison: without preeclampsia, and (4) outcome: infant mortality. The following search terms were used: "Preeclamsia" OR "Preeclampsia" AND "Perinatal Death" OR "Perinatal Mortality" OR "Fetal Death" AND "Pregnancy, High-Risk" OR "Pregnancy" OR "Pregnant Women". The inclusion criteria were English full-text, cohort study, and reported adjusted Odds Ratio (aOR). The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: A total of 7 articles from China, Israel, Netherlands, Norway, and United States were eligible for quantitative meta-analyses. This study showed that preeclampsia elevated the risk of infant mortality (aOR= 1.95; 95% CI= 1.22 to 3.11; p= 0.005).
Conclusion: Preeclampsia elevates the risk of infant mortality.

Keywords: preeclampsia, perinatal death, fetal death, infant mortality

Correspondence:
Ruth Apriyanti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ruthyanti94.ras@student.uns.ac.id. Mobile: 081375232120.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.22

IS BABY MASSAGE INCREASE INFANT WEIGHT?

Raina Lola Fauzia[1)], Uki Retno Budihastuti[2)], Rita Benya Adriani[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Obstetrics and Gynecology, Faculty of Medicine, Universitas Sebelas Maret
[3)]Study Program of Occupational Therapy, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: For decades, researchers and therapists alike have been exploring the effects of different kinds of stimulation on weight gain in infants. One of the most effective ways to increase weight gain has been tactile-kinesthetic stimulation, more recently called massage therapy. The purpose of this study was to evaluate the effectiveness of baby massage in increasing infant weight.
Subjects and Method: A systematic review and meta analysis was conducted using the Pubmed, Google Scholar, and Science Direct databases, published from 2011 to 2021. Eligibility criteria were defined using the PICO model as follows, (1) population: children aged 0 to 12 months, (2) intervention: baby massage, (3) comparison: without control, and (4) outcome: infant weight. The following search terms were used: "("baby massage" OR "infant massage") AND ("baby weight gain" OR "body weight") AND ("randomized controlled trial"). The inclusion criteria were English full-text, randomized controlled trial, published from 2011 to 2021, and reported adjusted mean dan standard deviation. The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: 7 studies from United States, Iran, Singapore, Korea, and China were selected for meta analysis. This study showed that baby massage elevated infant weight 2.16 times than control group (Standardized Mean Difference= 2.16; 95% CI= 0.67 to 3.66; p= 0.005).
Conclusion: Baby massage elevates infant weight 2.16 times than control group.

Keywords: baby massage, infant weight

Correspondence:
Raina Lola Fauzia. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: rainafauzia@student.uns.ac.id. Mobile: +6281215278321.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.23

BIRTHING BALL EXERCISE AND ITS CORRELATION ON LABOR PAIN

Susiana Yuni Astuti[1)], Uki Retno Budihastuti[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Obstetrics and Gynecology, Dr. Moewardi Hospital/
Faculty of Medicine, Universitas Sebelas Maret
[3)]Study Program of Acupunture, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Pain relief in labour was identified to be one of the most important topics related to pregnancy and childbirth. Birth ball is one of the non-pharmacologic pain relief methods to help mothers cope with the laboring process. It can ease sensations of pain by promoting women's well-being, comfort, and sense of control in labor. This study aimed to evaluate the effectiveness of birthing ball exercise and its correlation on labor pain.
Subjects and Method: This was a systematic review and meta-analysis. Using the PubMed, Science Direct, Google Scholar, and Springerlink database, a literature search was conducted for randomized control trial on the effect of birthing ball exercise on labor pain. The following search terms were used: ("birthing ball exercise") AND ("labor pain") AND ("randomized controlled trial"). The inclusion criteria were English full text and randomized controlled trial. The articles were filtered using PICO model, including: (1) Population= pregnant women aged 18-35 years, (2) intervention= birthing ball exercise, (3) comparison= without birthing ball exercise, and (4) outcome= labor pain. The inclusion criteria were English full-text, published from 2011 to 2020, and reported mean and standard deviation. The systematic review was carried out according to the PRISMA flow diagram. Data analysis were performed using RevMan 5.3.
Results: 6 studies from Unites States, Taiwan, Iran, Turkey, India, and Hongkong were involved for meta-analysis. This study showed that birthing ball exercise reduced labor pain 0.92 units than without birthing ball exercise (Standardized mean difference= -0.92; 95% CI= -1.28 to -0.56; p= 0.005).
Conclusion: Birthing ball exercise significantly reduces labor pain.

Keywords: birthing ball exercise, labor pain

Correspondence:
Susiana Yuni Astuti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: susianayuni.a@student.uns.ac.id. Mobile : +6281390940681.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.24

IS URINARY TRACT INFECTION IN PREGNANT WOMEN AFFECT THE NEONATAL SEPSIS?

Rizqi Amalia Wulandari[1)], Uki Retno Budihastuti[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Obstetrics and Gynecology, Dr. Moewardi Hospital/
Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Neonates are at high risk of early onset neonatal sepsis, which can occur as a result of direct transmission of the maternal colonizers (e.g. bacteria in the maternal vaginal tract, as caused by urinary tract infection) to the newborns during delivery. Neonatal sepsis has also been claimed for contributing on the neonatal deaths. Therefore, better prevention and management of severe neonatal infections including intra-partum antibiotic prophylaxis for at-risk mothers is required. This study aimed to determine the association between urinary tract infection in pregnant women on the neonatal sepsis.
Subjects and Method: A systematic literature search was conducted in multiple databases including PubMed, Science Direct, Google Scholar, and Springerlink to identify case control studies published from 2011 to 2021. The following search terms were used: ("urinary tract infection") AND ("neonatal sepsis") AND ("case control"). The inclusion criteria were full-text and reported adjusted odds ratio (aOR). The systematic review was carried out according to the PRISMA flow diagram. The data were quantitatively analyzed using RevMan 5.3.
Results: There were 6 studies from Ethiopia, Ghana, and Bangladesh that met the eligible criteria for meta-analysis. This study reported that urinary tract infection in pregnant women increased the risk of neonatal sepsis (aOR= 3.54; 95% CI= 2.18 to 5.75; p <0.001).
Conclusion: Urinary tract infection in pregnant women increased the risk of neonatal sepsis.

Keywords: urinary tract infection, neonatal sepsis

Correspondence:
Rizqi AmaliaWulandari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: wulandarizqi@student.uns.-ac.id. Mobile : +6285740488978.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.25

META-ANALYSIS: EFFECT OF TRANSCUTANEOUS ELECTRIC NERVE STIMULATION UPTAKE DURING PREGNANCY ON LABOR PAIN

Fiqi Widyawati[1)], Bhisma Murti[1)], Rita Benya Adriani[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Therapeutic Therapy, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Transcutaneous electrical nerve stimulation (TENS) therapy is a non-invasive peripheral stimulation technique that involves the use of low-voltage electric currents to treat pain. It is widely available in hospital settings and has been proposed as a means of reducing pain in labor. This study aimed to examine the effect of transcutaneous electric nerve stimulation uptake during pregnancy on labor pain.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles from PubMed, Google Scholar, and Science Direct databases. Keywords used "pregnancy" OR “pregnant” AND "pregnant women" AND "pregnant" AND "Transcutaneous electrical nerve stimulation" AND "labor pain" AND "Randomized Controlled Trial". Article search is carried out by considering the eligibility criteria, including population= pregnant women, intervention= transcutaneous electric nerve stimulation, comparison= common pregnancy care, and outcome= labor pain. The inclusion criteria were full text, articles were published from year 2001 to 2021, and reported mean and standard deviation. Articles that met the criteria were analyzed by Revman 5.3.
Results: A meta-analysis using 5 primary studies showed that transcutaneous electric nerve stimulation reduced labor pain 0.78 units than common pregnancy care (SMD= -0.78; 95% CI= -1.92 to 0.37; p= 0.190).
Conclusion: Transcutaneous electric nerve stimulation reduces labor pain.

Keywords: transcutaneous electrical nerve stimulation, labor pain

Correspondence:
Fiqi Widyawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: vikiwidyawati808@gmail.com. Mobile: 082231458699.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.26

CORRELATION BETWEEN MATERNAL MID-UPPER ARM CIRCUMFERENCE AND ESTIMATED FETAL WEIGHT

Ratih Hermas Purnasari[1)], Chichik Nirmasari[1)], Siti Haryani[2)]

[1)]Study Program in Midwivery, Universitas Ngudi Waluyo, Ungaran, Central Java, Indonesia
[2)]Study Program in Nursing, Universitas Ngudi Waluyo, Ungaran, Central Java, Indonesia

ABSTRACT

Background: Maternal nutritional status, as estimated by anthropometrics, is an important contributor to fetal growth and infant birth weight. Therefore, simple and inexpensive anthropometric measurements, such as mid-upper arm circumference (MUAC), is used in large-scaled epidemiological studies to derive estimates of lean muscle mass and adiposity. In resource-limited settings, intrauterine growth assessments rely on serial fundal height measurements during antenatal care and determination of intrauterine growth restriction is based on low birth weight for estimated gestational age. This study aimed to investigate correlation between maternal MUAC and estimated fetal weight.
Subjects and Method: A cross-sectional study was carried out at Cemeng village, Sragen, Central Java. A number of 32 aterm pregnant women was selected for this study. The dependent variable was low estimated fetal weight. The independent variable was maternal mid-upper arm circumference (MUAC). Maternal MUAC was measured using standardized midline tape by Ministry of Health. Fetal weight was estimated by measuring uterine fundal height and calculated using Johnson formula. Correlation between maternal MUAC and fetal weight was analyzed by Chi square.
Results: Maternal MUAC <23.5 cm increased the risk of low fetal weight (<2,500 g) 13 times than maternal MUAC ≥23.5 cm (OR= 13.13; 95% CI= 1.85 to 92.96; p= 0.010).
Conclusion: Maternal MUAC <23.5 cm increases the risk of low fetal weight.

Keywords: maternal mid-upper arm circumference, low fetal weight, pregnant women

Correspondence:
Ratih Hermas Purnasari. Study Program in Midwivery, Universitas Ngudi Waluyo Ungaran. Jl. Diponegoro 186, Ungaran, Semarang 50512, Central Java. Email: hermashp@gmail.com. Mobile: +6287700634677.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.27

EFFECT OF OBESITY ON POLYCYSTIC OVARY SYNDROME: META-ANALYSIS

Saktryana Endang Ragil Jayanti, Bhisma Murti

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Polycystic ovary syndrome (PCOS) is the most common hormonal abnormality in reproductive-age women. The reproductive features of PCOS include increased androgen production and disordered gonadotropin secretion leading to menstrual irregularity, hirsutism, and infertility. Obesity is a common finding in women with PCOS and between 40–80% of women with this condition are reported to be overweight or obese. The purpose of this study was to explore the effect of obesity on polycystic ovary syndrome.
Subjects and Method: This was a systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from PubMed, Science Direct, and Google Scholar databases. Research problems were formulated in PICO, as follows: (1) Population= women, (2) Intervention= polycystic ovary syndrome, (3) Comparison= normal, and (4) Outcome= obesity. Keywords used obesity AND PCOS OR BMI AND PCOS AND "logistic regression". The inclusion criteria were full text, articles were published from year 2015 to 2020, case control study, and reported adjusted Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: A meta analysis involved 6 primary studies from United States, Brazil, China, Central China, Iraq, and Pakistan. This study reported that there was no significant correlation between obesity polycystic ovary syndrome (aOR= 1.04; 95% CI= 0.78 to 1.40; p= 0.790).
Conclusion: There is no significant correlation between obesity polycystic ovary syndrome.

Keywords: obesity, body mass index, polycystic ovary syndrome

Correspondence:
Saktryana Endang Ragil Jayanti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: saktryana.agil@gmail.com. Mobile: 082242154117.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.28

EFFECT OF LOW BIRTH WEIGHT ON THE LANGUAGE DELAY IN CHILDREN: META-ANALYSIS

Ruliany Yuni Nurul Hakim[1)], Setyo Sri Rahardjo[2)], Yulia Lanti Retno Dewi[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Previous studies reported that low birth weight children have higher rates of subnormal growth, illnesses, and neurodevelopmental problems. Children with development delay inhibit them to attain failure new development. This study aimed to explore the effect of low birth weight on the language delay in children using meta-analysis.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, Pubmed, and Research Gate databases. Keywords used "Low Birth Weight" AND "Language Delay" "AND "observational study" AND "adjusted odd ratio". The inclusion criteria were full text, observational studies published from year 2008 to 2020, used English language, and reported Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: 5 studies from India, Thailand, Taiwan, Japan, and Cairo were reviewed for meta-analysis. This study found that low birth weight increased the risk of language delay in children (aOR= 2.52; 95% CI= 1.90 to 3.35; p<0.001).
Conclusion: Low birth weight increased the risk of language delay in children.

Keywords: low birth weight, language delay, language development

Correspondence:
Ruliany Yuni Nurul Hakim. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Ruliany27@gmail.-com. Mobile: 082124886320

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.29

THE EFFECTIVENESS OF PRENATAL YOGA ON THE PERVAGINAM BIRTH LABOR: META-ANALYSIS

Ayu Trisni Pamilih

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Preparation for delivery can be effective in decreasing adverse responses during labor. A prolonged duration of labor and other complications can result in a cesarean section. Many forms of antenatal exercise have been developed to improve the readiness of pregnant women in approaching childbirth physically and psychologically, and encourage pervaginam birth labor. This study was performed to observe the effectiveness of prenatal yoga on the pervaginam birth labor.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, Pubmed, and Science Direct databases. Keywords used "Pregnancy" AND "Prenatal Yoga" AND "Vaginal Delivery" AND "adjusted odds ratio". Eligibility criteria were defined using the PICO model as follows, (1) population: pregnant women, (2) intervention: prenatal yoga, (3) comparison: usual care, and (4) outcome: pervaginam birth labor. The inclusion criteria were English open-access full text and randomized controlled trial study. Articles that met the criteria were analyzed by Revman 5.3.
Results: This meta-analysis combined 6 randomized controlled trial study from India, United States, Iran, and Korea. Thi study showed that prenatal yoga was increased the likelihood of pervaginam birth labor than usual care in pregnant women (aOR= 2.21; 95% CI= 1.15 to 4.26; p= 0.020).
Conclusion: Prenatal yoga is effective in increasing the likelihood of prevaginam birth labor in pregnant women.

Keywords: prenatal yoga, pregnant women, prevaginam birth labor

Correspondence:
Ayu Trisni Pamilih. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: trisniayu97@student.uns.ac.id. Mobile: 081393622900.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.30

THE RELATIONSHIP BETWEEN HORMONAL CONTRACEPTIVE USE AND THE RISK OF BREAST CANCER AMONG WOMEN IN KEDIRI, EAST JAVA

Nurita Nilasari Bunga Kharisma Arifiana Putri, Eko Sri Wulaningtyas

Academy of Midwifery Medika Wiyata, Kediri, East Java

ABSTRACT

Background: In 2020, there were 2.3 million women diagnosed with breast cancer and 685,000 deaths globally. An analysis of data from more than 150,000 women who participated in previous 54 epidemiologic studies showed that, overall, women who had ever used oral contraceptives had a slight (7%) increase in the relative risk of breast cancer compared with women who had never used oral contraceptives. This study aimed to determine the relationship between hormonal contraceptive use and the risk of breast cancer among women.
Subjects and Method: This was a cross-sectional study conducted in Gambiran Hospital, Kediri, East Java, in June 2021. A total of 38 hormonal contraceptive users was selected by total sampling. The dependent variable was breast cancer. The independent variable was hormonal contraceptive use. The data were collected by questionnaire and analyzed using odds ratio and chi-square.
Results: Hormonal contraceptive use was associated with an increased risk of breast cancer, but it was statistically not significant (OR= 1.37; 95% CI= 0.62 to 3.32; p=0.428).
Conclusion: Hormonal contraceptive is associated with breast cancer, but it is statistically not significant.

Keywords: hormonal contraceptive, risk factor, breast cancer

Correspondence:
Nurita Nilasari Bunga Kharisma Arifiana Putri. Academy of Midwifery Medika Wiyata. Jl. Dr. Sahardjo 16 Campurejo Mojoroto Kediri, East Java. Email: nuritanilasari01@-gmail.com. Mobile: +6281259798269

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.31

THE EFFECTIVENESS OF "FATIMA" TO REDUCE STRESS IN POSTPARTUM MOTHERS: A COPING STRATEGY DURING COVID-19 PANDEMIC

Ika Sumiyarsi Sukamto, Siti Nurhidayati, Niken Bayu Argaheni, Luluk Fajria Maulida, Nurul Jannatul Wahidah, Inas Azhar Dwi Haryadi

Midwifery Study Program, Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: During COVID-19 pandemic postpartum mothers face higher risk of experiencing stress. Progressive education, diaphragmatic relaxation, and music are interventions that can be done to reduce stress levels in postpartum mothers. This study aimed to analyze the effect of FATIMA management on lowering stress levels in postpartum mothers during the COVID-19 pandemic.
Subjects and method: This was a quasi-experiment study with pre-post test one group design, conducted in Yogyakarta Community Health Center from July to August 2021. A total of 40 postpartum mothers was selected by total sampling. The dependent variable was stress level. The independent variable was "FATIMA" intervention. FATIMA's intervention was performed for 28 days including educational videos, diaphragm relaxation and music. Stress levels was measured by Perceived Stress Scale (PSS) and analyzed by t-test.
Results: Stress level after FATIMA's intervention (Mean= 25.20; SD= 7.14) was lower than before (Mean= 30.50; SD= 7.37) and it was statistically significant ($p<0.001$).
Conclusion: The FATIMA intervention is effective in reducing stress in postpartum mothers.

Keywords: postpartum mothers, stress, FATIMA management, relaxation, COVID-19

Correspondence:
Ika Sumiyarsi Sukamto. Midwifery Study Program, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ikasumiyarsi@staff.uns.ac.id. Mobile: +6281548515239.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.32

EFFECTIVENESS OF BEAMS GAME AND PLASTICINE GAME ON COGNITIVE DEVELOPMENT IN EARLY CHILDHOOD EDUCATION, IN KEDIRI, EAST JAVA

Sutik[1)], Zenny Priyanti Lasdiana[2)], Anik Nuridayanti[3)]

[1)]Department in Nursing, School of Health Sciences
Ganesha Husada, Kediri, East Java
[2)]Bachelor Program in Nursing, School of Health Sciences
Ganesha Husada, Kediri, East Java
[3)]Department in Nursing, School of Health Sciences
Ganesha Husada, Kediri, East Java

ABSTRACT

Backgrounds: Cognitive development was the primary thing for children, especially in the golden age period. In Indonesia, data from the Ministry of Education and Culture, 2018, showed that the average number of pre-school age children had low cognitive development (56.4%). The game was one of the efforts to improve cognitive development. This study aimed to analyze the effectiveness of using beams and plasticine games on the cognitive development of pre-school children.
Subjects and Method: This was a quasi-experiment post-test only with control design. The study was conducted in Pelita Ilmu and Dharma Wanita Early Childhood Education, Kediri, East Java, in March 2020. A total of 40 pre-school children were divided into 20 subjects receiving beams game and 20 subjects receiving plasticine game. The dependent variable was cognitive development. The independent variables were using beams and plasticine games. The data was collected by observation sheet assessment AUD and analyzed by Mann Whitney test.
Result: The mean rank of cognitive development pre-school children in the beams game group was 24.93, while the mean rank of the plasticine games group was 15.08, and it was statistically significant (p=0.007)
Conclusion: Beams games is more effective than using plasticine games on the cognitive development of pre-school children.

Keywords: beams game, plasticine game, cognitive development, pre-school

Correspondence:
Sutik. Department in Nursing, School of Health Sciences Ganesha Husada. Jl. Soekarno Hatta Gg. Budaya Cipta 2 No. 2 Kediri, East Java. Email: putrigrace98@yahoo.co.id. Mobile: +6281330783574.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.33

THE ASSOCIATION BETWEEN DYSMENORRHEA AND PHYSICAL ACTIVITY IN DIPLOMA III MIDWIVERY STUDENTS IN SORONG, WEST PAPUA, INDONESIA

Dyan Puji Lestari[1)], Yuni Subhi Isnaini[2)], Bahrah[2)]

[1)]Diploma III Midwifery, Health Polytechnics Ministry of Health Sorong
[2)] Health Polytechnics Ministry of Health Sorong

ABSTRACT

Background: Dysmenorrhea is menstruation accompanied by severe pain and cramps. Adolescents who are experiencing menstrual pain or dysmenorrhea are unable to carry out activities and must rest. This study aimed to determine the association between dysmenorrhea and physical activity in the D-III Midwifery Study Program students of Manokwari.
Subjects and Methods: A cross-sectional study was conducted at the Diploma III Midwifery Study Program, Manokwari, West Papua, in April 2017. A total of 38 midwifery students were selected using a random sampling technique. The dependent variable was physical activity. The independent variable was dysmenorrhea. Data were collected using questionnaires and interviews. Data were analyzed using OR and chi-square test.
Results: As many as 79.0% of midwifery students had moderate activities. Dysmenorrhea was not statistically associated with reduced physical activity in midwifery students (OR= 0.36; 95% CI= 0.73 to 1.81; p= 0.232).
Conclusion: Dysmenorrhea is not statistically associated with reduced physical activity in midwifery students.

Keywords: dysmenorrhea, physical activity, female students.

Correspondence:
Dyan Puji Lestari. Diploma III Midwifery, Health Polytechnics Ministry of Health Sorong. Slamet Riyadi Street, Upper Ambon Village, Manokwari, West Papua. Email: dyanlestari56@gmail.com. Mobile: +6281248194297.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.34

RISK FACTORS FOR UNDERWEIGHT AMONG CHILDREN AGED 6-59 MONTHS IN INDONESIA

Irlina Raswanti Irawan, Sudikno, Aditianti

Center for Research and Development of Public Health Efforts Health Research and Development Agency, Ministry of Health, Indonesia

ABSTRACT

Background: Underweight is a form of malnutrition often associated with increased risk of mortality in children under five years of aged. Underweight is often simultaneously experienced with stunting and wasting. This study aimed to identify risk factors for underweight in children aged 6-59 months in Indonesia.
Subjects and Method: This study was cross-sectional study using Riskesdas data in 2018. The study sample included 47,579 children under five years. The dependent variable was nutritional status. The independent variables included socio-demographic characteristics and illness history. The data were analyzed using logistic regression.
Results: The risk of underweight in children aged 6-59 months increased with age 24-59 months (aOR= 1.84; 95% CI= 1.70 to 1.99; p < 0.001), male (aOR= 1.16; 95% CI= 1.11 to 1.22; p < 0.001), history of tuberculosis (aOR= 1.90; 95% CI= 1.24 to 2.92; p= 0.003), history of diarrhea (aOR= 1.13; 95% CI= 1.05 to 1.21; p < 0.001), birth delivery at home (aOR= 1.56; 95% CI= 1.42 to 1.70; p < 0.001). The risk of underweight in children aged 6-59 months increased with extended family (aOR= 1.19; 95% CI= 1.11 to 1.27; p < 0.001), low maternal education (aOR= 1.34; 95% CI= 1.19 to 1.50; p < 0.001), housewives (aOR = 1.38; 95% CI= 1.18 to 1.62; p < 0.001), unemployed father (aOR= 1.26; 95% CI= 1.09 to 1.45; p= 0.001), mother with a history of underweight (aOR= 1.43; 95% CI= 1.32 to 1.55; p= 0.001), and father with a history of underweight (aOR= 1.51; 95% CI= 1.38 to 1.66; p<0.001).
Conclusion: The risk of underweight in children aged 6-59 months increases with age 24-59 months, male, history of tuberculosis, history of diarrhea, birth delivery at home, extended family, low maternal education, housewives, unemployed father, mothers with a history of underweight, and fathers with a history of underweight.

Keywords: risk factor, underweight, children underfive.

Correspondence:
Irlina Raswanti Irawan. Ministry of Health, Jakarta. Jl. State Printing 29, Central Jakarta, Indonesia. Email: irlina.irawan@gmail.com. Mobile: +628156001773.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.35

THE EFFECT OF COMMUNICATION, INFORMATION, AND EDUCATION SESSION ON NUTRITIONAL STATUS IN CHILDREN UNDER 3 YEARS IN MUHAMMADIYAH HOSPITAL GRESIK, EAST JAVA

Siti Hamidah

Universitas Muhammadiyah Gresik, Gresik, East Java, Indonesia

ABSTRACT

Background: The prevalence of childhood malnutrition remains high in the developing world. Malnutrition rate is high between the ages of 6 to 24 months because breast milk alone is not enough to meet the nutritional needs of the child and other foods are introduced. WHO recommends that children should be introduced to complementary foods at 6 months. It is argued that poor feeding practices are associated with care-givers poor knowledge, lack of information and their being restricted by traditional beliefs. This study aimed to determine the effectiveness of a month-long nutritional communication, information, and education session on increasing nutritional status in children under 3 years of age.
Subjects and Method: This was a randomized control trial conducted at Gresik Muhammadiyah Hospital, Gresik, East Java, Indonesia. A sample of 160 children under 3 years was selected for this study. The sample was allocated randomly into the experimental group and control group with each group consisting of 80 children. The dependent variable was weight for age in z-score. The independent variable was information, communication, and education (ICE). The ICE session was delivered by health cadres every week for a month with mothers of the children under study assigned as the participants of the session. The dependent variable was measured 3 months after the intervention. The body weight was measured by weight scale. The data were analyzed using independent t-test.
Results: After the ICE intervention, the mean weight for age z-score in the experimental group (Mean= 1.50; SD= 1.30) was higher than the mean weight for age z-score in the control group (Mean= -0.50; SD= 1.10), and it was statistically significant (p= 0.023).
Conclusion: A month-long nutritional communication, information, and education session targeted to mothers is effective to increase nutritional status of children under 3 years of age.

Keywords: communication, information, and education, nutritional status, children.

Correspondence:
Siti Hamida. Public Health, Universitas Muhammadiyah Gresik. Jl. Sumatra.101, Mt. Malang, Randuagung, Kebomas, Gresik, East Java. Email: siti_hamidahtw@umg.ac.id. Mobile: +62 81553520203.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.36

DETERMINANTS OF LONG-TERM CONTRACEPTIVE METHOD UPTAKE IN WOMEN OF REPRODUCTIVE AGE IN INDONESIA

Dinda Anindita Salsabilla[1)], Feri Yuda Anggara[2)], Liza Laela Abida[3)], Rizki Kurniawan Saputra[4)]

[1)]Emergency Hospital COVID-19 Wisma Atlet Kemayoran
[2)]Pangandaran District Health Office
[3)]Speech Therapy Study Program, Health Polytechnic of the Ministry of Health Surakarta
[4)]Center for Tropical Medicine FK-KMK, Universitas Gadjah Mada

ABSTRACT

Background: The target of the family planning program for couples of reproductive age was focusing on the group of women of reproductive age. This target includes increasing prevalence of modern contraception and number of active users. The long-term contraceptive methods included tubectomy, implant, and Intra-Uterine Device (IUD). However, most of the active family planning participants preferred injection and pill than the long-term contraceptive. This study aimed to analyze factors affecting the use of long-term contraceptive in women of reproductive age in Indonesia.
Subjects and Method: This study was a cross-sectional study using secondary data from the Indonesia Demographic and Health Survey (IDHS) in 2017. The target population consisted of 20,404 women of reproductive age. A random sample of 4,713 the target population was selected for this study. The dependent variable was the use of long-term contraceptive. The independent variables included maternal age, residence, maternal education, occupation, economic status, parity, household decision-maker, desire of offsprings, family planning services facility, and health insurance statue. The data were analyzed using multiple logistic regression analysis.
Results: The use of long-term contraceptive increased with maternal age >30 years old (OR= 1.10; 95% CI= 1.00 to 1.20; p= 0.027), urban residence (OR= 1.60; 95% CI= 1.40 to 1.70; p<0.001), higher education (OR= 2.60; 95% CI= 2.30 to 2.90; p< 0.001), high economic status (OR= 1.50; 95% CI= 1.40 to 1.60; p< 0.001), parity >2 children (OR= 1.50; CI 95%= 1.40 to 1.70; p< 0.001), shared decision making (OR= 1.50; 95% CI= 1.40 to 1.60; p< 0.001), did not want children (OR= 1.70; 95% CI= 1.60 to 1.90; p < 0.001), and had health insurance (OR= 1.30; 95% CI= 1.20 to 1.40; p< 0.001).
Conclusion: The use of long-term contraceptive in women of reproductive age increases with maternal age >30 years old, urban residence, high maternal education, high economic status, parity >2 children, joint decision-maker, do not want more children, and having health insurance.

Keywords: modern contraception, family planning, women of reproductive age

Correspondence:
Dinda Anindita Salsabilla. Emergency Hospital COVID-19 Wisma Atlet Kemayoran. Jl. HBR Motik, Kebon Kosong, Kemayoran, Jakarta Pusat, Indonesia. Email: dindaaninditasalsa@gmail.com. Mobile: 081249007525.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.37

OPTIMIZING NURSING INTERVENTIONS IN CHILDREN WITH DIARRHEA

Elly Marce Titihalawa, Dwi Kurniasih, Florida Listavia Panggus

Dharma Insan Nursing Academy, Pontianak, Indonesia

ABSTRACT

Background: Diarrhea or gastroenteritis was a watery bowel movements more than three times a day for two consecutive days. Diarrhea can occur in all age groups, both toddlers, children, and adults with various social groups. Diarrhea was the second leading cause of death in children under five years, and nearly 1.7 billion cases of diarrhea occur in children, with a mortality rate of around 525,000. This study aimed to describe the application of knowledge and practice of nursing care in children with diarrhea to prevent hypovolemia risk due to excessive fluid loss.
Subjects and Method: This study was qualitative research with a phenomenological approach conducted at the Pontianak Level II Government Hospital in Central Borneo for two weeks. The samples used in this study were four key informants who are nurses working in the child care room and three triangulated informants from the client's family. The dependent variable was diarrhea in children. The independent variable was optimizing nursing interventions. Data collection was carried out by structured and direct interviews using a tape recorder. The data were analyzed using content analysis method.
Results: This study identified several themes such as sufficiency of fluid needs, hypothermia, and skin integrity damage prevention. In case of diarrhea in children, the nurses should consider the sufficient fluid administration as the primary intervention to overcome the risk of hypovolemia with the conscent of parents.
Conclusion: The sufficient fluid administration is the primary intervention of nursing care for children with diarrhea to prevent the risk of hypovolemia.

Keywords: active fluids, diarrhea, intervention, nurse

Correspondence:
Elly Marce Titihalawa. Dharma Insan Nursing Academy. Pontianak, Indonesia. Jl. Merdeka 55 Pontianak, West Borneo, Indonesia. Email: ellymarce1968@-gmail.com. Mobile: 081348465064.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.38

EFFECT OF *REMAKUDA* JUICE ON HEMOGLOBIN LEVEL AND DYSMENORRHEA IN FEMALE ADOLESCENTS

Zeny Fatmawati, Elis Fatmawati, Elly Rustanti

Husada Jombang Institute of Health Science

ABSTRACT

Background: Menstruation can cause dysmenorrhea and decreased hemoglobin level. Decreased hemoglobin level in female adolescents may be associated with reduced intelligence, learning achievement, and motor development. *Remakuda* juice contains lemon grass, young coconut water, and dates, which help increase hemoglobin level and reduce the intensity of dysmenorrhea. This study aimed to determine the effect of *Remakuda* juice on increasing hemoglobin and decreasing the intensity of dysmenorrhea in female adolescents.
Subjects and Method: This was a quasi experiment using one group pre-test post-test with no control design. This study was conducted in SMPN I Tembelang, Jombang, East Java. A sample of 60 female students was selected for this study. The independent variable was *Remakuda* Juice. The dependent variable was hemoglobin level and dysmenorrhea. Hemoglobin level was measured using a digital haemometer. Dysmenorrhea was measured by Numeric Rating Scale (NRS) and Wong-Baker Pain Rating Scale. The data were analyzed by paired t-test.
Results: Mean hemoglobin level after intervention (Mean= 2.00; SD= 0.00) was higher than before intervention (Mean=1.73; SD=0.45), and it was statistically significant (p= 0.047). Mean dysmenorrhea score after intervention (Mean= 1.43; SD= 0.59) was lower than before intervention (Mean= 2.70; SD= 0.65), and it was statistically significant (p= 0.023).
Conclusion: *Remakuda* juice is effective to increase hemoglobin level and to reduce dysmenorrhea intensity in female adolescents with menstruation.

Keywords: *remakuda* juice, hemoglobin, dysmenorrhea

Correspondence:
Zeny Famawati. Husada Jombang Institute of Health Science. Jl. Veteran, Mancar Peterongan, Mancarmalang, Mancar, Jombang 61481, East Java. Email: zenyjoe123-@gmail.com. Mobile: 082230313559.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.39

THE EFFECT OF REPRODUCTIVE HEALTH GYMNASTICS ON MENSTRUAL PAIN AMONG FEMALE ADOLESCENTS AT SOWI HEALTH CENTER, WEST PAPUA

Bahrah, Yuni Subhi Isnaini

School of Health Polytechnics, Ministry of Health
Sorong, Papua, Indonesia

ABSTRACT

Background: Female adolescents entering puberty will experience menstruation. They are at risk of experiencing dysmenorrhea or menstrual pain. One of the non-pharmacological therapies that may be beneficial to overcome dysmenorrhea is reproductive health exercise. This exercise may increase the production of endorphin and serotonin, which have pain reducing effect. This study aimed to analyze the effect of reproductive health gymnastics on menstrual pain among female adolescents.
Subjects and Method: A randomized controlled trial was conducted at Sowi Health Center, Manokwari, West Papua. A sample of 20 female adolescents aged 12-15 years was selected at random. The dependent variable was dysmenorrhea. The independent variable was reproductive health gymnastics. The intervention was given three times a week with 15-20 minutes for one month. Dysmenorrhea was measured by visual analog scale (VAS). Pain level before and after the intervention was assessed by paired t-test.
Results: Mean of dysmenorrhea after reproductive health gymnastic (Mean= 2.00; SD= 0.10) was lower than before (Mean= 2.60; SD= 0.90), and it was statistically marginally significant (p= 0.067).
Conclusion: Reproductive health gymnastics is effective in reducing dysmenorrhea in female adolescents.

Keywords: female adolescents, menstrual pain, reproductive health gymnastics

Correspondence:
Bahrah. Health Polytechnic, Ministry of Health, Sorong. Jl. Slamet Riyadi, Ambon Village, Manokwari, West Papua, Indonesia. Email: rha_poe@yahoo.co.id. Mobile: +62812482-96303

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.40

THE EFFECT OF ANTENATAL FAMILY CULTURALLY BASED-EDUCATION ON KNOWLEDGE AND PRACTICE ABOUT MATERNAL PRENATAL HEALTH AND NUTRITION

Diyan Indriyani[1)], Esti Yunitasari[2)], Sri Wahyuni[3)]

[1)]Doctoral Program in Nursing, Faculty of Nursing,
Airlangga University, Surabaya, Indonesia
[2)] Faculty of Nursing, Airlangga University, Surabaya, Indonesia
[3)]Faculty of Health Sciences, Muhammadiyah University
at Jember, East Java, Indonesia

ABSTRACT

Background: Previous studies show that educational intervention delivered to both mothers and other family members in a group setting had a greater impact on improving neonatal health and survival in low and middle income countries. This study aimed to determine the effect of family culturally based education intervention on maternal knowledge and practice about prenatal nutrition and health.
Subjects and Methods: This was a quasi-experiment using pre-post test with no control design. A sample of 100 pregnant women were selected at random from Kalisat Hospital, Jember, East Java. An additional sample of 100 family members were also selected alongside the selected pregnant women. A family culturally-based education intervention was implemented to this sample. The dependent variables included maternal knowledge and practice about prenatal maternal health and nutrition. The dependent variables were measured before and after intervention by questionnaire. The independent variable was family culturally-based education intervention. The data were analyzed using paired t-test.
Results: The mean score of maternal knowledge about nutrition after the intervention (Mean= 72.20; SD= 8.64) was higher than before (Mean= 58.00; SD= 6.99), and it was statistically significant (p= 0.023). The mean score of maternal knowledge about the negative impact of malnutrition during pregnancy after the intervention (Mean= 74.80; SD= 10.29) was higher than before (Mean= 54.80; SD= 9.12) and it was statistically significant (p= 0.031). The mean score of pregnant women's about protein nutrition as healthy nutrition during pregnancy after the intervention (Mean= 74.00; SD= 7.56) was higher than before (Mean= 52.00; SD= 7.08) and it was statistically significant (p=0.001). The mean score of knowledge about monitoring fetal health at home after the intervention (Mean= 73.60; SD= 7.17) was higher than before (Mean= 54.40; SD= 8.43) and it was statistically significant (p=0.030). The mean score of nutritional consumption of pregnant women after the intervention (Mean = 83.80; SD = 9.41) was higher than before (Mean = 69.00; SD = 7.92) and it was statistically significant (p = 0.021).
Conclusion: Family culturally based education intervention is effective in improving knowledge and practice about prenatal nutrition and health in pregnant women.

Keywords: family culturally based education, nutrition, fetal health, pregnant women

Correspondence:
Diyan Indriyani, Doctoral Program in Nursing, Faculty of Nursing, Airlangga University, Jln. Mulyorejo, Surabaya, 60115. Email diyan.indriyani-2020@fkp.unair.ac.id_mobile +6281336237976.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.41

EFFECT OF EXCLUSIVE BREASTFEEDING ON STUNTING IN CHILDREN UNDER FIVE AT PEDAN HEALTH CENTER, KLATEN, CENTRAL JAVA, INDONESIA

Anik Kurniawati, Fatma Vera Kusuma, H. Paryono

Health Polytechnics, Ministry of Health Surakarta, Central Java

ABSTRACT

Background: Stunting has been associated with increased child morbidity and mortality, lower educational performance during childhood, and later-life reduced socioeconomic status, and increased metabolic diseases. Nutrition is one of the key factors to achieve adequate child growth and development along with additional individual, household, and contextual factors. In particular, breastfeeding has been associated with multiple maternal and child health benefits. The purpose of this study was to examine the effect of exclusive breastfeeding on stunting in children under five in Pedan health center, Central Java.
Subjects and Method: This was a case control study conducted at Pedan health center, Klaten, Central Java, Indonesia. A sample of 82 children under five was selected by purposive sampling. The dependent variable was stunting. The independent variable was exclusive breastfeeding. The data were collected by questionnaire and analyzed by Chi-square.
Results: Chilren with non exclusive breastfeding were at risk for stunting than those with exclusive breastfeding (OR= 3.61; 95% CI= 1.50 to 8.64; p= 0.003).
Conclusion: non exclusive breastfeding were at risk for stunting

Keywords: exclusive breastfeeding, stunting, children under five

Correspondence:
Anik Kurniawati. Health Polytechnic Surakarta Ministry of Health. Jl. Letjend Sutoyo Mojosongo, Surakarta, Central Java, Indonesia. Email: anikpoltek@gmail.com. Mobile: 081228545894.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.42

PREVALENCE AND RISK FACTORS OF STUNTING IN CHILDREN AGED 0-23 MONTHS IN INDONESIA

Sudikno[1)], Dodi Izwardy[1)], Sugeng Eko[2)], Irlina Raswanti Irawan[1)], Aditianti[1)], Sandjaja[2)]

[1)]Research and Development Center for Public Health, Health Research and Development Agency, Jakarta, Indonesia
[2)]Nutrition and Food Experts Society of Indonesia (Pergizi Pangan), Jakarta, Indonesia

ABSTRACT

Background: Growth stunting is considered an important indicator of child health inequalities. It can be caused by several factors in both pre- and post-natal phases of development, some of these factors include poor nutrition, infectious diseases, and household environment. A global review of stunting in low- and middle-income countries identified growth restriction in-utero and lack of access to sanitation as the main drivers of stunting. This study aimed to investigate prevalence and risk factors of stunting in children aged 0-23 months in Indonesia.
Subjects and Method: This was a cross-sectional study conducted using secondary data from Indonesian Basic Health Research, 2018. A sample of 10,799 children aged 0-23 months in Indonesia was selected for this study. The dependent variable was stunting. The independent variables were gender, age group, region (rural/urban), birth weight, birth length, and maternal height. The data were analyzed using a multiple logistic regression.
Results: The prevalence of stunting in children aged 0-23 months, 0-11 months, and 12-23 months was 28.9%, 22.4%, and 36.8%, respectively. The risk of stunting in children aged 0-23 months in Indonesia increased if male (aOR= 1.32; 95% CI= 1.21 to 1.44; p< 0.001), aged 12-23 months (aOR= 2.05; 95% CI= 1.88 to 2.22; p< 0.001), living in rural areas (aOR= 1.21; 95% CI= 1.11 to 1.32; p< 0.001), low birth weight (aOR= 1.78; 95% CI= 1.48 to 2.15; p< 0.001), birth length <48 cm (aOR= 1.50; 95% CI= 1.35 to 1.66 p< 0.001), and maternal height <145 cm (aOR= 1.93; 95% CI= 1.65 to 2.26; p< 0.001).
Conclusion: The risk of stunting in children aged 0-23 months in Indonesia increases if male, aged 12-23 months, living in rural areas, low birth weight, birth length <48 cm, and maternal height <145 cm.

Keywords: stunting, risk factors, children under five

Corespondence:
Sudikno. Center for Research and Development of Community Health Efforts. Jl. Percetakan Negara 29, Central Jakarta, Indonesia. Email: onkidus@gmail.com. Mobile: +62 81316350502.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.43

PRACTICE OF TETUN TRIBE CULTURE IN MATERNITY CARE IN SILAWAN, BELU, EAST NUSA TENGGARA, INDONESIA: A QUALITATIVE STUDY

Maria Paula Marla Nahak[1)], Elisabeth Rohan[1)], Angela Muryanti Gatum[2)]

[1)]Study Program of Nursing, Universitas Timor, Kefamenanu, East Nusa Tenggara
[2)]Study Program of Nursing, UNiversitas Citra Bangsa, Kupang, Rast Nusa Tenggara

ABSTRACT

Background: Incorrect cultural practices during pregnancy contribute the root of maternal and child health problems in rural areas. This study aimed to investigate practice of Tetun Tribe culture in maternity care.
Subjects and Method: This was a quantitative study with phenomenology approach, conducted at Silawan, Belu, East Nusa Tenggara, Indonesia, from January to February 2019. Key informants in this study were 5 members of the Tetunese family selected by purposive sampling. The data were collected by in-depth interview, non-participating observation, and document review. The data were analyzed by Miles and Huberman method.
Results: Traditional pregnancy care in the form of abdominal massage by traditional shamans using coconut oil and blessing water was still carried out among pregnant women in Silawan, East Nusa Tenggara. Pregnant women also avoided certain foods such as eggs, octopus, shrimp, fish, and rice crust.
Conclusion: Traditional pregnancy care is still carried out by pregnant women in Silawan Village, Belu Regency. Prevention efforts should be made to increases health promotion and the integration of cultural beliefs with professional health practices.

Keywords: culture, pregnancy care, Tetunese

Correspondence:
Maria Paula Marla Nahak. Universitas Timor. Jl. Sasi, Kefamenanu, East Nusa Tenggara, Indonesia. Email: paulamarla@unimor.ac.id. Mobile: +62 82328282282.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.44

THE EFFECT OF BETEL LEAVES BOILED WATER ON THE PERINEAL TEAR HEALING TIME IN POST-PARTUM WOMEN AT NGEMPLAK HEALTH CENTER, BOYOLALI

Henik Istikhomah, Danik Marlisa, Dewi Susilowati

Department of Midwifery, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Perineal wound care can be done by pharmacological and non-pharmacological methods. Pharmacological treatment using antibiotic drugs, while non-pharmacological perineal wound care is using traditional medicine or natural ingredients that have few or no side effects, one of which is using betel leaf. This study aimed to examine the effect of betel leaves boiled water on the perineal tear healing time in post-partum women at Ngemplak Community Health Center, Boyolali.
Subjects and Method: This was a quasi-experiment with posttest only control group design conducted at Ngemplak Community Health Center, Boyolali, Central Java. A sample of 22 postpartum women from 0 to day 3 of perineal injuries was selected and divided into two groups: (1) Intervention group; and (2) Control group. The dependent variable was perineal healing time in days. The independent variable was the use of betel leaves boiled water. The data were collected by observation. The data were analyzed by Mann Whitney.
Results: The majority of post-partum women in this study were at age 20-35 years old, high school level of education, and multipara. The duration of perineal tear healing in the intervention group (Mean= 5.54; SD= 0.32) was faster than that of in the control group (Mean= 6.54; SD= 0.54), and it was statistically significant (p= 0.034).
Conclusion: The use of betel leaves boiled water is effective in reducing the perineal tear healing time in post-partum women.

Keywords: betel leaf boiled, healing time, perineal tear, post-partum women

Correspondence:
Henik Istikhomah. Department of Midwifery, Health Polytechnics. Jl. Letjend Sutoyo, Mojosongo, Jebres, Surakarta, Central Java. Email: janeetaqueen@gmail.com. Mobile: +62 81215908592.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.45

THE ASSOCIATION OF BODY MASS INDEX AND MENSTRUAL PATTERN WITH THE INCIDENCE OF ANEMIA IN FEMALE ADOLESCENTS IN JAMBI, INDONESIA

Monika Mayang Sari, Adelina Fitri, Willia Novita Eka Rini

Study Program of Public Health Science, Universitas Jambi, Jambi

ABSTRACT

Background: Anemia is a condition in which the number of red blood cells or the level of hemoglobin in red blood cells is below normal. The threshold of anemia for adolescents is 12 mg/dl. In Jambi, the incidence of anemia in adolescents aged 15-18 years is fluctuative. There were 259 cases in 2015, 257 cases in 2016, and 1,169 cases in 2017. Many factors cause anemia in adolescents. This study aimed to determine the association of body mass index and menstrual pattern with the incidence of anemia among female adolescents in Jambi.
Subjects and Method: This was a case control study conducted at high school, Jambi, from December 2018 to June 2019. A sample of 290 female adolescents was selected at random, consisting of 65 case and 65 control. The dependent variable was anemia. The independent variables were body mass index and menstrual pattern. The data for anemia were collected from medical record documented in Payo Selincah Community Health Center. The data for independent variables were collected by questionnaire. The data were analyzed by odds ratio and chi-square.
Results: The incidence of anemia increased with underweight category of BMI (OR= 2.12; 95% CI= 0.52 to 8.65; p= 0.338) and menstrual pattern (OR= 4.67; 95% CI= 1.25 to 17.48; p= 0.025) in female adolescents.
Conclusion: The incidence of anemia increases with underweight category of BMI and menstrual pattern in female adolescents.

Keywords: anemia, body mass index, menstrual pattern, female adolescent

Correspondence:
Adelina Fitri. Study Program of Public Health Science, Universitas Jambi, Jambi. Jl Jambi - Muara Bulian 15, Mendalo Darat, Jambi, Indonesia. Email: adelinafitri@-unja.ac.id. Mobile: +62 81272030308.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.46

EFFICACY OF ANTIOXIDANT SUPLEMENTATION TO PREVENT PREECLAMPSIA

Fania Nurul Khoirunnisa[1)], Indah Risnawati[1)], Nor Asiyah[1)], Dewi Kusumawati[2)]

[1)]Study Program in Midwifery, Faculty of Health, Universitas Muhammadiyah Kudus
[2)]Study Program in Nutrition, Faculty of Health, Universitas Muhammadiyah Kudus

ABSTRACT

Background: Preeclampsia has remained a significant public health threat in both developed and developing countries contributing to maternal and perinatal morbidity and mortality globally. It is a pregnancy-related hypertensive disorder occurring usually after 20 weeks of gestation. If left untreated, it progresses to eclampsia. Oxidative stress has been proposed as a key factor involved in the development of pre-eclampsia. Antioxidants, such as vitamin C and E, may neutralize free radicals. However, previous studies reported mixed effect of antioxidant in the reduction of pre-eclampsia. This study aimed to examine the efficacy of the antioxidant supplementation (vitamin E and C) to prevent preeclampsia.
Subjects and Method: This was a literature review of research articles publish from 2005 to 2020. The articles were accessed from various databases including PubMed, Google Scholar, and Science Direct. The keywords were preeclampsia and antioxidants or vitamin C or vitamin E.
Results: This literature review showed that there was no significant difference in the risk of preeclampsia between women who received supplementation with vitamins C and E compared to the placebo group. Although oxidative stress plays a major role in the pathophysiology of preeclampsia, the causal mechanism of the disorder vary.
Conclusion: There are no significant difference in the risk of preeclampsia between women who receives supplementation with vitamins C and E versus the placebo group.

Keywords: antioxidant supplementation, preeclampsia.

Correspondence:
Fania Nurul Khoirunnisa. Study Program in Midwifery, Faculty of Health. Universitas Muhammadiyah Kudus. Email: fanianurul@umkudus.ac.id. Mobile: +6285700848840.

BACKGROUND

Pre-eclampsia and eclampsia are one of the direct causes of maternal mortality in Indonesia in addition to bleeding and infection. The incidence of pre-eclampsia is around 3-10% of total pregnancies and occurs in 7-10% of pregnancies in developing countries such as Indonesia. Pre-eclampsia and eclampsia are health problems that require special attention because pre-eclampsia is a high cause of maternal and perinatal mortality, especially in developing countries. Until now, pre-eclampsia and eclampsia are still "The disease of theories", because the incidence of pre-eclampsia-eclampsia remains high and results in high rates of maternal morbidity and mortality (Sikumbang, 2019)

About 2-3% of pregnant women can develop pre-eclampsia. Pre-eclampsia has a complex etiology, which is the result of the association between genetic disorders, immunological factors, and the

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

placenta. Familial tendencies of maternal siblings account for 3 to 4 times the incidence of maternal pre-eclampsia. Nutritional deficiencies also play a role in the occurrence of pre-eclampsia. Pre-eclampsia can begin in the antenatal, intrapartum, or postnatal period (Sikumbang, 2019; Wahyuni, 2020).

The clinical manifestations of pre-eclampsia are hypertension and proteinuria, which indicate disorders of the vascular system, namely vasoconstriction and increased vascular permeability. On examination of the blood of mothers with pre-eclampsia found low levels of antioxidants (Glutathione (GSH), vitamin C, vitamin E) in the mother's blood. This occurs due to oxidative stress. The cause of the lack of antioxidants, pregnant women who suffer from preeclampsia cannot control high oxidative stress which can damage the endothelial cells of the mother's blood vessels and cause endothelial dysfunction. Preeclampsia patients have high levels of free radicals. These free radicals are destructive, so their production must be controlled by enzymes or vitamins that function as antioxidants (Baktiyani, 2010).

Vitamins C and E are known as powerful antioxidants and are important in treating preeclampsia. Vitamin C is an antioxidant acting in the cytosol and in extracellular media. Since it is not synthesized in the body, there must be an adequate diet to prevent oxidative stress. Vitamin C levels are detectable low in individuals with preeclampsia. Vitamin E is a major fat-soluble antioxidant, acting on cell membranes to prevent lipid peroxidation. Vitamin E can also be found in lipoprotein particles and in higher levels than lipids.

In some studies, vitamin E has been found in women with preeclampsia. The effect of the combination of the two is considered more impactful than if given separately. Previous studies found that giving 1000 mg of antioxidant vitamin C and vitamin E 400 per day starting at 22 weeks of age decreased the incidence significantly (Ardini, 2005; Irmayanti 2019). The effect of giving antioxidants, namely vitamins E and C on the incidence of pre-eclampsia, needs to be studied further. It is hoped that by reviewing this article, the concept of developing antioxidant potential as a complementary therapy in pre-eclampsia can be developed and analyzed further.

SUBJECTS AND METHOD

1. Study Design

The research design used is a literature review, Literature Study from the PubMed Database, Web Page and Google Scholar, ScienceDirect which is relevant from the period 2005 to 2020 with the keywords used: preeclampsia and (antioxidants or oxidative stress or vitamin C or vitamin E).).

2. Inclusion Criteria

Articles included in the broader review if explicitly focused on antioxidant supplementation in relation to the management of preeclampsia cases.

3. Exclusion Criteria

This study aims to systematically examine the efficacy of providing antioxidants in pre-eclampsia cases. We did not include studies that were not fully accessible and articles with intervention administering antioxidants (vitamin E, vitamin C or zinc) separately.

4. Study Variables

The dependent variable is preeclampsia. The independent variable was the efficacy of supplementation (vitamin C and vitamin E).

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

5. Operational Definition of Variable

Preeclampsia is a complex etiology, which is the result of the association between genetic disorders, immunological factors, and the placenta with clinical manifestations of hypertension and proteinuria. On examination of the blood of mothers with preeclampsia found low levels of antioxidants (Glutathione (GSH), vitamin C, vitamin E) in the mother's blood.

Supplementation efficacy is an assessment of the ability of vitamin E and vitamin C supplements given together in cases of pre-eclampsia.

RESULTS

Antioxidants are important in maintaining cellular integrity in normal pregnancy by inhibiting peroxidation reactions and thereby protecting enzymes, proteins, and cells from destruction by peroxides. Antioxidant defense mechanisms include cellular and extracellular enzymes such as: glutathione reductase, superoxide dismutase, catalase and free radicals, including vitamins C and E, carotenoids, glutathione, serum albumin, and metabolites such as bilirubin and uric acid. Vitamins C and E are antioxidants that come from food. The free radical antioxidant effects of vitamin C act in the aqueous phase and fat-soluble vitamin E acts in vivo to prevent the formation of lipid peroxides and thereby protect cell membranes. There is evidence of oxidative stress in women with preeclampsia, namely increased plasma concentrations of prostaglandin F2α, lipid peroxide and decreased concentrations of antioxidants such as vitamins C and E (Rumbold, 2006).

In a 2006 placebo-controlled trial by Rumbold in nulliparous women giving 1000 mg of vitamin C and 400 IU of vitamin E daily during pregnancy did not reduce the risk of preeclampsia, the risk of death or serious fetal outcome or the risk of intrauterine growth restriction. This finding contrasts with findings in a previous trial that supplementation with vitamins C and E is beneficial in women at high risk for preeclampsia. Maternal supplementation with antioxidant vitamins can improve the antioxidant status of the fetus and thereby reduce the risk of diseases associated with oxidative stress (Rumbold, 2015).

Vitamin E is the generic name given to eight fat-soluble vitamins and compounds of plant origin; four are referred to as tocopherols (alpha, beta, gamma, delta) and four are known as tocotrienols (alpha, beta, gamma, delta). Vitamin E functions as an antioxidant in the lipid phase, protects phospholipid fatty acids from oxidation by harmful free radicals (reactive oxygen molecules) and thereby stabilizes cell membranes (Rumbold, 2015).

As an antioxidant, vitamin E helps prevent oxidative stress, which is characterized by an excess of free radicals coupled with a decrease in antioxidants. Vitamin E interacts synergistically with water-soluble vitamin C, where it helps convert oxidized vitamin E back to its useful form. This association may explain the limited observation of marked vitamin E deficiency in humans, requiring vitamin C to assist in processing stored vitamin E. Vitamin E and vitamin C supplements are often given together to obtain these benefits and to promote antioxidant defense in the aqueous and lipid phases. The dose of vitamin E required for antioxidant effects has been reported to be at least 400 IU (approximately 268 mg alpha-TE) (Blum, 2010; Robert 2010).

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

During pregnancy, oxidative stress has been implicated in the development of pre-eclampsia and affects intrauterine growth (preterm birth) and pre-delivery rupture of membranes (PROM). Oxidative stress has also been implicated in many disorders common in premature infants including chronic lung disease, intraventricular hemorrhage, periventricular haemorrhage, leukomalacia, retinopathy of prematurity, necrotising enterocolitis and bronchopulmonary dysplasia. Preventing complications in pregnancy such as pre-eclampsia, IUGR, PROM, prematurity and serious neonatal morbidity will provide significant cost efficiency in hospital and intensive health care and the use of other health resources (Rumbold, 2015).

In 7 trials that have been performed, the diagnosis of preeclampsia was established as gestational hypertension occurring after 20 weeks of gestation plus proteinuria (≥300 mg/24 hours or 2+ on the dipstick test or 300 mg/24 hours or 1+ on the dipstick test or 300 mg). /24 hours or 2+ on dipstick testing or protein/creatinine ratio 0.3521. In the study by Rumbold et al. (2015) pre-eclampsia was defined as gestational hypertension occurring after 20 weeks of gestation with one or more of the following symptoms: proteinuria, renal insufficiency, liver disease, neurological problems, haematological disorders, or fetal growth restriction (Agudelo, 2011).

There was no significant difference in the risk of preeclampsia between women receiving supplementation with vitamins C and E versus the placebo group (9.6% vs. 9.6%; RR = 1.00, 95% CI= 0.92 to 1.09). The effect of vitamins C and E on the risk of preeclampsia did not change after a sensitivity analysis was limited to six trials that were considered free of major bias (RR = 1.02, 95% CI = 0.93 to 1.11). Vitamins C and E did not decrease the frequency of preeclampsia in either women at moderate risk (6.5% vs. 6.0%; RR= 1.08; 95% CI= 0.95 to 1.23) or high risk (16.3% vs. 17.2%; RR 0.95, 95% CI 0.85 to 1.06). In addition, vitamin C and E supplementation did not reduce the risk of preeclampsia in women at high risk of developing the disorder, regardless of the specific risk factors present at the time of testing. There was a statistically significant but not significant reduction in preeclampsia among primiparous women with a BMI of 30 kg/m^2 who received vitamins C and E (10.7% vs. 14.1%; RR = 0.76; 95% CI= 0.55 to 1.05). The risk of placental abruption was significantly lower in the group of women receiving vitamins C and E than among the women receiving placebo (0.6% vs 1.0%; RR = 0.63, 95% CI: 0.43 to 0.94; five trials, 13,075 women) (Weissgerber , 2013).

A secondary analysis of randomized controlled trials was conducted in which 10,154 low-risk women received daily vitamins C and E and placebo, from 9-16 weeks of gestation until delivery. The HP phenotype was determined in the study prediction cohort (n= 2,393) and the case–control cohort (703 cases, 1,406 controls). The primary outcome was severe PAH, or mild or severe PAH with elevated liver enzymes, elevated serum creatinine, thrombocytopenia, eclampsia, fetal growth restriction, medical indications for preterm delivery or perinatal death. Preeclampsia is a secondary outcome. The odds ratio was estimated by logistic regression. Sample weights were used to reduce bias from overrepresentation of women with preeclampsia or the primary outcome. There was no association between Hp phenotype and primary outcome or preeclampsia in Hispanic, white/other or black women. Vitamin

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

supplementation did not reduce the risk of primary outcome or preeclampsia in women with any phenotype. Supplementation increased the risk of preeclampsia (OR= 3.30; 95% CI= 1.61 to 6.82; p= 0.010) in Hispanic Hp 2-2 women. HP phenotype did not affect the risk of preeclampsia, nor identified the subset of women who might benefit from vitamin C and E supplementation to prevent preeclampsia (Weissgerber, 2013).

It is possible that if the results of these studies had been reported more consistently, the effect sizes might have been different, to date no trials have reported long-term consequences. Finally, the effect of vitamin C and E supplementation with biochemical evidence of increased oxidative stress in women has not been assessed due to lack of data. Antioxidants, especially vitamins C and E, have been proposed as potential preventive strategies that suggest a role in overcoming increased oxidative stress in the pathogenesis of preeclampsia.

It is not clear why supplementation with vitamins C and E during pregnancy does not reduce the risk of preeclampsia. First, it is possible that although oxidative stress plays a major role in the pathophysiology of preeclampsia, the causal causes of the disorder vary so that interventions to reduce oxidative stress do not reduce the risk of preeclampsia. It has been proposed that supplementation with vitamins C and E started in the early trimester of pregnancy after placentation has occurred to influence the pathological process of the condition. However, from 5 experiments that have been conducted, it was found that supplementation with vitamins C and E during pregnancy was associated with a significant reduction (37%) in the risk of placental abruption. Clemetson and Cafaro reported that women with low serum ascorbic acid levels during pregnancy (<0.4 mg/dL) had a higher risk of placental abruption than women with normal levels (<0.4 mg/dL). RR= 9.80, 95% CI= 3.50 to 27.4) (Agudelo, 2011).

Two studies by Sharma et al showed that serum levels of vitamins A, C and E were lower in women with placental abruption than in women with normal pregnancies. It has been suggested that supplementation with vitamins C and E during pregnancy may reduce the risk of preeclampsia in women with low baseline antioxidant status. In a study by McCance et al in 22 women with low antioxidant status in early pregnancy (plasma ascorbate <10 mol/L or serum -tocopherol 5 mol/mmol cholesterol) receiving vitamins C and E had a reduced risk of preeclampsia compared to the placebo group, although the amount small and the difference did not reach statistical significance. In the study by Villar et al, vitamin C and E supplementation did not prevent preeclampsia in high-risk women who were thought to have low antioxidant status on the baseline data. In a randomized controlled trial, supplementation with antioxidants (vitamins A, B6, B12, C, and E, folic acid), N-acetylcysteine, copper, zinc, manganese, iron, calcium, and selenium) was associated with a reduced rate of preeclampsia of 29%. to 7% (RR = 0.24; 95% CI = 0.06 to 1.01) in 60 women with low antioxidant status (superoxide dismutase <1102 U/g Hb or <164 U/mL) at 8 to 12 weeks of gestation (Agudelo, 2011) .

A study by Baktiyani 2010 stated that the addition of NAC, vitamin C and vitamin E could significantly reduce H2O2 levels in the HUVEC eclampsia model ($p < 0.05$). Administration of 2 M NAC was better than 4 M or 8 M doses. The combination of three antioxidants

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

gives better results than a single antioxidant.

Levels of antioxidant nutrients can be manipulated only by diet or pharmacological supplements. However, the importance of vitamin E and carotenoids in preventing free radical damage is well recognized and their levels have been reported to be significantly decreased in pre-eclampsia. Maternal vitamin D deficiency may be an independent risk factor for pre-eclampsia and its supplementation in early pregnancy should be explored to prevent preeclampsia and improve neonatal well-being. In a study by Kolusari (2008), lower levels of vitamins A, D and E were observed in PE women compared to the control group. This suggests that nutritional efforts to increase levels of antioxidants and vitamins, such as vitamins A, D and E, in pregnant women may be beneficial in preventing preeclampsia (Kolusiri, 2008).

A study conducted with supplementation of vitamins C and E starting at 9 to 16 weeks of gestation in a low-risk cohort, nulliparous women not selected to reduce the risk of adverse or perinatal outcomes associated with pregnancy-associated hypertension, included 283 high-risk women. for preeclampsia, supplementation with vitamins C and E, compared with placebo, was effective in reducing evidence of endothelial activation; 60% reduction in the diagnosis of preeclampsia.

Post hoc subgroup analysis by gestational week at randomization (<13 weeks vs. 13 weeks). Results did not differ significantly by subgroup (P = 0.54 for interaction). Among the 4,343 women who attended the study before the 13th week of gestation, the primary outcome occurred in 6.6% of those in the vitamin group, compared with 5.9% of the placebo group (RR = 1.12; 95% CI = 0.89 to 1.42); among 5,626 women enrolled in or after the 13th week of gestation, primary outcomes occurred in 5.7% of those in the vitamin group and 5.6% of those in the placebo group (RR = 1.02; 95% CI= 0.82 to 1.26). In that study, supplementation with vitamins C and E did not reduce the risk of preeclampsia. Several other trials have examined the effectiveness of vitamins C and E in preventing preeclampsia. Each of the previous trials had a smaller sample but a significant increase in the use of antihypertensive therapy was found with vitamin supplementation in a previous trial involving low-risk women (Robert, 2010).

DISCUSSION

Preeclampsia is a multisystem disorder characterized by hypertension and proteinuria that usually occurs in the second trimester of pregnancy. Preeclampsia carries a risk of serious complications and maternal death. There are several risks to the fetus, including death, premature birth, intrauterine hypoxia and IUGR. The pathogenesis of preeclampsia involves inadequate trophoblast invasion, often leading to poor placental perfusion; endothelial dysfunction, immune maladaptation and inflammation. Oxidative stress, coupled with inadequate antioxidant defense mechanisms is considered to be the cause (Rumbold, 2006).

Empirical studies suggest that an imbalance of oxidant and antioxidant levels (oxidative stress) may have an important role in the pathogenesis of preeclampsia. Understanding this is important to evaluate the potential of antioxidant therapy, prevent complications, and improve prognosis and ultimately improve health quality. Preeclampsia

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

(PE) is a syndrome in pregnancy characterized by clinical symptoms of increased blood pressure and proteinuria. The criteria for the diagnosis of preeclampsia are hypertension in pregnancy diagnosed after 20 weeks of gestation and accompanied by proteinuria. In the majority of cases, PE occurs near term (gestational age 34 weeks) which is called late onset preeclampsia or late onset preeclampsia (PEAL), about 10% of cases of PE occur before 34 weeks of gestation, which is called early onset preeclampsia.

Clinical manifestations of PE usually occur in the first pregnancy, appearing after gestational age more than 20 weeks or the second trimester of pregnancy. In general, preeclampsia is divided into mild preeclampsia and severe preeclampsia. Diagnosis of mild PE if it meets criteria number 1-2 and a diagnosis of severe PE if it meets criteria number 3-12.

The criteria for the diagnosis of PE are::

1. Systolic blood pressure 140 mmHg or diastolic 90 mmHg,
2. Proteinuria 300 mg-5 g/24 hours
3. Normal 160 mmHg or diastolic >110 mmHg,
4. Proteinuria > 5 g/24 hours,
5. Increased serum creatinine,
6. Oliguria (a (<500 mL/24 hours),
7. Symptoms: headache, visual disturbances, epigastric pain in the right upper quadrant,
8. Pulmonary edema,
9. Impaired hepatocellular function (elevated Aspartate Transaminase [AST] and Alanine Transaminase [ALT]),
10. Thrombocytopenia,
11. Microangiopathic hemolysis,
12. Grand mal seizures (eclampsia).

Biologically, antioxidants are compounds that can reduce the negative effects of oxidants in the body. Antioxidant systems are divided into enzymatic and non-enzymatic groups. Enzymatic antioxidants are often referred to as primary antioxidants, consisting of the enzymes glutathione peroxidase, catalase, glutathione, and superoxide dismutase (SOD). Enzymatic antioxidants work by preventing the formation of new free radical compounds and breaking the chain reaction of radicals. Secondary antioxidants consist of vitamins C, A, E, -carotene, tocopherols, and flavonoids which function to capture oxidant compounds and prevent the formation of chain radical reactions (Niki, 2009; Candra 2007). In preeclampsia, antioxidants glutathione peroxidase, catalase, glutathione, and superoxide dismutase (SOD) tend to decrease (Hung, 2007; Rani 2010).

One theory related to the pathophysiology of preeclampsia is oxidative stress. Oxidative stress is a state of imbalance in the amount of oxidants with antioxidants, which has the potential to cause cell or tissue damage. In PE patients, the invasion of trophoblast cells is disrupted and causes inadequate placental perfusion, which in turn can lead to oxidative stress (Robert, 2010).

Based on the levels of oxidative end products and antioxidants it was hypothesized that oxidative stress might be a potential risk factor for the initiation of preeclampsia due to the primary inability of antioxidant capacity to neutralize free radicals and increase levels of oxidative stress products. However, when oxidative stress a protective response was induced by increasing some antioxidants, as observed for catalase and glutathione peroxidase in the current meta-analysis. The data available from this study, however, support the hypothesis that oxidant concentrations are increased in

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

preeclampsia compared with normal pregnancy. (Taravati, 2018).

In a systematic review of 2953 cases and 3621 controls statistically significant reductions in total antioxidant capacity, nitric oxide, superoxide dismutase, glutathione, vitamins E and C were observed in preeclamptic women. On the other hand, statistically significant increases in malondialdehyde, protein carbonyl, total peroxide, glutathione peroxidase, catalase and uric acid were observed in preeclamptic women. Increased oxidative stress products, which were found in the meta-analysis may be the underlying mechanism of endothelial dysfunction in preeclampsia. This meta-analysis provides scientific support that a major reduction in antioxidant capacity and increased levels of oxidative stress products may lead to a condition in which the pathways responsible for blood pressure homeostasis are disrupted. In conclusion, it is hypothesized that when oxidative stress occurs, a protective response is induced by increasing several antioxidants. Further studies are needed to investigate the role of dietary supplementation and genetic variation in women with ethnic differences (Taravati, 2018).

P-selectin, a cell adhesion molecule is elevated in many inflammatory conditions including preeclampsia which is characterized by generalized endothelial dysfunction and vasoconstriction possibly due to free radicals or mediators released by defective placentation. Vitamin E is documented to have benefits for protecting cell membranes from oxidative damage and also decreasing platelet aggregation. Soluble P-selectin was measured by ELISA and Vitamin-E levels in plasma were estimated spectrofluorometrically. The effect of supplementation with 400 IU/day of Vitamin E (a-tocopheryl acetate) in pre-eclamptic patients showed significant results. Decreased levels of soluble P-selectin at week 2 as compared to patients given placebo ($p = 0.005$). In the short study period no direct correlation was observed between Vitamin E or P-selectin levels with blood pressure as well as proteinuria. Further studies are needed, perhaps focusing on the effects of a-tocopheryl acetate or the phosphate form of Vitamin-E, recently proposed to be a more active form on other inflammatory markers such as IL-6, an important stimulus of P-selectin release in preeclampsia (Wangkheimayum, 2011).

Preeclampsia patients have high levels of free radicals. These free radicals are destructive, so their production must be controlled by enzymes or vitamins that function as antioxidants. The free radical antioxidant effects of vitamin C act in the aqueous phase and fat-soluble vitamin E acts in vivo to prevent the formation of lipid peroxides and thereby protect cell membranes. There is evidence of oxidative stress in women with preeclampsia, namely increased plasma concentrations of prostaglandin F2α, lipid peroxide and decreased concentrations of antioxidants such as vitamins C and E. In several studies, there were no significant differences in the risk of preeclampsia between women receiving supplementation with vitamins C and E. compared to the placebo group. First, although oxidative stress plays a major role in the pathophysiology of preeclampsia, the causal causes of the disorder vary so that interventions to reduce oxidative stress do not reduce the risk of preeclampsia.

Further studies are needed to investigate the role of dietary supplements in preventing preeclampsia and to evaluate genetic variations of antioxidant

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

enzymes that contribute to this morbidity condition. It has been proposed that supplementation with vitamins C and E started in the early trimester of pregnancy after placentation has occurred to influence the pathological process of the condition. In another study it was suggested that further studies are needed, perhaps focusing on the effects of a-tocopheryl acetate or the phosphate form of Vitamin-E, recently proposed to be a more active form on other inflammatory markers such as IL-6, an important stimulus for P release -selectin in preeclampsia (Wangkheimayum, 2011). Antioxidant supplementation of vitamins E and C still requires further research to assess the benefits, dosages and appropriate derivatives.

AUTHOR CONTRIBUTION

The author concludes from the study of several studies of the effect of providing antioxidants, namely vitamin E and vitamin C on the incidence of pre-eclampsia.

FUNDING AND SPONSORSHIP

Nil

ACKNOWLEDGMENT

The authors thank the LPPM Muhammadiyah Kudus University for facilitating in participating in the 2021 ICPH activities and the 2021 ICPH committee who have reviewed the article manuscript.

CONFLICT OF INTEREST

There are no conflicts of interest

REFERENCES

Ardini DS (2005). Efek pemberian kombinasi vitamin e dan vitamin c terhadap kadar nitric oxide (no) pada pre eklampsi R (The effect of the combination of vitamin e and vitamin c on nitric oxide (no) levels in pre-eclampsia R). Medicine. Retrieved from: http://eprints.undip.ac.id/12522/1/2005MIB4400.pdf

Baktiyani SCW (2010). The changes of h202 level and glutathione/-glutathione dioxide ratio with the administration of N-acetylcystein, vitamin c, and vitamin e towards in vitro eclampsia human umbilical vein endothelial cell model. Indones J Obstet Gynecol. 2. 3(4).

Blum S, Vardi M, Levy NS, Miller-Lotan R, Levy AP (2010). The effect of vitamin E supplementation on cardiovascular risk in diabetic individuals with different haptoglobin phenotypes. Atherosclerosis 211: 25–27. doi: 10.1016/j.atherosclerosis.2010.02.018

Candra S, Widodo MA, Suwarto S, Muliartha IK (2007). Kadar MDA dan rasio GSH/GSSH pada kehamilan normal, preeklampsia berat dan eklampsia di Malang (MDA levels and ratio of GSH/GSSH in normal pregnancy, severe pre-eclampsia and eclampsia in Malang). Jurnal Kedokteran Brawijaya. 1(13):35-9. doi: https://-doi.org/10.21776/ub.jkb.2007.02-3.01.6

Conde-Agudelo A, Romero R, Kusanovic JP, Hassan SS (2011). Supplementation with vitamins C and E during pregnancy for the prevention of preeclampsia and other adverse maternal and perinatal outcomes: a systematic review and metaanalysis. Am J Obstet Gynecol. 204(6): 503.e1-12. doi: 10.1016/-j.ajog.2011.02.020.

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

Hung J (2007) Oxidative stress and antioxidants in preeclampsia. J Chin Med Assoc. 70(10): 430-2. doi: 10.1016/S1726-4901(08)70032-7

Irmayanti (2019) Pengaruh pemberian kalsium terhadap perubahan tekanan darah dan kadar et-1 pada ibu hamil dengan riwayat pre eklampsi (Effect of calcium administration on changes in blood pressure and et-1 levels in pregnant women with a history of pre-eclampsia). Thesis-S2 thesis, Universitas Hasanuddin.

Kolusari A, Kurdoglu M, Yildizhan R, Adali E, Edirne T, Cebi A, Demir H, Yoruk IH (2008). Catalase activity, serum trace element and heavy metal concentrations, and vitamin A, D and E levels in pre-eclampsia. J Int Med Res. 36(6): 1335-41. doi: 10.1177/147323000803600622.

Levy AP, Gerstein HC, Miller-Lotan R, Ratner R, McQueen M, Lonn E, Pogue J (2004). The effect of vitamin E supplementation on cardiovascular risk in diabetic individuals with different haptoglobin phenotypes. Diabetes Care. 27(11): 2767. doi: 10.2337/diacare.27.11.2-767.

McCance DR, Holmes VA, Maresh MJ, Patterson CC, Walker JD, Pearson DW, Young IS (2010). Vitamins C and E for prevention of pre-eclampsia in women with type 1 diabetes (DAPIT): a randomised placebo-controlled trial. Lancet (London, England), 376(9737), 259–266. https://doi.org/10.1016-/S0140-6736(10)60630-7

Milman U, Blum S, Shapira C, Aronson D, Miller-Lotan R, Anbinder Y, Alshiek J, Bennett L, et al (008). Vitamin E supplementation reduces cardiovascular events in a subgroup of middle-aged individuals with both type 2 diabetes mellitus and the haptoglobin 2-2 genotype: a prospective double-blinded clinical trial. Arterioscler Thromb Vasc Biol. 2008 Feb;28(2):341-7. doi: 10.1161/ATVBAHA.107.153965.

Niki E (2009). Lipid peroxidation: physiological levels and dual biological effects. Free Radic Biol Med. 47(5): 469-84. doi: 10.1016/j.freeradbiomed.2009.05.032.

Rani N, Dhingra R, Arya DS, Kalaivani M, Bhatla N, Kumar R (2010). Role of oxidative stress markers and antioxidants in the placenta of preeclamptic patients. J Obstet Gynaecol Res. 36(6): 1189-94. doi: 10.1111/j.1447-0756.2010.01303.x.

Roberts JM, Myatt L, Spong CY, Thom EA, Hauth JC, Leveno KJ, Pearson GD, et al. (2010). Vitamins C and E to prevent complications of pregnancy-associated hypertension. N Engl J Med. 362(14): 1282-91. doi: 10.1056/NEJMoa0908056.

Rumbold A, Ota E, Hori H, Miyazaki C, Crowther CA (2015). Vitamin E supplementation in pregnancy. Cochrane Database Syst Rev. 2015(9):CD004069. doi: 10.1002/-14651858.CD004069.pub3.

Rumbold AR, Crowther CA, Haslam RR, Dekker GA, Robinson JS (2006) Vitamins C and E and the risks of preeclampsia and perinatal complications. N Engl J Med 354: 1796–1806. doi: 10.1056/NEJMoa0541-86

Sikumbang SR (2019). Faktor-faktor yang memengaruhi pre-eklampsi pada ibu hamil trimester III di rumah sakit umum daerah Dr. Zubir Mahmud Idi Aceh Timur Tahun 2017 (Factors that influence

preeclampsia in third trimester pregnant women at the Dr. Zubir Mahmud Idi East Aceh 2017). Gentle Birth. 2(1).

Taravati A, Tohede F (2018). Comprehensive analysis of oxidative stress markers and antioxidants status in preeclampsia. Taiwanese Journal of Obstet & Gynecol. 57: 779e790

Taravati A, Tohidi F (2018). Comprehensive analysis of oxidative stress markers and antioxidants status in preeclampsia. Taiwan J Obstet Gynecol. 57(6): 779-790. doi: 10.1016/j.tjog.2018.10.002.

Villar J, Purwar M, Merialdi M, Zavaleta N, Thi Nhu Ngoc N, Anthony J, et al. (2009). World Health Organization multicentre randomised trial of supplementation with vitamins C and E among pregnant women at high risk for pre-eclampsia in populations of low nutritional status from developing countries. BJOG. 116:780–8. [PubMed: 19432566]

Villar J, Purwar M, Merialdi M, Zavaleta N, Thi Nhu Ngoc N, Anthony J, et al (2009). WHO Vitamin C and Vitamin E trial group. World Health Organisation multicentre randomised trial of supplementation with vitamins C and E among pregnant women at high risk for pre-eclampsia in populations of low nutritional status from developing countries. BJOG. 116(6): 780-8. doi: 10.1111/j.1471-0528.2009-.02158.x.

Wahyuni F (2020). Faktor-faktor yang Mempengaruhi Pre-eklampsi pada Ibu Hamil Trimester III di Rumah Sakit Umum Daerah dr. Zubir Mahmud di Aceh Timur (Factors Affecting Pre-eclampsia in Third Trimester Pregnant Women at the Regional General Hospital dr. Zubir Mahmud in East Aceh). Excellent Widwifery Journal. 3(2)

Wangkheimayum S, Kumar S, Suri V (2011). Effect of vitamin E on sP-Selectin levels in pre-eclampsia. Indian J Clin Biochem 26(2): 169–171. doi: https://doi.org/10.1-007/s12291-010-0102-2

Weissgerber TL, Gandle RE, McGee PL, Spong CY, Myatt L, Laveno KJ, Thorp JM (2013). Haptoglobin phenotype, preeclampsia risk and the efficacy of vitamin C and E supplementation to prevent pre-eclampsia in a racially diverse population. Plos One. 3(4). doi: https://doi.org/10.1371/journal.pone.0060479

Xu H, Perez-Cuevas R, Xiong X, Reyes H, Roy C, Julien P, Smith G, et al. (2010). An international trial of antioxidants in the prevention of preeclampsia (INTAPP). Am J Obstet Gynecol. 202(3): 239.e1-239.e10. doi: 10.1016/j.ajog.2010-.01.050.

TOPIC IV :
HEALTH POLICY AND MANAGEMENT

REGULATION OF HOSPITAL OCCUPATIONAL HEALTH AND SAFETY AS A PREVENTIVE AND REPRESIVE INSTRUMENT ON OCCUPATIONAL ACCIDENT IN HOSPITAL

Radit H. Mayangkara[1)], A.A. Subiyanto[1)], Didik Gunawan Tamtomo[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Patient safety is the avoidance of unintended or unexpected harm to people during the provision of health care. Safe patient handling programs, policies, and equipment can help cost-effectively reduce the biggest cause of occupational accident or injuries in hospital. The purpose of this study was to explore regulation of hospital occupational health and safety as a preventive and represive instrument on occupational accident in hospital.
Subjects and Method: This was a qualitative study. The study subjects were all hospital stakeholders, included administrative staff, hospital occupational health and safety staff, regulatory agency, and education cooperation. The data were collected by observation, focus group discussion, document review, and filling the questionnaire. The data were analyzed by triangulation.
Results: This study found that many regulations had applied to the hospital. However, the regulations were arranged separately by each sectors, e.g. Ministry of Health, Ministry of Manpower, and Ministry of Environment. Many regulations cause overlap and confound the hospital administrators to implement them.
Conclusion: The effectiveness of regulation need to be improved as a preventive and repressive instrument toward work accidents in hospitals.

Keywords: occupational health and safety regulation, preventive, represive, hospital, work accidence

Correspondence:
Radit Hartantyo Mayangkara. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: raditmayangkara@-gmail.com. Mobile: (+62)8122938885.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.01

PATH ANALYSIS OF FACTORS ASSOCIATED WITH WORK PERFORMANCE OF HEALTH CENTER PERSONNEL IN CIAMIS, EAST JAVA

Latty Indriastuti[1)], Endang Sutisna Sulaeman[2)], Eti Poncorini Pamungkasari[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Work performance was the outcome of all cumulative actions that the nurses' performs using their skills, abilities, and knowledge in providing health services to the community. Many factors influence work performance in health personnels. The purpose of this study was to examine factors associated with work performance of health center personnel using path analysis.
Subjects and Method: A cross sectional study was conducted in Ciamis, West Java, from November to December 2020. Total sample of 200 health personnel in health centers was selected by simple random sampling. The dependent variable was work performance. The independent variables were leadership style, work motivation, work satisfaction, education, patient, patient health treatment status, health worker status, tenure, perceived income, training, and type of human resources. The data were collected by questionnaire and analyzed using a multiple linear regression.
Results: Work performance in health personnel increased with good leadership style (b= 6.09; 95% CI= 1.63 to 3.18; p <0.001), strong motivation (b= 3.91; 95% CI= 0.73 to 2.22; p<0.001), high work satisfaction (b= 4.09; 95% CI= 0.78 to 2.22; p<0.001), high education (b= 4.62; 95% CI= 0.99 to 2.45; p<0.001), inpatients (b= 4.67; 95% CI= 1.00 to 2.46; p<0.001), health workers (b= 4.62; 95% CI= 1.12 to 2.77; p< 0.001), tenure ≥3 years (b= 3.53; 95% CI= 0.59 to 2.07; p<0.001), good perceived income (b=4.14; 95% CI= 0.87 to 2.45; p<0.001), had trained (b= 4.96; 95% CI= 1.40 to 3.23; p< 0.001), and civil servants (b=3.97; 95% CI= 0.73 to 2.16; p<0.001).
Conclusion: Work performance in health personnel increases with good leadership style, strong motivation, high work satisfaction, high education, inpatients, health workers, tenure ≥3 years, good perceived income, has trained, and civil servants.

Keywords: work performance, health personnel, community health center

Correspondence:
Latty Indriastuti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: lattyindria.drg@gmail.com. Mobile: +628999976544.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.02

CORRELATIONS BETWEEN HEALTH CARE FACILITIES AVAILABILITY AND ACCEPTANCE ON QUALITY OF LIFE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

Dian Handayani[1)], Noor Alis Setiyadi[2)], Anisa Catur Wijayanti[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Public Health Department, Faculty of Health Sciences,
Muhammadiyah Surakarta University

ABSTRACT

Background: Quality if life is based on both objective and subjective parameters. The subjective parameters include wellbeing, happiness, and personal acceptance, while objective parameters are related to the satisfaction of basic needs, such as availability and access to health care facilities. The purpose of this study was to investigate correlations between health care facilities availability and acceptance on quality of life in patients with type 2 diabetes mellitus.
Subjects and Method: A cross sectional study was carried out at General Hospital of Surakarta, Central Java from October to November 2019. A sample of 131 type 2 diabetes mellitus patients aged ≤65 years was selected by purposive sampling. The dependent variable was quality of life. The independent variables were health facilities and patient acceptance. Quality of life was measured by Quality of Life Instrument for Indian Diabetes patients (QOLID). Other variables were masured by questionnaire. The data were analyzed by Chi square.
Results: Good health facilities (OR= 3.28; 95% CI= 1.41 to 7.60; p= 0.004) and patient acceptance (OR= 4.02; 95% CI= 1.57 to 10.30; p= 0.002) improved quality of life of type 2 diabetes mellitus patients.
Conclusion: Good health facilities and patient acceptance improve quality of life of type 2 diabetes mellitus patients.

Keywords: diabetes mellitus, quality of life, health facilities, patient acceptance

Correspondence:
Dian Handayani. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: dianhan1812@gmail.com. Mobile: 085876686231

https://doi.org/10.26911/AB.Management.ICPH.08.2021.03

COMPARISON BETWEEN ONLINE AND OFFLINE TRAINING IN IMPROVING KNOWLEDGE TOWARD COVID-19 PREVENTION IN COVID-19 VOLUNTEER

Victoria Sari[1)], Lely Pangesti[1)], Vitri Widyaningsih[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: With the increasing use of technology and current COVID-19 pandemic situation, online training has become a common learning method. The effectiveness of online training is influenced by many factors. Some factors create barriers for online training, such as administrative issues, social interaction, technical skills, motivation, time, technical problems, cost and access to the internet. Other factors could result in low-quality online training, for example an ineffective design and arrangement of multimedia materials. The purpose of this study was to examine comparison between online and offline training in improving knowledge toward COVID-19 prevention in COVID-19 volunteer.
Subjects and Method: A randomized controlled trial was conducted in Klaten, Central Java. A sample of 55 COVID-19 volunteers was selected for this study. A day offline training was attended by 21 volunteers, meanwhile 34 volunteers attended online training. The dependent variable was knowledge. The independent variable was training. Their knowledge toward COVID-19 prevention before and after training was measured by a questionnaire. The data were analyzed by independent t-test.
Results: Mean of volunteer's knowledge after offline training (Mean= 8.38; SD= 0.80) was higher than online training group (Mean= 7.47; SD= 1.13) and it was statistically significant (p= 0.002).
Conclusion: Offline training is more effective than online training to improve knowledge toward COVID-19 prevention in volunteers.

Keywords: knowledge, COVID-19 volunteer, training

Correspondence:
Victoria Husadani Permata Sari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta, 57126, Central Java. Email: victoria-husadani@students.uns.ac.id. Mobile: 081393539020.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.04

EVALUATION PROGRAM OF PREGNANCY CLASS IN MOJOGEDANG II HEALTH CENTER IN KARANGANYAR, CENTRAL JAVA

Kristuti Catur Sumarah[1)], Gita Kostania[2)], Emy Suryani[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Diploma IV of Midwivery, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: The importance of parenting education programmes stems from the fact that they empower the woman and/or her partner at the time when they are most vulnerable: during pregnancy and the postnatal period. The main aims of antenatal class is to promote healthy practices, minimize excessive anxiety and prevent or minimize the discomforts of pregnancy and labor. So that, antenatal class assessment is needed to evaluate current quality of these programmes. This study aimed to investigate the evaluation program of pregnancy class.
Subjects and Method: This was a qualitative study conducted at Mojogedang II health center, Karanganyar, Central Java, in March 2017. Head of health center, midwife, and cadres were purposively selected as the key informants. Research problem was evaluation of pre-implementation of pregnancy class. The data were collected by in-depth interview and observation.
Results: Pre-implementation of antenatal class at Mojogedang II health center in Karanganyar, in 2016, is in accordance with the World Health Organization recommendations. Monitoring, evaluation and reporting activities are in accordance with the provisions of antenatal class guidebook. The involvement of health workers and cadres is quite high, but the support of husbands and parents is still low.
Conclusion: Tt is necessary to increase the participation of husbands and families in prenatal class.

Keywords: evaluation program, antenatal class, maternal health

Correspondence:
Kristuti Catur Sumarah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: skristuticatur@gmail.com. Mobile +6182314289595.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.05

PERCEPTION AND EXPECTATION DIFFERENCES TOWARD QUALITY OF OUT-PATIENTS REGISTRATION SERVICE

Lilik Anggar Sri Rahayuningsih[1)], Yeni Tri Utami[2)], Joko Parjianto[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Diploma III of Medical Record and Health Information, Faculty of Health Sciences, Universitas Duta Bangsa, Surakarta

ABSTRACT

Background: Nowadays, patient satisfaction is one of the most important performance and quality outcome indicators for healthcare delivery services. Patient satisfaction refers to a patient assessment of the services received from the healthcare provider, which is affected by both the levels of expectation and experience of a patient. The purpose of this study was to examine perception and expectation differences toward quality of out-patients registration service.
Subjects and Method: A cross sectional study conducted at Pajang health center in Surakarta, Central Java, from May to July 2020. A sample of 99 out-patients was selected by accidental sampling. The dependent variables were patients perception and expectation. The independent variables were SERVQUAL dimensions, including reliability, responsiveness, assurance, emphaty, and tangibles. Mean differences of perception and expectation on each SERVQUAL dimensions were assessed by paired t-test.
Results: There was no difference between patient perception and expectation on the SERQUAL dimensions. Reliability (perception: Mean= 21.30; SD= 2.84 vs expectation: Mean= 21.19; SD= 2.24; p= 0.392). Responsiveness (perception: Mean= 21.13 ; SD= 3.13 vs expectation: Mean= 21.19; SD= 2.49; p= 0.692). Assurance (perception: Mean= 21.55; SD= 3.09 vs expectation: Mean= 21.32; SD= 2.32; p= 0.193). Emphaty (perception: Mean= 21.21; SD= 3.13 vs expectation: Mean= 21.67; SD= 4.97; p= 0.311). Tangibles (perception: Mean= 21.85; SD= 3.08 vs expectation: Mean= 21.63; SD= 2.45; p= 0.109).
Conclusion: There is no difference between patient perception and expectation on the SERQUAL dimensions (reliability, responsiveness, assurance, emphaty, and tangibles).

Keywords: expectation, perception, SERVQUAL, health care service administration

Correspondence:
Lilik Anggar Sri Rahayuningsih. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java, Indonesia. Email: lilikanggar@gmail.com.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.06

HEALTH CENTERS PREPAREDNESS IN FACING THE COVID-19 PANDEMIC IN KARANGANYAR, CENTRAL JAVA, INDONESIA

Fajar Novianto[1,2)], Saryanto[1,2)], Tofan Aries Mana[2)], Nur Rahmawati Wijaya[2)], Ahmad Saikhu[2)], Harimat Hendarwan[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Center for Research and Development of Medicinal Plants and Traditional Medicines, Tawangmangu, Indonesia
[3)]Center for Research and Development of Health Resources and Services, Jakarta, Indonesia

ABSTRACT

Background: COVID-19 is a highly contagious respiratory disease. Preparedness of health facilities to prevent the spread of COVID-19 is an immediate priority to safeguard patients and healthcare workers and to reduce the spread of the pandemic. However, the preparedness of health centers in Karanganyar, Central Java is unknown.
Subjects and Method: A cross sectional study was conducted at 21 community health centers in Karanganyar, Central Java, Indonesia. The research problem was health centers preparedness in facing the COVID-19 pandemic. The data were collected twice in April and September 2020 by questionnaire.
Results: At the beginning of the COVID-19 pandemic, in April 2020, many health centers in Karanganyar were not ready to face the COVID-19 pandemic. After the second measurement in September 2020, there was an increase in the readiness of the health centers in terms of health workers and facilities availability.
Conclusion: Public Health Centers in Karanganyar are increasing readiness to face the COVID-19 pandemic by providing more facilities and the number of health workers in the COVID-19 treatment unit.

Keywords: COVID-19, community health center, pandemic preparedness

Correspondence:
Fajar Novianto. Center for Research and Development of Medicinal Plants and Traditional Medicines, Tawangmangu, Indonesia. Jl. Raya Lawu 11, Tawangmangu, Karanganyar, Central Java. Email: dr.fajarnovianto@gmail.com. Mobile: 081330700298.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.07

RELATIONSHIP OF QUALITY OF HEALTH SERVICES WITH OUTPATIENT'S SATISFACTION IN SLAMET RIYADI HOSPITAL, SURAKARTA, CENTRAL JAVA

Aditya Kurniawan

Slamet Riyadi Military Hospital, Surakarta, Central Java, Indonesia

ABSTRACT

Background: As health care becomes increasingly market-driven, service should focus on customers. Outpatient departments need to monitor the quality of care and patient satisfaction for continuous quality improvement. Thus, the influence of patients' characteristics on their self-reported health care experiences merits research. The purpose of this study was to investigate relationship of quality of health services with outpatient's satisfaction in Slamet Riyadi Hospital.
Subjects and Method: A cross-sectional study was conducted at Slamet Riyadi Hospital in Surakarta, Central Java, Indonesia. A number of 94 out-patients was selected randomly. The dependent variable was patients satisfaction. The independent variables were SERVQUAL dimensions, included reliability, responsiveness, assurance, empathy, and tangibility. The data were collected by questionnaire and analyzed by Pearson correlation.
Results: Out-patients satisfaction was positively associated with reliability ($r= 0.39$; $p <0.001$), responsiveness ($r= 0.39$; $p<0.001$), assurance ($r= 0.34$; $p=0.001$), empathy ($r= 0.42$; $p<0.001$), tangible ($r= 0.39$; $p<0.001$), and overall SERVQUAL dimensions ($r= 0.47$; $p<0.001$).
Conclusion: Out-patients satisfaction is positively associated with reliability, responsiveness, assurance, empathy, tangible, and overall SERVQUAL dimensions.

Keywords: patients satisfaction, quality of life

Correspondence:
Aditya Kurniawan. Slamet Riyadi Military Hospital Surakarta. Jl. Slamet Riyadi 321 Kvi, Surakarta 57148, Central Java. Email: akur88@gmail.com. Mobile: 0856420-88532.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.08

META-ANALYSIS OF CORRELATION BETWEEN BURNOUT AND WORK SATISFACTION IN NURSES

Arista Gunawati[1)], Agus Kristiyanto[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Sport, Universitas Sebelas Maret
[3)]Study Program of Acupuncture, Health Polytechnics,
Ministry of Health Surakarta

ABSTRACT

Background: Current evidence reveals job satisfaction as a predictor of the length of stay in a job, motivation and job productivity. The main sources of nursing dissatisfaction include lack of staff, high care pressure, burn out, and lack of professional acknowledgement. Burnout explained the highest amount of variance in mental health of nurses. These are known to compromise productivity and performance, as well as affect the quality of patient care. This study aimed to investigate correlation between burnout and work satisfaction in nurses.
Subjects and Method: This meta-analysis used articles from the Google Scholar database, PubMed, Sciencedirect, published from 2010 to 2021. Eligibility criteria were defined using the PICO model as follows, (1) population= nurse, (2) intervention= high burnout, (3) comparison= low burnout, and (4) outcome= work satisfaction. The keywords to collect the articles were ("job satisfaction" OR "work satisfaction" OR "occupational satisfaction") AND "job burnout" AND ("adjusted odds ratio" OR "multivariate analysis") AND "nurse." Inclusion criteria were full text, cross-sectional study, and reported adjusted odds ratio. The meta-analysis articles were written using the PRISMA rules. Data were analyzed using Revman 5.3
Results: There were four studies from China, Croatia, and Europe included in the inclusion criteria. This study found that high burnout lowered work satisfaction in nurses 0.56 times than those with low burnout (aOR= 0.56; 95% CI= 0.26 to 1.21; p<0.001)
Conclusion: The higher burnout, the lower the work satisfaction in nurses.

Keywords: burnout, work satisfaction, nurse

Correspondence:
Arista Gunawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57216, Central Java. Email: aristagunawati@gmail.com. Mobile: 085647093646.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.09

HEALTH PERSONNELS PERFORMANCE AND HEALTH CARE SERVICE DURING THE COVID-19 PANDEMIC

Dwi Marwanto

Masters Program of Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Healthcare professionals are highly vulnerable to COVID-19 infection due to their clinical role in the healthcare settings. Most healthcare professionals are working in isolation units, critical care units, intensive care units, emergency units, working in frontline positions, and having contact with suspected and confirmed COVID-19 cases. Recent studies reported the challenges facing frontline healthcare workers during the COVID-19 pandemic which includes high risk of infection, insufficient personal protective equipment, heavy workloads and manpower shortages, confusion, discrimination, isolation, separation from families, and burnout. The HCPshave worked tirelessly and played a crucial role in the management of COVID-19 cases, despite high personal risks and worries about the current pandemic crisis. This study aimed to systematically review on the health personnels performance and health care service during the COVID-19 pandemic.
Subjects and Method: This was a systematic review conducted by collecting articles from Google Scholar and Researchgate about work performance in health personnel and health care service. The articles selected from the last ten years. Three studies were met the criteria for systematic review.
Results: This study found that factors associated with work performance in health personnels during COVID-19 pandemic was leadership, communication, reward, and control system. An effective leadership includes focus on inspiring, motivating, and planning. Communication consist of frequency of interaction and discussion with the leader. Reward was financial and non financial incentives. Control system was The control system consists of monitoring, evaluation, and feedback.
Conclusion: Factors associated with work performance in health care service during COVID-19 pandemic were leadership, communication, reward, and control system.

Keywords: work performance, health performance, health care service

Correspondence:
Dwi Marwanto. Masters program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: dwiantox74@gmail.com. Mobile: 082138064130.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.10

CONTEXTUAL EFFECT OF HEALTH CENTER AND QUALITY DIMENSIONS OF ANTENATAL SERVICE ON PATIENT SATISFACTION IN KLATEN, CENTRAL JAVA

Leny Rahmawati[1)], Didik Tamtomo[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Puskesmas plays an important role in reducing maternal and neonatal morbidity and mortality. Contextual factors of health center and dimensions of service quality may influence patients statisfaction. This study aimed to analyze the factors that influence patient satisfaction
Subject and Method: This was an observational study using cross sectional design conducted in Klaten Regency, Central Java. A sample of 200 antenatal patients was selected at random from 25 puskesmas (community health centers) comprising 8 antenatal patients from each selected puskesmas. The dependent variable was antenatal care (ANC) patient satisfaction. The independent variables were five dimensions of quality healthcare, including (1) reliability, (2) tangible, (3) empathy, (4) responsiveness, (5) assurance. The data were analyzed by multilevel linear regression using the Stata 14 application.
Results: Patient satisfaction was positively affected by reliability (b= 0.30; 95% CI= -0.48 to -0.13; p= 0.001), tangible (b= 0.28; 95% CI= 0.14 to 0.42; p<0.001), responsiveness (b=0.17; 95% CI = 0.07 to 0.27; p= 0.001), and assurance (b= 0.16; 95% CI= 0.04 to 0.28; p= 0.007). The relationship between patient statisfaction and empathy was statistically non significant (b=-0.02; 95% CI= -0.28 to 0.23; p=0.837). The contextual effect at the puskesmas level was substantial with intraclass correlation (ICC= 36.4%).
Conclusion: Patient satisfaction is positively affected by reliability, tangible, responsiveness, and assurance. The relationship between patient statisfaction and empathy is statistically non significant.

Keywords: satisfaction, community health center, quality of health service

Correspondence:
Leny Rahmawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: lovejesus251200@gmail.com. Mobile: +6288981023493.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.11

EFFECT OF MOTIVATION ON THE INTENTION TO PARTICIPATE IN THE SCIENTIFIC PUBLICATIONS AMONG MEDICAL RECORD STAFF

Isnaini Qoriatul Fadhilah[1)], Izatul Milla[2)], Robiatud Daniyah[3)], Namira Fitri Rahandiani[1)], Kurnia Eka Putri[1)]

[1)]Department of Medical Record, Health Polytechnics, Ministry of Health Semarang
[2)]Universitas Negeri Jember, East Java, Indonesia
[3)]Department of Medical Record, STIA Malang, East Java, Indonesia

ABSTRACT

Background: A medical records personnel is in charge of managing patient health files in a facility. They provide efficient health records service to patients, medical and nursing staff. They organise, update and store records in either paper-based documents or electronic records. However, it is indicated that many medical recorders in Indonesia have not been able to fulfill one of the activities required by professional organizations, namely writing and publishing scientific papers. This study aimed to examine the effect of motivation on the intention to participate in the scientific publications among medical record staff.
Subjects and Method: A cross sectional study. A number of 100 medical record staffs who work at health facilities was selected for this study. The dependent variable was intention to participate in the scientific publication. The independent variable was motivation. The data were collected by electronic questionnaire and analyzed by Chi square.
Results: Strong motivation was positively associated with intention to participate in the scientific publications among medical record staff (OR= 10.60; 95% CI= 2.36 to 4.48; p= 0.029).
Conclusion: Strong motivation is positively associated with intention to participate in the scientific publications among medical record staff.

Keywords: motivation, intention, medical record staff

Correspondence:
Isnaini Qoriatul Fadhilah. Department of Medical Record, Health Polytechnics, Ministry of Health Semarang. Jl. Tirto Agung, Banyumanik, Kota Semarang. Email: isnaini-qoriatul@gmail.com. Mobile: 089681918022.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.12

FRAUD PREVENTION STRATEGY WITH A MEDICOLEGAL APPROACH IN ELECTRONIC-BASED DATA COLLECTION OF THE HEALTH SYSTEM: A SYSTEMATIC REVIEW

Adji Suwandono, Ari Natalia Probandari, Ratih Puspita Febrinasari

Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: This form of fraud in the health system was not a new thing. The impact of fraud in health services has the potential to harm the state health budget. In addition, things that cannot be avoided can reduce the quality or quality of the health service itself. Regulation was an essential in one of the efforts to prevent fraud. This was used to provide clear standards to distinguish actions that are categorized as fraud or not. This study aimed to examine and analyze fraud prevention strategies in the health system with a medicolegal approach.
Subjects and Method: This study was a systematic review conducted using PRISMA flow diagram. Online articles from 2020 to 2021 were searched from databases, including PubMed, Science Direct, Scopus, and Springer Link. The PICO was as follows. Population: Health facilities. Intervention: An electronic-based health system. Comparison: Without electronic-based health system. Outcome: Fraud. Keywords ("prevention" OR "precaution" OR "deterrence") AND ("fraud" OR "abuse" OR "violation" OR "offense" OR "breach" OR "infraction") AND ("health system" OR "health care" OR "medical management" OR "health program"). A total of 1202 articles were identified. Five articles were included in the inclusion criteria.
Results: This study showed that fraud occurred when the sanctions were weak. Fraud could be prevented by the blockchain system and imposing severe sanctions. A prevention system with advanced technology was needed to reduce the number of frauds in the health services delivery.
Conclusion: A prevention system with advanced technology is needed to reduce the number of fraud in the health services delivery.

Keywords: fraud, medicolegal, electronic health system

Correspondence:
Adji Suwandono. Faculty of Medicine, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java, Indonesia. Email: adji.suwandono@staff.uns.ac.id. Mobile: 08164270612.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.13

TABLETOP EXERCISE SIMULATION FOR HOSPITAL DISASTER PREPAREDNESS: A SYSTEMATIC REVIEW

Diah Mutiarasari[1)], Sukri Palutturi[2)], Fridawaty Rivai[3)], Nurmala Sari[4)], Miranti[5)]

[1)]Doctoral Program, Faculty of Public Health, Hasanuddin University
[2)]Department of Health Policy Administration,
Faculty of Public Health, Hasanuddin University
[3,4)]Department of Hospital Management,
Faculty of Public Health, Hasanuddin University
[5)]Department of Public Health – Community Medicine,
Faculty of Medicine, Tadulako University

ABSTRACT

Background: Hospitals need disaster preparedness. Training model through a participatory approach to improve the knowledge and skills of officers so that they will better prepare for sudden disasters. One of the training media used is a simulation of the tabletop exercise with three level collaboration using a disaster scenario. This training model is intended to improve knowledge and skills in disaster preparedness management. This study aimed to review systematically whether tabletop exercise simulation improved disaster preparedness in hospital.
Subjects and Method: This was a systematic review using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The independent variable was tabletop exercise. The dependent variable was disaster preparedness. Research articles from November 2020 to January 2021 were accessed from Scopus, Pubmed, Proquest, Cambridge Core, Science Direct, and Google Scholar. The search keywords consisted of two domains, "Simulation" (tabletop exercise simulation OR simulation-based disaster) and "Hospital Disaster Preparedness." Initially 470 studies were identified. Six studies fulfilled the inclusion criteria of the review.
Results: This systematic review showed that tabletop exercise improved knowledge and skills in disaster preparedness management in hospital.
Conclusion: Tabletop exercise improves knowledge and skills in disaster preparedness management in hospital.

Keywords: tabletop exercise, simulation, hospital, disaster preparedness

Correspondence:
Diah Mutiarasari. Faculty of Public Health, Hasanuddin University. Jl. Perintis Kemerdekaan 10, Tamalanrea, Makassar, South Sulawesi 90245. Email: diah.mutiarasari@yahoo.com. Mobile: 0811452984.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.14

THE ASSOCIATION OF EMPLOYMENT STATUS AND INTERNET ACCESS WITH NATIONAL HEALTH INSURANCE MEMBERSHIP

Lely Khulafa'ur Rosidah, Rahma Novita Asdary

Academy of Midwivery Dharma Husada Kediri, East Java, Indonesia

ABSTRACT

Background: Many low- and middle-income countries are reforming their health financing mechanisms as part of broader strategies to achieve universal health coverage (UHC). This study aimed to determine the effect of employment status and internet access on national health insurance membership.
Subjects and Method: This was a cross-sectional study using secondary data of the Indonesian Demographic and Health Survey (IDHS) 2017. A total of 5,429 pregnant women was included in this study. The dependent variable was national health insurance membership. The independent variables were employment status and internet access. The data were analyzed by logistic regression.
Results: Employment (aOR= 2.34; 95% CI= 1.74 to 3.16) and internet access (aOR=1.46; 95% CI= 1.09 to 1.97) were significantly associated with national health insurance membership.
Conclusion: Employment and internet access are significantly associated with national health insurance membership.

Keywords: employment, internet access, national health insurance

Correspondence:
Lely Khulafa'ur Rosidah. Academy of Midwivery Dharma Husada. Jl Penanggungan No 41 A, Kediri, East Java, Indonesia. Email: lely_khulafaur@akbiddharmahusada-kdr.ac.id. Mobile: +6285664425144.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.15

THE COVID-19 PANDEMIC: A TRANSFORMATIVE LEARNING FROM A FAITH-BASED PHILANTHROPIC ORGANIZATION

Bambang Edi Prasetyo[1)], Erica Yunita Trisnawati[1)], Latifah Alifiana Rahmawati[1)], Mutiara Tirta P L Kusuma[2)]

[1)]Dompet Dhuafa Foundation, Yogyakarta Branch, Indonesia
[2)]Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Indonesia

ABSTRACT

Background: COVID-19 pandemic poses various challenges to any organization to maintain their work due to prolonged movement restriction and the ambiguity surrounding its end. Dompet Dhuafa Yogyakarta, a philanthropic organization based on Islam, has implemented changes to ensure service delivery and their reach to the targeted populations. This study aimed to identify the way Dompet Dhuafa Yogyakarta adapt with changes as well as explore innovation, best practice, and lesson learned.
Subjects and Method: This was a qualitative case study conducted at Dompet Dhuafa Yogyakarta, from June to October, 2021. The informants included branch manager, head of health program, and project assistant. The data were collected through focus group discussion. The data were analyzed according to themes (thematic analysis) using the IPO logic model (input-process-output) as a framework for analysis.
Results: Three major themes emerged: (1) Surviving the pandemic; (2) Making greater contributions; and (3) Ensuring sustainability. Several changes had been made in order to sustain the work of Dompet Dhuafa Yogyakarta and achieve organizational mission as part of crisis exit strategies. Crisis management was a part of strategic management aiming at ensuring organizations survive during major disruption. As part of the crisis responses, Dompet Dhuafa Yogyakarta implemented adaptive approaches by initiating new projects, collaborating with new partners, and diversifying funding sources. The key informants also stated that the digital technology was low-cost, flexible, sustainable, and was able to reach the poor population. The digital technology could be used to help support the newly implemented telemedicine and social media-based health education programs.
Conclusion: This study highlights how Dompet Dhuafa Yogyakarta responded to the pandemic. Several changes have been made in order to sustain their work and achieve organizational mission as part of crisis exit strategies. Lessons learned should be taken from this pandemic to develop future emergency preparedness plans.

Keywords: crisis management, emergency preparedness, exit strategy, COVID-19, faith-based philanthropic organization

Correspondence:
Mutiara T P L Kusuma. Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada. Jl. Farmako, Sekip Utara, Yogyakarta 55281 Indonesia. Email: mutiara.tirta@gmail.com. Mobile: 081398803205.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.16

THE EFFECTIVENESS OF TELENURSING IN IMPROVING THE QUALITY OF NURSING HEALTHCARE SERVICE IN WOUND CARE BASED ON OREM AND IMOGENE KING THEORIES: A SYSTEMATIC REVIEW

Indah Nursanti

Faculty of Nursing, Universitas Airlangga, Surabaya, East Java

ABSTRACT

Background: In the COVID-19 pandemic, patients who needed wound care became less visited the hospitals, health centers, or other health facilities due to the concerns about COVID-19 transmission. It may lead to worsening wound conditions, which will impact the quality of health services. The nursing staff is the main part of wound care practices, primarily conducted in private nursing practices. The advancement in telecommunications and development in telemedicine offer promising potential for setting up a tele-wound care program. Telenursing uses technology to deliver nursing care and conduct nursing practice as long-distance clinical health care. This study aimed to systematically review telenursing in improving the quality of nursing healthcare service in wound care based on Orem's and Imogene King's theories.
Subjects and Method: This was a systematic review. The research question was formulated in PICO: Population, Intervention, Comparison, and Outcome. The inclusion criteria were (1) Patients who can perform care independently at home; (2) The time used was in accordance with the winner scale criteria on wound healing; (2) A case study applied the integration of Orem's self-care theory and Imogene king interpersonal system, using Service Quality (ServQual) indicators with RATER scale (responsibility, assurance, tangibles, empathy, and responsiveness).
Results: Based on the theoretical concepts of the Orem self-care model and the Imogene King interpersonal system, telenursing was useful for delivering wound care services focused on client independence, which could improve the quality of nursing healthcare services.
Conclusion: Telenursing is effective in improving the quality of health services in wound care.

Keywords: telenursing, Orem self-care model, Imogene King interpersonal system, quality of health service, wound care, client independence

Correspondence:
Indah Nursanti. Faculty of Nursing, Universitas Airlangga, Surabaya. Jl. Dr. Ir. H. Soekarno, Mulyorejo, Surabaya, East Java. Email: inursanti791@gmail.com. Mobile: +6281351925833.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.17

EMPOWERMENT OF HOSPITAL SANITATION WORKERS AS A MEDIA FOR TRANSFERRING COVID-19 PREVENTION KNOWLEDGE TO THEIR FAMILIES

Masfiyah, Rahayu

Department of Clinical Microbiology, Faculty of Medicine,
Universitas Islam Sultan Agung - Sultan Agung Islamic Teaching Hospital

ABSTRACT

Background: From the outset of the Coronavirus disease 2019 (COVID-19) pandemic, it was clear that hospitals were an important setting for viral transmission. Hospital sanitation workers are high-risk group of exposure to COVID-19, which may lead to transmission of people whom they interact, especially their families. This study aimed to describe the percentage of knowledge transferred to families of hospital sanitation workers after receiving the COVID-19 transmission prevention training.
Subjects and Method: This was a cross-sectional study conducted at Islam Sultan Agung Hospital, Semarang, Central Java, from September to December 2020. The study subjects were (1) 25 hospital sanitation workers who received COVID-19 transmission prevention training; and (2) 25 family members of those hospital sanitation workers who answered the same questions of the conducted training. The variables of the COVID-19 transmission prevention training were the practice of personal protective equipment, disinfectants, environmental hygiene, cough etiquette, and hand washing practices. The data of transferred knowledge were collected using questionnaire answered by the family member and described in percent.
Results: Most of the family members of hospital sanitation workers were female (68%), high school level of education (83.3%), and self-employed or housewives (96%). From the score of knowledge gained from 0-100, the subject family members scored the knowledge about the practice of personal protective equipment (score= 100), environmental hygiene (score= 70 to 100), disinfectants (score= 84 to 100), cough etiquette (score= 76 to 100), and hand washing (80 to 100). As many as 72% family members of hospital sanitation workers was transferred knowledge about COVID-19 transmission prevention.

Conclusion: Hospital sanitation workers transfer the COVID-19 transmission prevention knowledge to their family members.

Keywords: COVID-19 transmission prevention, knowledge, ospital sanitation workers

Correspondence:
Masfiyah. Department of Clinical Microbiology, Faculty of Medicine, Universitas Islam Sultan Agung-Islam Sultan Agung Hospital. Jl Kaligawe Km 4 Semarang, Central Java. Email: masfiyah@unissula.ac.id. Mobile: 081901187887.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.18

WHAT THE PANDEMIC HAS TAUGHT US: A PRELIMINARY FINDING FROM MOOC DEVELOPMENT PROJECT IN DIETETIC EDUCATION

Mutiara Tirta P L Kusuma[1)], Latifah Alifiana Rahmawati[1,2)]

[1)]Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta
[2)]Dompet Dhuafa Foundation, Branch Yogyakarta

ABSTRACT

Background: Various teaching methods and digital learning platforms have been in use to support learning during the Covid-19 pandemic. We presented the preliminary findings from the development project of a massive open online course (MOOC) in dietetic education. The study aimed to illustrate the process that will allow methodological adoption in any health professional education institution.
Subjects and Method: An MOOC in dietetic education has been piloted between March and October 2021 in a state dietetic school in Yogyakarta. The overall study which aimed to evaluate the course quality, was qualitative in nature. This case study was a critical reflection from all lecturers and teaching assistants involved in the preparation and implementation stages. We used content analysis to examine the data from group discussions, documents, and reflective journals.
Results: There were 112 students enrolled in the course, most of them were dietetic students in their junior year. We used the MOOC platform provided by Universitas Gadjah Mada to run the 7-weeks courses (equal with 1 credit point). We utilized a flipped classroom model, in which all learning materials were provided way before class time. We also incorporated weekly quizzes with immediate feedback, interactive discussion forum, and gamification to promote active learning. Exam and assessment are underway, although the initial data shows challenges on facilitating large scale marking and feedback. Digital competency remains as a major challenge experienced by the lecturers.
Conclusion: With respect to the platform usability, MOOC has been able to support learning during the pandemic. It has the potential as an exit strategy given its flexibility and ability to reach a wider population. Further studies are required to develop ways to ensure easy adoption of the system.

Keywords: massive open online course, dietetic education, education, COVID-19

Correspondence:
Mutiara T P L Kusuma. Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada. Jl Farmako, Sekip Utara, Yogyakarta 55281. Email: mutiara.tirta@gmail.com. Mobile: +62 81398803205.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.19

DYNAMIC MODEL OF CONTROLLING OCCUPATIONAL DISEASES AT AN INSTANT NOODLE COMPANY IN MAKASSAR

Januar Ariyanto

Doctoral Program in Public Health Science, Universitas Hasanuddin, Makassar, South Sulawesi, Indonesia

ABSTRACT

Background: Decent work was closely related to health problems in every workforce. To maintain productivity in the workplace, one of the efforts that must be done was to control occupational diseases. Several factors were originating from the production process, which was known to cause occupational diseases. This study aimed to determine a dynamic model of managing the incidence of occupational diseases in an instant noodle company in Makassar

Subjects and Method: This was a research and development (R&D) method through a dynamic systems approach. It the located at an instant noodle company in Makassar, South Sulawesi. A sample of 546 were selected for this study. Then use Interpretative Structural Modeling (ISM) to get the right control scenario to reduce the incidence of occupational diseases. quantitative data were obtained from a total sampling of all employees in the production department, qualitative data from interviews with company management and policymakers

Result: Validation tests on the three sub-models and the overall model in this study using AME and AVE respectively are; sub-model of Labor Demand Based on Market Demand (p=0.004 & p=0.027); Sub-model of MSDS (p=0.0048 & p=0.012); Sub-model of the incidence of upper respiratory tract infection (p=0.009 & p=0.0068); work-related disease control model (p=0.006 & p=0.0162). The critical elements of an occupational disease control model at an instant noodle company in Makassar based on interpretive structural modeling are work posture, lifting load, dust, ventilation, and working time. There are four control scenarios carried out using a dynamic system approach, namely: Do Nothing Scenario, Musculoskeletal Disorders Scenario (work posture, lifting load and length of work), upper respiratory tract infection Scenario (dust, ventilation, and duration of work), and combined scenarios (MSDS and upper respiratory tract infections.

Conclusion: The most effective scenario for reducing the incidence of occupational diseases in instant noodle companies in Makassar is the combined scenario, with an average of 46.71% per year. The dynamic model of controlling occupational diseases is the first.

Keywords: Control Model of Occupational Diseases, MSDS, Upper Respiratory Tract Infection, Dynamic Model, Interpretive Structural Modeling.

Correspondence:
Januar Ariyanto. Public Health Science Doctoral Program, Universitas Hasanuddin, Makassar. Jl. Perintis Kemerdekaan KM. 10, Tamalanrea, Makassar, South Sulawesi 90245, Indonesia. Email: petjodz@gmail.com. Mobile: 082210346055.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.20

PERCEPTION OF POST PARTUM MOTHERS WITH SECTIO CAESAREA ON THE ROLE OF THE MATERNITY NURSE AT KARTIKA HUSADA HOSPITAL PONTIANAK, WEST BORNEO

Dwi Kurniasih, Elly Marce Titihalawa, Florida Listavia Panggus

Midwifery Academy of Dharma Insan, Pontianak, West Borneo

ABSTRACT

Background: The risk of morbidity and mortality in the postpartum period often occurs due to delays in handling and lack of knowledge. Maternity nurse has an important role in improving women's health status while still paying attention to the concept of family centered maternity care. This study aimed to explore what nurses need to do based on the patient's perception.
Subjects and Method: This was a qualitative study with phenomenology approach conducted at Kartika Husada Hospital, Pontianak, West Borneo, in March 2021. A sample of 8 study subjects was selected consisting of 5 key informants of post-partum mothers and 3 triangulation informants of nurses, including the head nurse of the team and the head of the room. The data were collected by semi-structured interviews and analyzed by content analysis.
Results: Three major themes of the role of maternity nurses were identified based on the perception of postpartum mothers with sectio caesarea in hospitals as follows: (1) Nurses acting as care providers; (2) Educators; and (3) Advocators. Those roles were carried out both for postpartum mothers and their families during hospitalization with the concept of family centered maternity care.
Conclusion: Maternity nurses based on the perception of postpartum mothers with sectio caesarea act as care providers, educators, and advocates for patients and families.

Keywords: maternity, post-partum, sectio caesarea, nurse

Correspondence:
Dwi Kurniasih. Midwifery Academy of Dharma Insan, Pontianak, West Borneo. Jl. Hasanuddin 115C, Pontianak, West Borneo. Email: dwi.kurniasih@akperdharmainsan-.ac.id. Mobile: +62 81351607978.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.21

LEGAL PROTECTION ON NATIONAL HEALTH INSURANCE MEMBERS IN INPATIENT HEALTH SERVICES AT R. SYAMSUDIN AND HERMINA HOSPITALS, SUKABUMI, WEST JAVA

Ni Putu Juwanita Dewi, Budi Heryanto

Masters Program in Law, School of Law Collage Pasundan, Sukabumi, West Java

ABSTRACT

Background: The hospital is one of the health facilities that collaborate with BPJS in providing health services. One of the national health insurance (BPJS) participants is a participant who receives BPJS health contribution assistance but can still use health service facilities including inpatient services at hospitals. BPJS Kesehatan participants who receive contribution assistance will still receive good quality and fast service even though they are recipients of financial assistance from the government. This study aimed to explore legal protection on national health insurance members among inpatients health services.
Subjects and Method: This was a qualitative study conducted at R. Syamsudin General Hospital and Hermina Hospital, Sukabumi, West Java, from September to November 2020. A total of 30 key informants consisting of inpatients who registered social health insurance, and hospital management staff from the study location was selected at random. The study variable was legal protection of inpatients who registered social health insurance. The data were collected by in-depth interview and observation. The data were analyzed descriptively.
Results: Legal protection provided by R. Syamsudin General Hospital and Hermina Hospital Sukabumi was more preventive, including: (1) Providing information and special complaints officer facilities for national health insurance; and (2) Providing information and complaints teams for hospital visitors and providing suggestion boxes in several strategic places in the hospital environment. However, repressive legal protection was not carried out because the characteristic of the patient or family of the national health insurance members, especially recipients of contribution assistance were more like to be passive and chose to accept any kind of health services provision.
Conclusion: The legal protection provided by R. Syamsudin General Hospital and Hermina Hospital, Sukabumi, West Java is more preventive in nature, and has been well implemented.

Keywords: legal protection, hospital, national health insurance members, patients

Correspondence:
Ni Putu Juwanita Dewi. Masters Program in Law, School of Law Collage Pasundan. Jl. Pasundan, Nyomplong, Warudoyong, Sukabumi, West Java, Indonesia. Email: happy-nitadewi@gmail.com. Mobile: +62 817438713.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.22

FACTORS AFFECTING THE IMPLEMENTATION OF NURSE THERAPEUTIC COMMUNICATION TO PATIENTS TREATED AT SANT ANTONIUS PONTIANAK GENERAL HOSPITAL DURING THE COVID-19 PANDEMIC

Dwi Kurniasih, Antonius Jumadi, Elisabeth Wahyu Savitri

Nursing Academy Dharma Insan, Pontianak, West Kalimantan

ABSTRACT

Background: The nurse-client relationship is a reciprocal relationship that is mutually beneficial in nursing care. All actions, thoughts, words, and interventions performed by nurses become therapy for the client's recovery. This study aimed to factors affecting the implementation of nurse therapeutic communication to the patients treated at Sant Antonius Pontianak General Hospital during the COVID-19 pandemic.
Subjects and Method: This was a cross-sectional study conducted at Santo Antonius General Hospital, Pontianak, West Kalimantan, from May 01 to 31 2021. A sample of 154 hospital nurses was selected for this study. The dependent variable was therapeutic communication. The independent variables were age, gender, education, work position, and length of work. The data were collected by questionnaire. The data were analyzed by odds ratio and chi-square.
Results: The therapeutic communication in hospital nurses was associated with age (OR= 1.08; 95% CI = 0.19 to 6.11; p= 1.000), female (OR= 0.57; 95% CI= 0.36 to 0.89; p< 0.001), education (OR= 1.41; 95% CI= 1.00 to 1.07; p= 1.000), COVID-19 patient care (OR= 1.09; 95% CI= 1.01 to 1.17; p= 0.009), and longer work experience (OR= 0.96; 95% CI= 0.93 to 0.99; p= 1.000).
Conclusion: The therapeutic communication in hospital nurses is associated with age, female, education, COVID-19 patient care, and longer work experience.

Keywords: therapeutic communication, hospital, nurses

Correspondence:
Dwi Kurniasih. Nursing Academy Dharma Insan, Pontianak. Jl Merdeka 55 Pontianak, West Kalimantan. Email: dwi.kurniasih@akperdharmainsan.ac.id. Mobile: +62 81351-607978.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.23

HEALTH BUDGET REFOCUSING POLICY AND ITS IMPLICATION FOR ACHIEVING MINIMUM SERVICE STANDARDS: A CASE STUDY IN EAST NUSA TENGGARA

Serlie Kristin Adriani Littik, Dominirsep Ovidius Dodo, Stefanus Pieter Manongga

Faculty of Public Health, Universitas Nusa Cendana, Kupang, East Nusa Tenggara, Indonesia

ABSTRACT

Background: Evidence shows that for countries to make progress towards UHC their health system needs to rely predominantly on public revenue sources. Budget allocations to health reflect political commitment, but effectively spending those funds the strength of the health system. In many countries, governments do not fully execute budget allocations for a variety of reasons, including deficiencies in public financial management. This study aimed to explore health budget refocusing policy and its implication for achieving minimum service standards.
Subjects and Method: This was a qualitative study with a phenomenological design. The study was conducted in Sumba District Health Office, Central Sumba, East Nusa Tenggara, Indonesia, from October 2020 to March 2021. Data was collected through semi-structured in-depth interview and focus group discussion, document review, and observation. Triangulation is done by comparing the results of interviews and focus group discussion. The data were analyzed using thematic analysis.
Results: The concept of budget refocusing was interpreted in various ways. Lack of instruction and coordination both internally and across sectors make planners do refocus according to their own perspective knowledge and abilities. Refocusing causes changes in activities, methods, time, budget, and personnel, and minimal standard service goals. Implementation of budget refocusing policy potentially creates new long and short terms problems within the health sector.
Kesimpulan: Arahan, komunikasi, dan koordinasi internal dan eksternal diperlukan untuk meningkatkan pencapaian target SPM.
Conclusion: Directions, communication, and internal and external coordination are needed to increase the achievement of minimal standard service targets.

Keywords: budget refocusing, minimum standards service, remote area

Correspondence:
Serlie K.A. Littik. Public Health Faculty, University of Nusa Cendana. Jl. Adisucipto Penfui Kupang, East Nusa Tenggara, Indonesia. Email: serlie.littik@staf.undana.ac.id. Mobile: 081339100780.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.25

TOPIC V :
MEDICINE

PHENOMENOLOGY STUDY OF PARENTAL EXPERIENCE IN CARING FOR CHILDREN WITH ACUTE LEUKEMIA

Dian Estiningtyas[1)], Bhisma Murti[1)], Hermanu Joebagio[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]School of Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Childhood acute lymphoblastic leukemia is a cancer of the blood and bone marrow. It progresses quickly and aggressively and requires immediate treatment. The purpose of this study was to explore parents caring role in children with acute leukemia.
Subjects and Method: A qualitative study with phenomenology perspective was carried out at Dr. Kariadi Hospital, Semarang. Key informant was parent. They were selected for this study by purposive sampling. The study instruments were mobile phone and observation sheet. The data were collected by in-depth interview, observation and document analysis. Interview transcript were transformed into data and it was analyzed using analysis interactive model from Miles and Huberman.
Results: This study found 3 themes of parental experience in caring for children with acute leukemia, including early diagnosis, child treatment, and barriers. Parental initial reaction to the acute leukemia diagnosis was sad, shocked, and deny the reality. Those feelings prompted parents to learn and find out the medical treatment information. fight for the treatment of children with various challenges such as the challenges of children's physiological problems, nutritional adequacy problems and socio-economic problems during the treatment process. The challenges of treating children with acute leukemia include the child's physiological problems, nutritional adequacy, and lack of socioeconomic conditions during the treatment process.
Conclusion: 3 themes of parental experience in caring for children with acute leukemia, including early diagnosis, child treatment, and barriers.

Keywords: acute lymphoblastic leukemia, child care, parental experience

Correspondence:
Dian Estiningtyas. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: dianesttyas@gmail.com. Mobile: +6281514465646

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.01

DO THE USE HEMODIALYSIS MORE FREQUENCY ON POOR?: EVIDENCE FROM Dr. SOEHADI PRIJONEGORO HOSPITAL SRAGEN, CENTRAL JAVA

Anisa Andriani[1)], Didik Gunawan Tamtomo[2)], Bhisma Murti[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Patients with chronic renal failure should adhere to dialysis therapy management, which consists of hemodialysis attendance, prescribed medications, fluid restrictions, and proper dietary intake. Non-adherence to the therapies may increase the morbidity and mortality rate, which indirectly affects quality of life. This study aimed to assessed factors associated with hemodialysis uptake in chronic renal failure patients.
Subjects and Method: This was an analytic observational study with cross sectional design. The study was conducted at Dr. Soehadi Prijonegoro hospital, Sragen, Central Java, in January 2020. A sample of 120 patients with chronic renal failure who did hemodialysis was selected for this study. The dependent variable was adherence toward hemodialysis. The independent variables were knowledge, length of treatment, and family income. The data were collected by questionnaire and analyzed by a multiple logistic run on Stata 13.
Results: Hemodialysis uptake in chronic renal failure patients was positively increased with high knowledge toward hemodialysis (OR= 4.81; 95% CI= 1.65 to 2.62; p= 0.004), length of treatment (OR= 8.15; 95% CI= 3.12 to 4.29; p<0.001), and high family income (OR= 1.50; 95% CI= 0.54 to 0.80; p= 0.426).
Conclusion: Hemodialysis uptake in chronic renal failure patients is positively increased with high knowledge toward hemodialysis, length of treatment, and high family income.

Keywords: hemodialysis, chronic renal failure, length of treatment

Correspondence:
Anisa Andriani. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: andrianianisa390@gmail.com. Mobile: +6282220826660.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.02

THE EFFECTIVENESS OF AROMATHERAPY IN REDUCING PAIN DURING STAGE-1 OF BIRTH DELIVERY: A META-ANALYSIS

Uswatun Hasanah[1)], Bhisma Murti[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret
[3)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Aromatherapy is most commonly applied topically, or through inhalation (using a humidifier or by soaking gauze and placing it near the patient). Although many claims have been made relating to the benefits of aromatherapy, most study has focused on its use to manage depression, anxiety, muscle tension, sleep disturbance, nausea, and pain. This study aimed to explore the effectiveness of aromatherapy in reducing pain during stage-1 of birth delivery.
Subjects and Method: A systematic review and meta analysis study was conducted by collecting articles from ProQuest, Science Direct, Schoolar Google, and Springer Link databases. The study population was intrapartum stage-1 women. The intervention was aromatherapy. It was compared with non-aromatherapy group. The study outcome was pain during stage-1 birth delivery. The inclusion criteria were full text, randomized controlled trial, and used English language. Selected articles were assessed using random effect model run on RevMan 5.3.
Results: 9 randomized controlled trials were processed to meta analysis. This study found that aromatherapy reduced pain in women during stage-1 of birth delivery (SMD -0.85; 95% CI= -1.40 to -0.31; p<0.001).
Conclusion: Aromatherapy is effective to reduce pain in women during stage-1 of birth delivery.

Keywords: aromatherapy, birth delivery pain, meta-analysis

Correspondence:
Uswatun Hasanah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: uusuusuus0@gmail.com. Mobile: 085647582541.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.03

META-ANALYSIS THE EFFECTIVENESS OF ZINC ON PNEUMONIA IN CHILDREN UNDER FIVE

Anastasia Dwi Anggraeni[1)], Bhisma Murti[2)], Yulia Lanti Retno Dewi[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Zinc is an essential metal that is involved in the regulation of carbohydrate and lipid metabolism, immune system, and functioned the reproductive, cardiovascular, and nervous system. Recent clinical trials suggested that zinc supplementation given with empiric antimicrobial therapy can significantly shorten the duration of severe pneumonia, tachypnea, and hypoxia, in children with pneumonia. This study aimed to evaluate the effectiveness of zink uptake in pneumonia treatment in children under five.
Subjects and Method: This was a systematic and meta-analysis study conducted using PRISMA guideline. The articles published from 1998 to 2019 were collected from Pubmed, Science Direct, and Spinger Link databases. There were 5 randomized controlled trial studies that met the criteria. The study sample was children aged 0 to 6 years. As many as 3,731 children were divided into two groups, (1) 1,865 children who received zinc and (2) 1,879 children who received placebo. The dependent variable was pneumonia. The independent variable was zinc. The data were quantitatively analyzed using Review Manager (RevMan) 5.3 software.
Results: There is high heterogeneity between experiments (I^2= 92%; p<0.001), so this study used the Random Effects Model (REM). Zinc elevated recovery from pneumonia 0.58 days sooner than placebo (MD= -0.58; 95% CI= -0.32 to -1.04).
Conclusion: Zinc elevates recovery from pneumonia 0.58 days sooner than placebo.

Keywords: zinc, pneumonia, children under five

Correspondence:
Anastasia Dwi Anggraeni. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: anastasia1702@-student.uns.ac.id. Mobile:+6282269344444.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.04

THE EFFECT OF ACUPUNCTURE THERAPY ON ACTIVITY OF DAILY LIVING AND FUNCTIONAL RECOVERY IN STROKE PATIENTS: META-ANALYSIS

Faricha Indra Hapsari[1)], Setyo Sri Rahardjo[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret
[3)]Department of Acupuncture, Health Polytechnic, Ministry of Health Surakarta

ABSTRACT

Background: Acupuncture is frequently advocated as an adjunct treatment during stroke rehabilitation. World Health Organization also claimed acupuncture as an effective therapy for pain, musculoskeletal disorders, and several neurologic diseases, specifically for treating stroke patients. This study conducted a systematic review and meta-analysis to critically evaluate the effect of acupuncture therapy on the activity of daily living and functional recovery in stroke patients.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles from MEDLINE/PubMed, Science Direct, Hindawi, BMC, Plos, and Springer Link databases. The articles were filtered using PICO model, including: (1) Population= patients with stroke, (2) Intervention= acupuncture, (3) Comparison= Sham acupuncture/control, and (4) Outcome= activities of daily living and functional recovery. Keywords used "scalp acupuncture", "acupuncture stroke", "acupuncture for functional recovery", "acupuncture for cerebral infraction", "stroke clinical trial", "acupuncture randomized controlled trial", AND "acupuncture for rehabilitation stroke". Articles included for this study were full text and randomized controlled trial that collected using PRISMA flow diagram. Quantitative data were analyzed by Review Manager (RevMan) 5.3.
Results: 9 studies from Germany, California, Hungary, Korea, and China were reviewed for meta-analysis. This study showed that acupuncture elevated functional recovery in patients with stroke 0.88 units than sham/no acupuncture (Standardized Mean Different= 0.88; 95% CI= -1.68 to -0.08; $p < 0.05$). Acupuncture elevated activities of daily living in patients with stroke 0.96 units, but it was statistically non significant (Standardized Mean Different= 0.96; 95% CI= -0.09 to 2.01; $p > 0.05$).
Conclusion: Acupuncture increases functional recovery, but it is needed intercollaboration with other therapy to elevate activities of daily living in patients with stroke.

Keywords: acupuncture, activities of daily living, functional recovery, stroke

Correspondence:
Faricha Indra Hapsari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: farichaindrah@gmailcom. Mobile: +6285647075776.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.05

META ANALYSIS: THE EFFECTIVENESS OF FISH OIL ON PAIN RELIEF IN DYSMENORRHEA

Isnaini Novitasari[1)], Eti Poncorini Pamungkasari[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret
[3)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: The use of nonsteroidal anti-inflammatory drugs medications is a well-established effective therapy for both acute and chronic pain. However, highly studies reported their poor side effects and complications. An alternative treatment with fewer side effects that also reduces the inflammatory response and pain is believed to be omega-3 fatty acids. It is commonly found in fish oil and has have been widely used to treat pain associated with inflammatory conditions.
Subjects and Method: This was a systematic review and meta-analysis. The articles were collected from PubMed, Science Direct, ProQuest, Springer Link, Google Scholar databases. The inclusion criteria were full text, using English language, Randomized Control Trial (RCT) study, and dysmenorrhea pain level was measured by visual analog scale. Population= women of reproductive age. Intervention= fish oil. Comparison= placebo. Outcome= dysmenorrhea. Quantitative synthesis used effect size (Standardized Mean Difference) run on RevMan 5.3 software with Random Effect Model.
Results: 6 studies were reviewed for meta analysis. This study had high heterogeneity between groups (I^2= 92%; p<0.0001). Fish oil consumption reduced dysmenorrhea than placebo (Standardized Mean Difference= -1.01; 95% CI= -1.6 to -0.42; p=0.0007).
Conclusion: Fish oil consumption reduces dysmenorrheal in women of reproductive age.

Keywords: fish oil, dysmenorrhea, inflammatory response, pain

Correspondence:
Isnaini Novitasari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: isnaininovitasari.711@gmail.com. Mobile: 085921790588.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.06

META ANALYSIS THE EFFECT OF TYPE 2 DIABETES MELLITUS ON COVID-19 MORTALITY

Oktaviana Kurniawati[1)], Hanung Prasetya[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: People with type 2 diabetes are known more susceptible to infections and require longer hospitalization. It resulted in an overall worse prognosis. As the COVID-19 pandemic has progressed, a similar pattern of a worse prognosis for people with diabetes who contract COVID-19 has been reported in population-based studies, with an increased risk of intensive care admission and worse mortality outcome. This study aimed to describe the relationship between type 2 diabetes mellitus on COVID-19 mortality.
Subjects and Method: This was a systematic review and meta analysis. Articles published from 2020 to 2021 in PubMed, Google Scholar, JAMA, Willey, and Science Direct databases were collected by PRISMA guideline. Keywords used (Type 2 diabetes mellitus OR diabetic) AND (mortality OR death) AND (COVID-19 /OR Coronavirus OR SARS-CoV-2) AND ("adjusted odds ratio" OR "aOR". The inclusion criteria were full text in English language and observational studies. Selected articles were assessed using Review Manager (RevMan 5.3).
Results: 6 cohort studies were included for meta-analysis. This study showed that people with type 2 DM comorbidity had possibility 1.93 times to death caused by COVID-19 than those without type 2 DM (aOR= 1.93; 95% CI= 1.28 to 2.90; p = 0.002).
Conclusion: Type 2 DM comorbidity increases the risk of COVID-19 mortality.

Keywords: type 2 diabetes mellitus, COVID-19, mortality

Correspondence:
Oktaviana Kurniawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: oktaniawati94@gmail.com. Mobile: 085865463742.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.07

META-ANALYSIS THE ASSOCIATION BETWEEN OVERWEIGHT AND PERIODONTITIS IN ADULTS

Lia Khairunnisa[1)], Yulia Lanti Retno Dewi[2)], Eti Poncorini Pamungkasari[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Public Health, Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Recent studies showed that obesity has been suggested to be a risk factor for periodontitis. Its correlation is one of the most recent fields of research in periodontal medicine and the possible underlying biological mechanisms remain unclear. The purpose of this study was to evaluate the association between overweight and periodontitis in adults using systematic review and meta-analysis.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, ScienceDirect, and Google Scholar databases. The determination of selected articles based on eligible criteria using PICO: (1) Population= adults, (2) Intervention= overweight, (3) Comparison= normal weight, and (4) Outcome= periodontitis. Keywords used "Adult" AND "overweight" OR "body mass index" AND "periodontitis" OR "periodontal disease" AND "adjusted odds ratio". The inclusion articles were full text, published from year 2000 to 2021, and cross sectional study. The articles were collected by PRISMA flow diagram. Selected articles were assessed using Review Manager 5.3.
Results: There were 8 studies selected for meta-analysis. This study found that overweight increased the risk of peridontitis in adults 1.17 times than adults with normal weight (aOR= 1.17; 95% CI= 1.04 to 1.31; p= 0.008). The funnel plot reported that there was no bias publication.
Conclusion: Overweight increased the risk of peridontitis in adults.

Keywords: overweight, body mass index, periodontitis, periodontal disease

Correspondence:
Lia Khairunnisa. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: liakhairunisa36@gmail.com.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.08

META-ANALYSIS THE EFFECT OF PELVIC FLOOR MUSCLE TRAINING IN REDUCING URINARY INCONTINENCE IN WOMEN

Ragil Aidil Fitriasari Addini[1)], Eti Poncorini Pamungkasari[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Urinary incontinence has a devastating effect on women's quality of life in the physical, social, sexual and psychological spheres. Pelvic floor muscle training is commonly recommended for both preventing and treating urinary incontinence. The purpose of this study was to examine the effect of pelvic floor muscle training in reducing urinary incontinence in women.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, Science Direct, and Google Schoolar databases. The determination of selected articles based on eligible criteria using PICO: (1) Population= female aged 20-75 years, (2) Intervention= pelvic floor muscle training, (3) Comparison= non pelvic floor muscle training, and (4) Outcome= urine incontinence. Keywords ("pelvic floor muscle training" OR "pelvic floor exercise" OR "kegel") AND ("urinary incontinence" OR "leaking urine" OR "urinary leakage") AND ("women" OR "female") AND "randomized controlled trial". The inclusion criteria were full text, randomized controlled trial study, published from 2010 to 2020. The articles were collected by PRISMA flow diagram. The selected articles were quantitatively examined by Review Manager 5.3
Results: Meta-analysis from 7 articles showed that pelvic floor muscle training reduced urine incontinence 0.56 times than other intervention or without any intervention (SMD= -0.56; 95% CI= -1.03 to -0.09; p= 0.020).
Conclusion: Pelvic floor muscle training reduces urine incontinence in women.

Keywords: pelvic floor muscle training, urine incontinence

Correspondence:
Ragil Aidil Fitriasari Addini. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ragilaidilfa@gmail.com. Mobile: 089609133808.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.09

EFFECT OF LOW LEVEL LASER THERAPY ON PAIN LEVEL AFTER THIRD MOLAR SURGERY: A META-ANALYSIS

Nita Layli Hanifah[1)], Eti Poncorini Pamungkasari[2)], Rita Benya Adriani[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Public Health, Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Low-level laser therapy is a form of light therapy that triggers biochemical changes within cells. Photons are absorbed by cellular photoreceptors, triggering chemical alterations and potential biochemical benefits to the human body. Low-level laser therapy has been used in pain management for years and is also known as cold laser therapy, which uses low-frequency continuous laser of typically 600 to 1,000 nm wavelength for pain reduction and healing stimulation. This study aimed to examine the effect of low level laser therapy on pain level after third molar surgery.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles published from 2005 to 2021. Articles search source were PubMed, Science Direct, Springer Link, Google Scholar, and Chorance Library databases. The inclusion criteria were English full text and randomized controlled trial. Keywords used "Low level laser therapy" AND "Pain level" AND "Third molar surgery" AND "Randomized Controlled Trial". The articles were filtered using PICO model, including: (1) Population= patient of third molar surgery aged 18-45 years, (2) intervention= low level laser therapy, (3) comparison= non low level laser therapy, and (4) outcome= pain. Quantitative data analysis was processed by calculating standardized mean difference using Review Manager (RevMan 5.3).
Results: 10 studies were involved for meta-analysis. The study showed that low level laser therapy was effective to lower pain in patients whose undergo third molar surgery (Standarized Mean Difference= -0.86; 95% CI= -1.19 to -0.53; p= 0.004). This study indicated that there was no publication bias between studies.
Conclusion: Low level laser therapy is effective to lower pain in patients whose undergo third molar surgery.

Keywords: low level laser therapy, pain, third molar surgery

Korespondensi:
Nita Layli Hanifah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Nitalayli63@gmail.com.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.10

THE EFFECT OF ETHYLENE VINYL ACETATE METATARSAL PAD UPTAKE IN REDUCING METATARSAL PAIN IN FEMALE POLICE

Herawati Prianggi[1)], Sri Surini Pujiastuti[2)], Nur Rachmat[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Health Polytechnics Ministry of Health Surakarta

ABSTRACT

Background: Plantar pressure reduction with the use of an insole has been demonstrated to effectively diminish the subjective rating of metatarsalgia. Metatarsal padding is currently the main strategy for reducing the excessive pressure and thus relieving the pain under the metatarsal heads. However, pressure reductions are usually diverse and limited. The multi-step accommodative insole is fabricated by sequential foam padding on Plastazote using Ethylene Vinyl Acetate under dynamic accommodation in daily walking. This study aimed to examine the effect of ethylene vinyl acetate metatarsal pad uptake in reducing metatarsal pain in female police.
Subjects and Method: A quasy experiment with no control group was conducted from February to March 2019 in di police office, Central Java. A sample of 22 female police was selected by total sampling. The dependent variable was metatarsal pain. The independent variable was ethylene vinyl acetate metatarsal pad uptake.
Results: Mean of metatarsal pain after ethylene vinyl acetate metatarsal pad uptake (Mean= 3.86; SD= 0.30) was lower than before (Mean= 5.95; SD= 0.30) and it was statistically significant ($p<0.001$).
Conclusion: Metatarsal pain is lower after ethylene vinyl acetate metatarsal pad uptake.

Keywords: ethylene vinyl acetate metatarsal pain, metatarsal pad

Correspondence:
Herawati Prianggi. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: herawatiprianggii@gmail.com. Mobile: 089670447344.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.11

THE EFFECTIVENESS OF COMBINATION ACUPUNCTURE THERAPY AND AURICULOTHERAPY TO REDUCE BLOOD PRESSURE IN HYPERTENSIVE PATIENTS

I Gusti Bagus Panji Widiatmaja, Suwaji Handaru Wardoyo, Sholichan Badri

Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Elevated blood pressure (hypertension) is an important public-health problem. Meanwhile, lifestyle changes and non-pharmacological therapies such as acupuncture and auricular therapies are considered complementary and alternative methods for hypertension treatment. Auricular therapy is a kind of method of treating physical and psychosomatic diseases by stimulating specific points of ears, which includes various ear stimulating methods like acupressure, acupuncture, electro-acupuncture, laser acupuncture, moxibustion, and bloodletting via needles, seeds, magnetic stones, lasers, ultrasound, or massage. This study aimed to examine the effectiveness of combination acupuncture therapy and auriculotherapy to reduce blood pressure in hypertensive patients.
Subjects and Method: A quasy experiment with no control group was conducted in Mojosongo, Surakarta, Central Java, from October 2018 to April 2019. A sample of 26 adults was selected for this study purposively. The dependent variable was blood pressure. The independent variables were acupuncture therapy (Taichong (LV 3) and Sanyinjiao (SP 6) acupoints) and auriculotherapy. Systolic and diastolic blood pressure before and after intervention were masured by paired t-test.
Results: Systolic blood pressure after intervention (Mean= 134.81; SD= 14.35) was lower than before (Mean= 153.08; SD= 10.78). Diastolic blood pressure after intervention (Mean= 85.00; SD= 5.10) was lower than before (Mean= 95.77; SD= 6.43).
Conclusion: Combination of acupuncture therapy and auriculotherapy can be used to reduce systolic and diastolic blood pressure in hypertensive patients.

Keywords: Hypertension, systolic blood pressure, diastolic blood pressure, acupuncture point, Taichong (LV 3), Sanyinjiao (SP 6), auriculotherapy

Correspondence:
I Gusti Bagus Panji Widiatmaja. Health Polytechnics, Ministry of Health Surakarta.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.12

CORTICOSTEROID THERAPY IMPACTS MORTALITY IN COVID-19 PATIENTS: A META-ANALYSIS

Atika Mima Amalin

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Corticosteroids constitute a group of anti-inflammatory and immunosuppressive drugs that are widely used in the treatment of COVID-19. However, corticosteroid use has been the subject of debate. The available evidence the effect of corticosteroid on the mortality in COVID-19 patients is uncertain, and knowledge on the subject is evolving. A systematic review and meta-analysis was conducted to investigate the impact of corticosteroid therapy on the mortality of COVID-19 patients.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles from PubMed, Google Scholar, and Science Direct databases. The inclusion criteria were English full text and cohort study. The articles were filtered using PICO model, including: (1) Population= confirmed COVID-19 patients, (2) intervention= corticosteroid therapy, (3) comparison= non corticosteroid therapy, and (4) outcome= mortality. The inclusion criteria were English full text and reported adjusted hazard ratio. Quantitative data analysis was processed using Review Manager 5.3.
Results: A meta-analysis involved 7 studies showed that corticosteroid intake reduced the risk of death in COVID-19 patients (aHR= 0.62; 95% CI= 0.52 to 0.75; p<0.001).
Conclusion: Corticosteroid intake reduces the risk of death in COVID-19 patients.

Keywords: cortikosteroid therapy, mortality, COVID-19.

Correspondence:
Atika Mima Amalin. Masters Program in Public Health in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: atikamima-125@gmail.com. Mobile: 085767052088.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.13

CLINICAL IMPROVEMENT OF COVID-19 PATIENTS WITH CONVALESCENT PLASMA THERAPY: META-ANALYSIS

Fathiyyatu Assa'diy Firda[1)], Cri Sajjana Prajna Wekadigunawan[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]University of Esa Unggul, Jakarta, Indonesia

ABSTRACT

Background: Convalescent plasma containing antibodies generated following pathogens' exposure has been employed in past epidemics as a means of passively transferring immunity from individuals with resolved COVID-19 infection. Furthermore, convalescent plasma may contain beneficial anti-inflammatory cytokines, defensins, and pentraxins that quell a severe inflammatory response. This study aimed to estimate clinical improvement of COVID-19 patients with convalescent plasma therapy.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles from Google Scholar, PubMed, and Science Direct databases. The articles were filtered using PICO model, including: (1) Population= patients confirmed COVID-19, (2) Intervention= convalescent plasma therapy, (3) Comparison= standard of care, and (4) Outcome= patient clinical improvement. Keywords used "Convalescent plasma therapy" OR "Convalescent plasma transfusion" AND "Clinical improvement" AND "COVID-19" OR "Coronavirus disease 2019" OR "SARS-Cov-2". The inclusion criteria were full text, matched control studies, published from 2020 to 2021, and reported risk ratio. The articles were collected using PRISMA diagram and the qualitative synthesis was assessed using Review Manager (RevMan 5.3).
Results: A meta analysis using 6 randomized controlled trial involving 902 confirmed COVID-19 patients from New York, Brazil, India, Argentina, China, England, and Spain. This study showed that convalescent plasma therapy elevated clinical improvement in confirmed COVID-19 patients, but it was statistically non-significant (RR= 1.01; 95% CI= 0.94 to 1.10; p= 0.73). As indicated by I^2= 0%, we found non-significant between-study heterogeneity and estimation was done using fixed effect model.
Conclusion: Convalescent plasma therapy elevates clinical improvement in confirmed COVID-19 patients, but it was statistically non-significant.

Keywords: COVID-19, convalescent plasma therapy, clinical improvement

Correspondence:
Fathiyyatu Assa'diy Firda. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: fathiyyatu.firda98@gmail.com. Mobile: 089516880479.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.14

COMPARISON OF OSTEOARTHRITIS HERBAL EXTRACT VERSUS MELOXICAM IN REDUCING PAIN IN PATIENTS WITH KNEE OSTEOARTHRITIS: A RANDOMIZED CONTROLLED TRIAL

Danang Ardiyanto, Saryanto, Fajar Novianto, Zuraida Zulkarnain

Center for Research and Development of Medicinal Plants and Traditional Medicines, Health Research and Development Agency, Ministry of Health, Indonesia

ABSTRACT

Background: Abnormalities of the joints, associated muscles, tendons, ligaments and bone structural abnormalities can all result in pain and need for neurosurgical consultations. Typically, patients will not require immediate surgical intervention, and therefore require treatments to reduce pain and enhance quality of life activities. The purpose of this study was to compare the effect of osteoarthritis herbal extract versus meloxicam in reducing pain in patients with knee osteoarthritis.
Subjects and Method: A randomized controlled trial was conducted at House of Herbs Research Tawangmangu, Karanganyar, Central Java, from March to October 2019. A number of 80 knee OA patients was divided into two groups, (1) OA herbal extract capsules and (2) meloxicam. The dependent variable was pain. The independent variables were OA herbal extract capsules and meloxicam. OA herbal extract capsules consist of *Curcuma xanthorrhiza*, *Phyllanthus niruri*, *Curcuma longa*, *Foeniculum vulgare*, *Orthosiphon aristatus*, *Centella asiatica*, and *Equisetum debile*. Pain was measured by visual analogue scale. Intervention was carried out for 4 weeks (28 days). Pain was measured 3 times, (1) before intervention, (2) second week (day-14), and (3) fourth week (day-28). Pain level after 28 days between OA herbal extract capsules and meloxicam groups was analyzed using independent t-test.
Results: Most of the study subjects was female (80%). Mean of age was 57 years (Mean= 57.45). After 28 days, there was no difference of pain between osteoarthritis herbal extract capsules group (Mean= 53.50; SD= 4.41) and meloxicam group (Mean= 53.88; SD= 9.64), with p= 0.824.
Conclusion: There is no difference of pain between osteoarthritis herbal extract capsules group and meloxicam group

Keywords: osteoarthritis, herbal, meloxicam, visual analogue scale

Correspondence:
Danang Ardiyanto. Center for Research and Development of Medicinal Plants and Traditional Medicines, Health Research and Development Agency, Ministry of Health, Indonesia. Jl. Raya Lawu 11 Tawangmangu, Karanganyar, Central Java. Email: drdanank@gmail.com. Mobile: 08122762579.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.15

EFFECT OF ANTICOAGULANT DRUGS IN REDUCING THE RISK OF MORTALITY IN COVID-19 PATIENTS: A META-ANALYSIS

Happy Nurhayati

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: COVID-19 is widely continue to spread worldwide. Deaths among people with COVID-19 have been partially attributed to venous thromboembolism and arterial thromboses. Several expert organizations have recommended prophylactic anticoagulation for patients admitted with covid-19, who do not have a contraindication to this treatment, to reduce the risk of thromboembolism. However, results from different studies comparing the effect of anticoagulation on the mortality of COVID-19 patients with non-anticoagulation are inconclusive. A systematic review and meta-analysis was conducted to assess the effect of anticoagulant drugs in reducing the risk of mortality in COVID-19 patients.
Subjects and Method: A systematic review was conducted using the Pub¬Med, Science direct, Scopus databases, published from 2020 to 2021. Eligibility criteria were defined using the PICO model as follows, (1) population: COVID-19 patients, (2) intervention: coagulant drugs, (3) comparison: non-coagulant drugs, and (4) outcome: mortality. The following search terms were used: "anticoagulant" AND "mortality" AND "COVID-19". The inclusion criteria were English full-text, cohort retrospective study, and reported adjusted Odds Ratio (aOR). Data analyses were performed using REVMAN 5.3.
Results: Six studies were selected from Kuwait, German, Italy, China, and Spain. This study showed that coagulant drugs reduced the risk of mortality in COVID-19 patients, but it was statistically non-significant (OR= 0.51; 95% CI= 0.39 to 0.66; p= 0.160).
Conclusion: Coagulant drugs reduces the risk of mortality in COVID-19 patients.

Keywords: Anticoagulant, mortality, COVID-19

Correspondence:
Happy Nurhayati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: happynurhayati@student.uns.ac.id. Mobile: +62812-2616-0538.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.16

META-ANALYSIS: EFFECT OF ULTRASOUND THERAPY TO REDUCE PAIN IN CARPAL TUNNEL SYNDROME CASES

Afifah Noer[1)], Setyo Sri Rahardjo[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret
[3)]Study Program of Acupunture, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: The carpal tunnel syndrome, caused by compression of the median nerve at the wrist, is considered the most common entrapment neuropathy. Ultrasound treatment may have the potential to induce various biophysical effects within tissue. It stimulates nerve regeneration and nerve conduction. Findings of an anti-inflammatory effect of such treatment support the concept that ultrasound treatment might facilitate recovery from nerve compression. This study aimed to investigate the effect of ultrasound therapy to reduce pain in carpal tunnel syndrome.
Subjects and Method: A systematic review was conducted using the PubMed, Science Direct, Google Scholar, and Springerlink databases, published from 2004 to 2021. The following search terms were used: ("ultrasonografi" OR "US") AND ("carpal tunnel syndrome" OR "CTS") AND ("randomized controlled trial"). The inclusion criteria were English full-text, randomized controlled trial, and reported Mean and Standard Deviation. The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: 11 studies involved from United States, Taiwan, Iran, Switzerland, China, Spain, Turkey, Poland, and Pakistan. This study showed that ultrasound therapy reduces pain in patient with carpal tunnel syndrome (SMD= -0.69; 95% CI= -1.36 to -0.02; p= 0.040).
Conclusion: Ultrasound therapy reduces pain in patient with carpal tunnel syndrome.

Keywords: terapi ultrasonografi, *carpal tunnel syndrome,* meta-analisis

Correspondence:
Afifah Noer. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: afifahnoer05@student.uns.ac.id.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.17

TOCILIZUMAB THERAPY TO LOWER MORTALITY IN COVID-19 PATIENTS: A META-ANALYSIS

Winei Handriani

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: IL-6, one of pro-inflammatory cytokine, plays a key role in the clinical manifestations of COVID-19 disease and represents a predictive marker of fatal outcome. Several drugs targeting the IL-6 pathway have been attempted, including tocilizumab (TCZ). However, data supporting the use of Tocilizumab (TCZ) in COVID-19 are contrasting and inconclusive. This study aimed to evaluate the effect of Tocilizumab therapy to lower mortality in COVID-19 patients.
Subjects and Method: A systematic review and meta analysis was conducted using the Pubmed, Google Scholar, and Science Direct databases, published from 2020 to 2021. Eligibility criteria were defined using the PICO model as follows, (1) population: COVID-19 patients, (2) intervention: tocilizumab therapy, (3) comparison: non tocilizumab therapy, and (4) outcome: mortality. The following search terms were used: Tocilizumab" AND "COVID-19" AND "Mortality" AND "adjective hazard ratio". The inclusion criteria were English full-text, cohort study, and reported adjusted Hazard Ratio (aHR). The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: 6 studies from United States, Italy, France, and Spain were involved for meta-analysis. This study showed that tocilizumab therapy reduced mortality in COVID-19 patients (aHR= 0.44; 95% CI= 0.36 to 0.55; p<0.001).
Conclusion: Tocilizumab therapy reduces mortality in COVID-19 patients.

Keywords: Tocilizumab, mortality, COVID-19.

Correspondence:
Winei Handriani. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: wineihandriani02@gmail.com. Moblie: 083150000253.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.18

META-ANALYSIS: THE EFFECT OF OBESITY ON HYPERURICEMIA

Nita Putriasti Mayarestya

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: In the last few decades, the prevalence of hyperuricemia is increasing rapidly worldwide. Lifestyle factors like obesity, purine abundant diet and alcohol intake are determined to be independent predictors for the development of hyperuricemia. According to epidemiological studies on metabolic syndrome, hyperuricemia was found to be positively related to several indices, such as body mass index, waist circumference, and dyslipidemia. This study aimed to investigate the effect of obesity on hyperuricemia.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, Science Direct, Google Scholar, and Springerlink databases. The determination of selected articles based on eligible criteria using PICO: (1) Population= adults aged ≥18 years, (2) Intervention= obesity, (3) Comparison= non obese, and (4) Outcome= hyperuricemia. Keywords used ("Obesity" OR "Overweight") AND ("Hyperuricemia") AND ("Cross Sectional"). The inclusion criteria were English full text, cross sectional study, reported adjusted odds ratio, and published from 2011 to 2021. The articles were collected by PRISMA flow diagram. The selected articles were quantitatively assessed using Review Manager 5.3.
Results: 8 studies from Brazil, China, Indonesia, Japan, Bangladesh were involved for meta-analysis. This study showed that obesity increased the risk of hyperuricemia 2.35 times than normal weight (aOR= 2.35; 95% CI= 1.59 to 3.47; p<0.001).
Conclusion: Obesity increased the risk of hyperuricemia.

Keywords: obesity, hyperuricemia

Correspondence:
Nita Putriasti Mayarestya. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: nmayarestya@gmail.com. Mobile: +6282323694969.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.19

JELLY COMBINATION OF SNAKE FRUIT SEED FLOUR AND *MORINGA OLEIFERA* LEAF FLOUR TO INCREASE DAILY NUTRIENT INTAKE IN FEMALE ADOLESCENTS WITH MODERATE ANEMIA

Poppy Wijayanti[1)], Yulia Lanti Retno Dewi[2)], Dono Indarto[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Nutrition, Faculty of Medicine, Universitas Sebelas Maret
[3)]Biomedical Laboratory, Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: *Moringa oleifera* leaf is one of the richest sources of natural iron and calcium and it is considered a multivitamin supplement with also high amounts of amino acids, among other nutrients. Recent studies reported that *M. oleifera* leaves also contain the greatest amount of protein, vitamin E, vitamin A, vitamin C, vitamin B, calcium, iron and potassium. The purpose of this study was to examine jelly combination of snake fruit seed flour and *Moringa Oleifera* leaf flour to increase daily nutrient intake in female adolescents with moderate anemia.
Subjects and Method: A randomized control trial was conducted at Senior High Schools in Banyuwangi, East Java. A sample of 50 female students with moderate anemia was selected randomly and divided into 2 groups, (1) 25 students received 100 g jelly combination of snake fruit seed flour and *Moringa oleifera* leaf flour (intervention group), and (2) 25 students received 100 g plain jelly + iron tablet (control group). Intervention was provided 2 times a week for 4 weeks. The dependent variable was nutrition intake. The independent variable was jelly combination of snake fruit seed flour and *Moringa oleifera* leaf flour. Daily nutrition intake was measured by 24 hours food recall. The data were measured on day-14 and day-30 and it was analyzed by repeated Anova.
Results: After day-30 of intervention, mean of carbohydrate (Mean= 318.57; SD= 17.62), protein (Mean= 86.69; SD= 8.76), fat (Mean= 90.23; SD= 15.56), iron (Mean= 16.60; SD= 1.49), zinc (Mean= 9.70; SD= 0.98), and vitamin C (Mean= 119.26; SD= 37.86) were higher than the initial day, with p= 0.001.
Conclusion: Jelly combination of snake fruit seed flour and *Moringa oleifera* leaf flour can be used to improve daily nutrition intake female adolescents with moderate anemia.

Keywords: iron deficiency anemia, *Moringa oleifera* leaf flour, snake fruit seed flour, female adolescent

Correspondence:
Poppy Wijayanti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: popzala04@gmail.com.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.20

ANALYSIS OF SODIUM TETRABORATE DECAHYDRATE (*BORAX*) ON TOFU AT TRADITIONAL MARKETS IN SURAKARTA, CENTRAL JAVA

Ulya Khoirunnisa' Atin, Rezania Asyfiradayati

Faculty of Health Sciences, Universitas Muhammadiyah Surakarta

ABSTRACT

Background: Borax (or sodium tetraborate) is a naturally occurring alkaline compound that is a precursor in the manufacture of boric acid. Used as a preservative, buffer, anti-septic and fungicide. It is also used as a food additive. Borax has the toxicity to humans, including reproductive and developmental toxicity, neurotoxicity, and nephrotoxicity. The degree of borax toxicity depends on the dose or concentration that the human received. This study aimed to describe sodium tetraborate decahydrate (borax) level in tofu at traditional markets.
Subjects and Method: A descriptive cross sectional study was conducted at Gede, Nongko, Kadipolo, Sidodadi, and Jongke traditional markets in Surakarta, Central Java. A sample of 14 tofu was selected randomly. The study variable was sodium tetraborate decahydrate (borax). Sodium tetraborate decahydrate level was assessed qualitatively using turmeric test kit.
Results: The maximum level of sodium tetraborate decahydrate that is allowed to be in food is 1.6 ppm. All sample was well below the allowable threshold. Sodium tetraborate decahydrate content in tofu products varies from the highest at 0.075 ppm to the lowest at 0.03 ppm.
Conclusion: Tofu products sold in Surakarta traditional markets are safe for consumption.

Keywords: soybean tofu, sodium tetraborate decahydrate, borax, allowable threshold, traditional markets

Correspondence:
Ulya Khoirunnisa' Atin. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ulyakhns9@gmail.com. Mobile: +6282325918686.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.21

ERYTHROCYTES LEVEL AND ITS CORRELATION WITH CHOLINESTERASE LEVEL IN FARMERS WHO USE PESTICIDE: META-ANALYSIS

Arum Nuryati

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: In the last five decades pesticide use has increased sharply in the pursuit of increasing agricultural production. Organophosphates (OP) have been used as pesticides in countries where considerable agricultural activities are performed for more than 50 years. Pesticide use suggests a risk of significant exposures and intoxications among farmers. Organophosphates is potent cholinesterase. The acute intoxications caused by cholinesterase inhibitors which capable of causing severe cholinergic toxicity following cutaneous exposure, inhalation, or ingestion. This study aimed to examine erythrocytes level and its correlation with cholinesterase level in farmers who use pesticide.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from Pubmed, Scopus, Science Direct, Google Scholar, and Medline databases. The determination of selected articles based on eligible criteria using PICO: (1) Population= farmers who used pesticide, (2) Intervention= normal erythrocytes, (3) Comparison= low erythrocytes level, and (4) Outcome= cholinesterase. Keywords used "Red Blood Cell" OR "Cholinesterase Level" AND "Farmers" OR "Cholinesterase Level" AND "Exposed to Pesticides" OR "Farmers" OR "Non Farmers". The inclusion criteria were English full text, case control study, published from 2008 to 2021, and reported Standardized Mean Difference. The articles were collected by PRISMA flow diagram. The selected articles were quantitatively examined by Review Manager 5.4.
Results: A meta-analysis consisted of 7 studies from Thailand, Philippines, India, Nepal, Brazil, and Nigeria. This study showed that erythrocytes reduces cholinesterase level in farmers, but it was statistically non-significant (SMD=-0.18; 95% CI= -0.68 to 0.32; p= 0.490).
Conclusion: Erythrocytes reduces cholinesterase level in farmers, but it was statistically non-significant.

Keywords: erythrocytes, cholinesterase levels, farmers

Correspondence:
Arum Nuryati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: arumnuryati@student.uns.ac.id. Mobile: +6285728792097.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.22

THE EFFECT OF GARLIC SUPPLEMENTATION ON C-REACTIVE PROTEIN IN OVERWEIGHT AND OBESE PEOPLE: META-ANALYSIS

Zuraida Zulkarnain

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Recent studies suggest that obesity triggers systemic chronic inflammation by activation of innate immune system in adipose tissue. This condition leading to a continuous release of C-Reactive Protein (CRP) and increases the risk of cardiovascular events. Garlic is one of the plants that has been widely studied for its anti-inflammatory activity. This study aimed to determine the effect of garlic supplementation on CRP levels in overweight and obese people.
Subjects and Methods: This was a systematic review and meta-analysis. The searching of articles through Google Scholar, Pubmed, Science Direct, and Elsevier databases. The articles were filtered using PICO model, including: (1) Population= overweight or obese people, (2) intervention= garlic supplementation, (3) comparison= placebo, and (4) outcome= CRP. Keywords entered were "garlic" or "age garlic extract" AND "CRP" or "hs-CRP" or "inflammation" AND "obese" or "overweight" or "metabolic syndrome" AND "RCT". The inclusion criteria were articles in Indonesian or English with accessible full text, randomized controlled trial, overweight and obese category based on body mass index, and garlic as a single supplementation. Data analysis using Review Manager 5.3.
Results: 10 articles were eligible and analyzed for meta-analysis. Garlic dosage varies between 400-3600 mg/day. The treatment duration was between 2 weeks to 3 months. The result showed that the administration of garlic was not significant in reducing CRP levels in obese and overweight populations (SMD= -0.06; 95% CI=-0.59 to 0.47; p= 0.820; I^2=89%). Subgroup analysis of 7 studies with comorbid diseases subjects found a borderline statistically significant decrease in CRP levels (SMD= -0.37; 95% CI=-0.77 to 0.04; p=0.070; I^2=76%). Likewise, the results of the subgroup analysis in 2 studies with healthy obese subjects showed an insignificant decrease (SMD= -0.09; 95% CI=-0.85 to 0.67; p=0.810; I^2=56%).
Conclusion: Garlic supplementation in overall overweight and obese people has no effect on CRP levels.

Keywords: garlic supplementation, C-Reactive Protein, overweight, obesity

Correspondence:
Zuraida Zulkarnain. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: zuraida.zu@gmail.com.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.23

ACUPUNCTURE THERAPYY TO REDUCE CONSTIPATION: META-ANALYSIS

Muslihatin Khuril Rosyida

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Pharmacologic agents, such as stimulants or lubricant laxatives, often used to relieve the constipation. However, it can induce abdominal pain, bloating, watery stools, and fecal incontinence. In addition, long-term use of stimulant laxatives may result in adverse effects, such as melanosis coli and cathartic colon. There is a need on nonpharmacologic approach to overcome constipation. This study aimed to examine the effect of acupuncture therapyy to reduce constipation using meta-analysis.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, Pubmed, and Science Direct databases. Keywords used "Acupuncture" AND "Constipation", "Acupuncture for constipation" AND "RCT". Eligibility criteria were defined using the PICO model as follows, (1) population: patients with constipation, (2) intervention: acupuncture therapy, (3) comparison: sham acupuncture, and (4) outcome: constipation. The inclusion criteria were full text randomized controlled trial published from year 2011 to 2021. Articles that met the criteria were analyzed by Revman 5.3.
Results: 6 randomized controlled trial from China and Korea were included in this meta analysis. This study found that acupuncture therapy was effective to reduce constipation (Standardized Mean Difference= -1.40; 95% CI= -2.74 to -0.06; p= 0.040). I^2= 99% represent high heterogeneity between studies. Therefore, the random effects model was used to combine the studies' results.
Conclusion: Acupuncture therapy was effective to reduce constipation.

Keywords: acupuncture, constipation, randomized control trial

Correspondence:
Muslihatin Khuril Rosyida. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: khurilrosyida@gmail.-com. Mobile: 08564713149.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.24

META-ANALYSIS: EFFECT OF DIABETES ON MENINGITIS INFECTION IN ADULTS

Sulaiman Putra Nagaring, Bhisma Murti

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Diabetes mellitus has been associated with increased infection rates. Diabetes has been stated as risk for bacterial meningitis, in particular listeria meningitis although few studies have been done. The purpose of this study was to examine effect of diabetes on meningitis infection in adults.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, Pubmed, and Science Direct databases. Keywords used ("effect of diabetes mellitus on meningitis") OR ("meningitis") OR ("meningitis infection") OR ("diabetes melitus") OR ("Adults") AND ("logistic regression"). Eligibility criteria were defined using the PICO model as follows, (1) population: adults, (2) intervention: diabetes mellitus, (3) comparison: non diabetes mellitus, and (4) outcome: meningitis. The inclusion criteria were full text, case control study, reported adjusted odds ratio, and published from year 2000 to 2018. Articles that met the criteria were analyzed by Revman 5.3.
Results: Meta-analysis involved 6 primary studies from China, United States, Taiwan, and Korea. This study showed that diabetes mellitus increased the risk of meningitis in adults (aOR= 6.97; 95% CI= 4.64 to 10.47; p<0.001).
Conclusion: Diabetes mellitus increase the risk of meningitis in adults.

Keywords: meningitis, diabetes mellitus, meta-analysis

Correspondence:
Sulaiman Putra Nagaring. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: sulaimanputran@gmail.com. Mobile: 085855533027.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.25

ESSENTIAL OIL AROMA THERAPY USE AS A COMPLEMENTARY THERAPY IN COVID-19 PATIENTS

Candra Kusuma Negara[1)], Juhriyansyah Dalle[2)], Heni Rakhmawati[1)]

[1)]Universitas Cahaya Bangsa University, South Borneo
[2)]Universitas Lambung Mangkurat University, South Borneo

ABSTRACT

Background: COVID-19 has become a pandemic in all countries, including Indonesia. Some of the symptoms it causes include coughing, fatigue, fever, diarrhea, anosmia, and parosmia. The use of non-medical medications in the form of complementary aroma-therapy therapy, which is classified as non-invasive therapy, is an addition to natural therapy and has been used in various countries to find a balance of body and mind. This study aimed to identify potential complementary therapies in COVID-19 patients through the use of aromas (jasmine, lavender, lemongrass, rose, and lemon).
Subjects and Method: A systematic review was conducted by searching published articles from 2010 to 2021, in several databases including Google Scholar, Science Direct, Wiley, EBSCO, and PubMed. The articles were collected by PEOS (Population, Exposure, Objective, and Study Design). The keyword for this review was "Complementary Therapy" AND "Essential Oil" AND "COVID-19". The inclusion criteria were peer-review articles from 2010-2021. Initially 321 articles were obtained by searching an online database. The Critical Appraisal Joanna Brigs Institute was used to assess the quality of studies.
Results: 30 articles were included in this systematic review. 10 articles stated that essential oil aromatherapy was used in complementary therapy, autism therapy, and progressive muscle therapy. 12 articles stated that essential oil aromatherapy was used in deep breathing therapy, audiovisual therapy, and meditation therapy. 8 articles stated that essential oil aromatherapy in hydrotherapy, gasoline therapy, warm & cold compress therapy affect health conditions, especially the patient's psychological and psychological state.
Conclusion: Essential oil aromatherapy combined with complementary therapy is potential for healing in COVID-19 patients with symptoms such as anosmia, parosmia, and relaxation.

Keywords: Complementary therapy, essential Oil, COVID-19

Correspondence:
Candra Kusuma Negara. Universitas Cahaya Bangsa. Jl. A. Yani 17, Gambut, South Borneo, Indonesia. Email: candra.kusuma@youcb.ac.id. Mobile: +6285252852701.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.26

THE EFFECTIVENESS OF GREEN TEA AND CELERY LEAVES IN REDUCING BLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSION IN JOHO, KEDIRI, EAST JAVA

Eka Surya Dianda Wirantika Pratiwi[1)], Agustin Widyowati[2)], Anik Nuridayanti[2)]

[1)] Bachelor Program in Nursing, School of Health Sciences Ganesha Husada, Kediri, East Java
[2)]Department in Nursing, School of Health Sciences Ganesha Husada, Kediri, East Java

ABSTRACT

Backgrounds: Hypertension is a degenerative disease that affects public health and is a silent killer. In Indonesia, the prevalence of hypertension based on measurement results at the age of 18 years increased from 25.8% in 2013 to 34.1% in 2018. One of the efforts that can be done to lower blood pressure is traditional medicine using green tea and celery leaves. This study aimed to analyze the effectiveness of green tea and celery leaves in reducing blood pressure among people with hypertension.
Subjects and Method: This was a randomized controlled trial (RCT) conducted in Joho, Wates, Kediri. A total of 40 patients with hypertension were divided randomly into two groups: (1) 20 patients in the experimental group who received green tea treatment, and (2) 20 patients in the experimental group who received celery leaves treatment. The dependent variable was systolic blood pressure. The independent variables were green tea or celery leaves. The data on blood pressure (mmHg) was measured by sphygmomanometer. The mean difference between the experimental and control groups were tested by independent t-test.
Result: Mean systolic blood pressure (mmHg) after intervention in the green tea group (Mean= 130.20; SD= 3.40) was comparable with that in the celery leaves group (Mean= 128.17; SD= 2.71), and it was statistically non-significant (p= 0.120).
Conclusion: The effectiveness of green tea and celery leaves is comparable in reducing systolic blood pressure among patients with hypertension.

Keywords: green tea, celery leaves, blood pressure, hypertension, patients.

Correspondence:
Eka Surya Dianda Wirantika Pratiwi. Bachelor Program in Nursing, School of Health Sciences Ganesha Husada. Jl. Soekarno Hatta Gg Budaya Cipta 2 No. 2 Kediri, East Java. Email: sesilyaloverizal@yahoo.co.id. Mobile: +6285731407499

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.27

EFFECT OF MIRROR THERAPY ON UNILATERAL SPATIAL NEGLECT IN STROKE PATIENTS

Sholeh Nurul Hidayat[1)], Hendri Kurniawan[2)]

[1)]Occupational Therapy Unit, Medical Rehabilitation,
Dr. Kariadi Hospital Semarang
[2)] Department of Occupational Therapy, Health Polytechnics,
Ministry of Health Surakarta

ABSTRACT

Background: Stroke can cause unilateral spatial neglect (USN), a disturbance in orientation and response to stimuli on the side of the body that is different from the location of the lesion in the brain. Mirror therapy is proven to improve the motor skills of stroke patients through visual feedback stimulation to trigger motion planning on the affected side of the body. This study aimed to determine the effect of mirror therapy on unilateral spatial neglect of stroke patients.
Subjects and Method: This was a quasi-experiment study with pre and post-test one group design, conducted at 3 hospitals in Semarang, Central Java, from October to November 2019. A total of 19 stroke patients was selected by purposive sampling. The dependent variable was unilateral spatial neglect. The independent variable was mirror therapy. The data were collected by Catherine Bergego Scale (CBS) instruments and analyzed by paired t-test.
Results: CBS score after intervention (Mean= 13.84; SD= 6.36) was lower than before intervention (Mean= 21.32; SD= 5.89) and it was statistically significant ($p<0.001$)
Conclusion: Mirror therapy is effective in lowering unilateral spatial neglect scores among patients with stroke.

Keywords: mirror therapy, spatial neglect, stroke

Correspondence:
Sholeh Nurul Hidayat. Occupational Therapy Unit, Medical Rehabilitation, Dr. Kariadi Hospital Semarang. Jl. DR. Sutomo 16, Semarang, Central Java, Indonesia. Email: sholehruby38@gmail.com. Mobile: +6285728843163

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.28

VALIDATION OF DIGITAL DIETARY ASSESSMENT TOOL IN MONITORING PATIENT FOOD INTAKE AT Dr. SARDJITO HOSPITAL YOGYAKARTA

R. Dwi Budiningsari[1)], Firma Syahrian[2)]

[1)]Department of Nutrition, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta
[2)]Department of Electrical and Informatics Engineering, Vocational School, Universitas Gadjah Mada, Yogyakarta

ABSTRACT

Background: Energy and protein intake are the outcome indicators of inpatient nutritional care. Monitoring patient dietary intake is an important step after nutrition screening and it is one of the minimum nutrition service standards. However, patient meal plates often have been cleared by serving assistants before dietitians can measure patient plate wastes. Previous studies have shown that the digital photography method is significantly associated with food weighing method. Therefore, it is a valid method to monitor patient dietary intake in hospitals. However, this method has never been studied yet in Indonesia. This study aimed to compare Digital Dietary Assessment Tool (DDAT) and direct observation method (Visual Comstock) with the food weighting method in Dr. Sardjito Hospital Yogyakarta.
Subjects and Method: This was a cross-sectional study conducted at the Cardiovascular Ward, Dr. Sardjito Hospital, Yogyakarta, from June to July 2021. A total of 96 patient meal plates of breakfast were observed by four dietitians. The dependent variables were energy and protein, duration in measuring food intake, and dietician satisfaction. The independent variable was DDAT or visual Comstock, with food weighting as the gold standard. The data were analyzed by paired t-test. Dietician satisfaction was measured by questionnaire.
Results: There was no statistical difference (p= 0.890) in measuring energy between DDAT (Mean= 345.0; SD= 163) and food weighting (Mean= 347.6; SD= 158). There was also no statistical difference (p= 0.890) in measuring protein between DDAT (Mean= 15.2; SD= 5.4) and food weighting (Mean= 15.6; SD= 5.6). The duration in measuring food intake by DDAT (Mean= 37.83; SD= 15.16 second) was shorter than visual Comstock (Mean= 361.8; SD= 41.86 second) and it was statistically significant (p< 0.001). The satisfaction of dieticians in measuring food intake by DDAT was significantly higher than visual Comstock (p< 0.001).
Conclusion: DDAT is a valid method in measuring of nutrient intake among hospitalized adult patients. Not only has a shorter duration of measurement, DDAT also has higher satisfaction in measuring food intake than visual Comstock.

Keywords: validation, dietary assessment tool, photography method, plate waste, adult patients

Correspondence:
R. Dwi Budiningsari**.** Department of Health Nutrition, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada. Jl. Farmako, Sekip Utara, Yogyakarta 55281. Email: budiningsari@ugm.ac.id. Mobile: +6282119693932

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.29

THE EFFECT OF CLAY ART THERAPY ON DEPRESSION IN SCHIZOPHRENIC PATIENTS AT Dr. ARIF ZAINUDDIN PSYCHIATRIC HOSPITAL, SURAKARTA, CENTRAL JAVA

Rita Untari

Health Polytechnics, Ministry of Health, Surakarta

ABSTRACT

Background: Depression is one of the manifestations of schizophrenic symptoms. In addition to medication, psychosocial treatment such as art therapy is essential. This study aimed to determine the effect of clay art therapy on reducing symptoms of depression in schizophrenic patients.
Subjects and Method: This was a quasi-experiment with pre post-test with no control group design, conducted in Dr. Arif Zainuddin Psychiatric Hospital, Surakarta, Central Java, from October to November 2019. A total of 26 schizophrenia patients was selected by purposive sampling. The dependent variable was depressive symptoms. The independent variable was clay art therapy. The clay art therapy was given eight times, and each session lasted 25 to 35 minutes. The depression was measured by Beck Depression Inventory-II (BDI-II) and analyzed by paired t-test.
Results: Depressive symptoms score after intervention (Mean= 19.15; SD= 10.66) was lower than before intervention (Mean= 26.88; SD= 10.24) and it was statistically significant ($p<0.001$)
Conclusion: Clay art therapy is effective for reducing depressive symptoms.

Keywords: Schizophrenia, clay art therapy, depressive symptoms

Correspondence:
Rita Untari. Health Polytechnics, Ministry of Health, Surakarta. Jl. Letjen Soetoyo Mojosongo, Surakarta, Central Java. Email: ritauntari@gmail.com. Mobile: +628164278544.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.30

THE EFFECT OF EXPRESSIVE WRITING THERAPY ON ANXIETY IN SCHIZOPHRENIC PATIENTS AT Dr. RADJIMAN WEDIODININGRAT PSYCHIATRIC HOSPITAL, LAWANG, MALANG, EAST JAVA

Rita Untari

Health Polytechnics, Ministry of Health, Surakarta

ABSTRACT

Background: Positive and negative symptoms in schizophrenia cause anxiety conditions that impact disturbances in self-care, productivity, and recreation. Expressive therapy is a form of writing activities about deep thoughts and feelings about traumatic experiences or events. This study aimed to determine the effect of expressive therapy on the anxiety of schizophrenic patients.
Subjects and Method: This was a quasi-experiment with pre and post-test one group design. It was conducted in Dr. Radjiman Wediodiningrat Psychiatric Hospital, Lawang, Malang, East Java, from September to October 2019. A total of 20 schizophrenia patients was selected purposively. The dependent variable was anxiety. The independent variable was expressive writing therapy. Expressive writing therapy was given ten times, and each session lasted 30 minutes. The data were collected by Hamilton Anxiety Rating Scale (HARS) instruments. The data were analyzed by paired t-test.
Results: Anxiety score after intervention (Mean= 20.70; SD= 7.39) was lower than before intervention (Mean= 26.88; SD= 10.24) was statistically significant ($p<0.001$)
Conclusion: Expressive writing therapy is effective for reducing anxiety in schizophrenic patients.

Keywords: Schizophrenia, expressive writing therapy, anxiety level.

Correspondence:
Rita Untari. Health Polytechnics, Ministry of Health, Surakarta. Jl. Letjen Soetoyo Mojosongo, Surakarta, Central Java, Indonesia. Email: ritauntari@gmail.com. Mobile: +6281-64278544.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.31

CHANGES IN MEDICATION-TAKING BEHAVIOR AMONG CHD WOMEN BEFORE AND DURING THE COVID-19 PANDEMIC

Sulistyowati Tuminah, Woro Riyadina, Lely Indrawati

National Institute of Health Research and Development
Ministry of Health, Republic of Indonesia

ABSTRACT

Background: During the pandemic of Corona Virus Disease (COVID-19), restriction on in the community and in health facilities has led to changes in treatment behavior, especially among coronary heart disease (CHD) sufferers. Many people did not take their medication even though they had CHD diagnosed. This study aimed to define the factors associated with changes in medication-taking behavior among female CHD sufferers during the COVID-19 pandemic.
Subjects and Method: This was a longitudinal study using secondary data from a study entitled "The impact of the Covid-19 pandemic on mental health and seeking health services for NCD comorbid patients" which was conducted in October 2020 using "Lime Survey" online application to the respondents of Non-Communicable Disease (NCD) Risk Factors Cohort Study at 5 villages at Central Bogor District, Bogor City. A total of 433 CHD patients was selected purposively. The inclusion criteria of this research was female. The exclusion was incomplete data. The dependent variable was changes in medication-taking behavior before and during the pandemic of COVID-19. The independent variables including (1) age, (2) education, (3) job status, (4) comorbidity, (5) mental/emotional disorder (MED). The data were analyzed by logistic regression.
Results: The results of multivariate analysis showed that the odds ratio were 3.47-fold (OR= 3.46; 95% CI= 1.075 to 11.167; p= 0.037) higher for MED and 2.10-fold (OR=2.09; 95% CI= 0.88 to 4.99; p= 0.094) higher for age ≥55 years to change their medication-taking in the COVID-19 pandemic.
Conclusion: CHD women with MED and age ≥55 years tend to change their medication-taking behavior in the COVID-19 pandemic. The health providers should be more proactive to educate and service the people (especially CHD sufferers) relating to medication-taking behavior to raise public awareness to maintain their health.

Keywords: change of behavior, medication-taking, Coronary Heart Disease, COVID-19

Correspondence:
Sulistyowati Tuminah. National Institute of Health Research and Development, Ministry of Health, Republic of Indonesia. Jl. Percetakan Negara 29, Jakarta. Email: watidarjoko-@gmail.com. Mobile: +62 8129575770.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.32

EFFECT OF HIGH-INTENSITY INTERVAL CARDIO TRAINING ON STRESS LEVEL OF STUDENTS DURING COVID-19 PANDEMIC

Aniek Puspitosari[1)], Dinna Fitriani Wardani[2)]

[1)]Department of Occupational Therapy, Health Polytechnic,
Ministry of Health,Surakarta, Indonesia
[2)]Occupational Therapy Unit, Regional General Hospital Dr. Abdul Rivai,
Berau Regency, East Kalimantan

ABSTRACT

Background: Final year students who are in the process of working on their final project feel overwhelmed and confused in the midst of the COVID-19 pandemic. This causes some students to experience stress. High-Intensity Interval Cardio Training is hypothesized to be able to reduce stress levels by overcoming stress symptoms that arise. This study aimed to analyze high-intensity interval cardio training in reducing student stress levels.
Subjects and Method: A quasi-experimental study with no control group was conducted at Muhammadiyah Berau Islamic institute, East Borneo, Indonesia. A sample of 53 last year's students was selected for this study. The dependent variable was stress. The independent variable was high-intensity cardio interval training. Eight types of high-intensity cardio interval training exercises were given for five weeks. From the first to the third week, they received level 1 exercise. From the fourth to the fifth week, they received level 2 exercise. Stress was measured by the Depression Anxiety Stress Scale 42 (DASS 42) before and after intervention. Data were analyzed using paired t-test.
Results: The mean of stress after high intensity interval cardio training (Mean= 41.30; SD= 4.49) was lower than before (Mean= 53.20; SD= 4.92), and it was statistically significant (p= 0.010).
Conclusion: High-intensity interval cardio training is lower stress in the last year's students during the COVID-19 pandemic.

Keywords: high-intensity interval cardio training, stress level, pandemic COVID-19.

Correspondence:
Aniek Puspitosari. Department of Occupational Therapy, Health Polytechnics Surakarta. Email: aniekpuspitosari@gmail.com. Mobile: +6285725068217.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.33

THE EFFECTIVENESS OF HYPERBARIC OXYGEN THERAPY ON THE HEALING OF DIABETIC FOOT ULCER: A SYSTEMATIC REVIEW

Heni Selvia

Universitas Hasanudin, Indonesia

ABSTRACT

Background: Foot ulcer is one of the complications that causes major problems in the world for diabetics. If the wound on the foot is not treated immediately, it will lead to complications and the risk of amputation of the extremity. Thus, a strategy is needed in the prevention and treatment of diabetic foot ulcers. Hyperbaric oxygen therapy is hypothesized to affect the wound healing process, reduce exudate, lower inflammatory response, and the risk of amputation. This study aimed to systematically review the relevant research of hyperbaric oxygen therapy to accelerate the healing of diabetic foot ulcer.
Subjects and Method: This was a systematic review using PRISMA Flow Diagram guidelines. The articles published in PubMed, Science Direct, ProQuest, and the Cochrane Library databases, from 2011 to 2021. The study population was patients with diabetic foot ulcer. Intervention was hyperbaric oxygen therapy. Comparison was non hyperbaric oxygen therapy. Outcome was endothelial growth factor serum. The inclusion criteria were randomized controlled trial and full-text in English. The eligible articles were assessed qualitatively.
Results: A total of 7 randomized control trials from Egypt, Australia, Taiwan, India, Indonesia, and Malaysia was included in this study. Endothelial growth factor serum was high in the hyperbaric oxygen therapy group compared to the control group.
Conclusion: Hyperbaric oxygen therapy has benefit on the wound healing process in patients with diabetic foot ulcer.

Keywords: diabetic foot ulcer, hyperbaric oxygen therapy, wound healing process.

Correspondence:
Hey Selvia. Universitas Hasanuddin, Indonesia. Jl. Pioneer of Independence, Makassar City. Email heniselvia.unhas22@gmail.com. Mobile: +6282291738049.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.34

CLINICAL CHARACTERISTICS OF COVID-19 PATIENTS AT THE WISMA ATLET PADEMANGAN, JAKARTA

Denni Marvianto, Bara Kharisma, Amelia Fitra Khasanah, Theodora Injang Winedar

Wisma Atlet Pademangan, Jakarta Utara, Jakarta

ABSTRACT

Background: COVID-19 pandemic has affected more than 200 countries. Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) virus infection can be asymptomatic, mild, or severe. Because of these highly variable manifestations, knowledge of the clinical characteristics of COVID-19 patients can assist in determining appropriate strategies for dealing with COVID-19 in the future. The purpose of this study was to determine the clinical characteristics of COVID-19 patients at Wisma Atlet Pademangan.
Subjects and Method: This was a descriptive study. The variables in this study were clinical characteristics in COVID-19 patients. The population studied were COVID-19 patients who were isolated at Tower 8 Wisma Atlet Pademangan, Jakarta, from November 10, 2020, to December 10, 2020. A total sample of 403 patients was selected for this study. Primary data were collected by using google form. Data were analyzed descriptively.
Results: The results showed 202 COVID-19 patients were asymptomatic (50.1%), 201 with mild symptoms (49.9%). In patients with mild symptoms, myalgia (38.81%) was found, followed by fatigue (37.81%), fever (37.31%), hyposmia (36.32%), headache (36.32%), cough (35.82%), and productive sputum (34.83%).
Conclusion: Half of the patients were asymptomatic or mild symptoms. In patients with mild symptoms, the most common complaint is myalgia. Other symptoms often found in a row are fatigue, fever, headache, hyposmia, and cough.

Keywords: COVID-19, clinical characteristics

Correspondence:
Denni Marvianto. Wisma Atlet Pademangan. Pademangan Timur, Pademangan, Jakarta Utara, Jakarta 14410, Indonesia. Email: dennimarvianto@gmail.com. Mobile: 08998-109326.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.35

DIETARY APPROACH TO STOP HYPERTENSION IN THE ELDERLY

Elisabeth Wahyu Savitri, Fransiska Romina

Academy of Nursing, Insan Dharma, Pontianak, West Borneo

ABSTRACT

Background: Dietary Approaches to Stop Hypertension (DASH) is an eating plan to lower or control high blood pressure. The DASH diet emphasizes foods that are lower in sodium as well as foods that are rich in potassium, magnesium, and calcium- nutrients that help lower blood pressure. This study aimed to determine the effect of DASH on reducing blood pressure in the elderly with hypertension.
Subjects and Methods: This was a randomized controlled trial (RCT) conducted at Graha Wreda Marie Joseph, Siantan, Pontianak, West Borneo, from April 10 to May 10, 2021. A sample of 30 older people with hypertension was selected for this study, and then assigned at random into two groups: (1) 15 patients in the experimental group who underwent DASH; and (2) 15 patients in the control group who did not undergo DASH. The dependent variables were systolic and diastolic blood pressures. The independent variable was DASH. DASH was an eating plan applied at breakfast, lunch, and dinner, that lasted for 30 days. The mean difference of both systolic and diastolic blood pressures after DASH intervention between the experimental and control group was tested by independent t-test.
Results: The mean systolic blood pressure in the experimental group (Mean= 128.33; SD= 18.94) was lower than that in the control group (Mean= 145.20; SD= 25.63), and it was statistically significant (p= 0.027). Likewise, the mean diastolic blood pressure in the experimental group (Mean= 78.00; SD = 8.27) was lower than that in the control group (Mean= 84.07; SD= 6.45), and it was statistically significant (p= 0.043).
Conclusion: Dietary Approach to Stop Hypertension is effective to reduce systolic and diastolic blood pressures in the elderly with hypertension.

Keywords: diet approach to stop hypertension, DASH, blood pressure, hypertension

Correspondence:
Elisabeth Wahyu Savitri. Academy of Nursing Insan Dharma. Jl. Merdeka 55, Pontianak, West Borneo. Email:elisabe-thpiet.2005@gmail.com, Mobile: +6281345209076.

https://doi.org/10.26911/AB.Medicine.ICPH.08.2021.36

e-Proceeding The 8th ICPH 2021

Full Paper

TOPIC I :
EPIDEMIOLOGY AND PUBLIC HEALTH

The 8th International Conference on Public Health
Solo, Indonesia, November 17-18, 2021 |

EVALUATION OF YOUTH HEALTH PROGRAM ACHIEVEMENT IN TERNATE, NORTH MALUKU

Muhlisa[1)], Hetty Astri[2)]

[1)]Faculty of Public Health, University of Hasanuddin
[2)]Polytechnic of Health Ministry of Health Jakarta III

ABSTRACT

Background: The Youth Health Program is a type of school-based health program currently being implemented in Indonesia. The purpose of this study was to evaluate the achievement of the Youth Health Program in Ternate, North Maluku.
Subjects and Method: This was a qualitative study conducted in all Health Centres in Ternate, North Maluku. There were 3 informants of study: (1) Informant who manage the Youth Health Program at Ternate City Health Office; (2) The person in charge; and (3) The support unit for the Youth Health Program at the Health Centre in the City of Ternate. The variable was the implementation of the Youth Health Program. The data were collected by interview.
Results: There were 9 out of 11 Community Health Centers in Ternate that carried out The Youth Health Program. Health promotion had been carried out both inside and outside the room but had not been maximized. The Youth Health Program was classified into individual and community health efforts. The activities included the Integrated Youth Healthcare Posts and periodic health medical checks.
Conclusion: Nine out of 11 Community Health Centers in Ternate have carried out The Youth Health Program. The Youth Health Program activities have not been maximized and have never been evaluated.

Keywords: youth health program, evaluation, community health center

Correspondence:
Muhlisa. Faculty of Public Health, University of Hasanuddin. Jl. Perintis Kemerdekaan No.KM.10, Tamalanrea Indah, Tamalanrea, Makassar, South Sulawesi. Email: muhlisa04@yahoo.com. Mobile: +62 82110793513.

BACKGROUND

Adolescence is a period of human growth and development that occurs after childhood and before adulthood, from the age of 10 to 19 years. Adolescents will go through age stages starting from early teens starting at the age of 12-15 years, middle teens aged 15-18 years and late teens, namely 18-21 years (Desmita, 2017). Adolescence is also a period in which individuals leave their childhood and begin to enter adulthood (Irsandef et al., 2018).

According to (World Health Organization, 2015) Adolescence is a period of transition from childhood to adulthood, where there is the development of reproductive functions that affect physical, mental and role changes.

Adolescents experience puberty which is marked by starting to recognize sexual development and sexual behavior (Juliyatmi et al., 2018). Sexual behaviour is a form of behavior that is carried out to attract the attention of the opposite sex and involves touching the limbs between men or women so that it reaches the stage of intimate relationships. (Apsari and Purnamasari, 2018). Many adolescent sexual problems in Indonesia require

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.14

integrated handling involving various sectors and across programs(Sulastri et al., 2019).

The results of population projections show that the youth population will increase until 2030 (ONU, 2015) The era of globalization that has hit various sectors of life has also led to the development of adolescent reproductive health problems that occur in society. These problems are physical, psychological and psychosocial which include social behaviour such as early pregnancy, diseases due to sexual intercourse and abortion, as well as problems due to the use of narcotics, addictive substances, alcohol and smoking. One of the causes of the problem, possibly because of ignorance, is because teenagers do not get clear, correct and precise information about adolescent reproductive health and its problems. (Kemenkes RI, 2012)

Adolescent sexual behaviour is strongly influenced by internal and external factors, internally comes from within the adolescent itself and external is the physical and non-physical environment. Factors influencing adolescent sexual behaviour focus on peers, parents and family, rural/ urban, youth, media and parenting styles (O'Dwyer et al., 2019)

Data from the 2012 Indonesian Health Demographic Survey (IDHS) shows that around 32.1% of girls and 36.5% of boys aged 15-19 years started dating when they were not yet 15 years old. The fact is that 0.7% of women and 4.5% of men aged 15-19 years have had pre-marital sex. The reason for the pre-marital sexual intercourse was mostly because of curiosity (57.5% of men), it just happened (38% of women) and was forced by a partner (12.6% of women). Adolescent knowledge about reproductive health is not sufficient, only 35.3% of female adolescents and 31.2% of male adolescents aged 15-19 years know that women can get pregnant with one sexual intercourse. This evidence reflects that adolescents lack understanding of healthy life skills, the risks of sexual intercourse and the ability to refuse relationships they do not want (Kemenkes, 2014).

Based data from several studies, shows that teenagers still have high-risk sexual behaviour (Rahmah et al., 2017), adolescents are unable to make rational decisions, lack social responsibility, and often break the rules (Lubis et al., 2021), Knowledge and education are not related to STI risk sexual behavior (Helda and Muchlisa, 2021), Men may be more likely to have unprotected sex with more partners Men may be more likely to have unprotected sex with more partners (Pringle et al., 2017), the role of parents correlates with adolescent sexual behaviour and also the role of the media correlates too (Mulya et al., 2020).

Based on the description above, adolescent health problems are very important and the implementation of The Youth Care Health Service Program is currently one of the solutions to overcome these problems. Therefore, to support the program, it is necessary to evaluate the achievement of The Youth Care Health Service Program's role on adolescent reproductive health in Ternate City.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.14

SUBJECTS AND METHOD

1. Study Design

This study uses a descriptive qualitative study design with data collection methods in the form of in-depth interviews, document review, and observation and quantitative data by obtaining secondary data, namely reports on the activities of the Youth Care Health Service Program carried aout by aech Health Centre.

2. Population and Sample

This research was conducted in the Ternate City Health Office Work Area in September 2021. In this study, there were 3 informants, namely the informant of the Youth Health Program Manager of the Ternate City Health Office, the Person in Charge of the Community Health Center Youth Health Program, and the support unit for the Youth Health Program of the Public Health Center in the City of Ternate.

2. Operational Definition of Variable

Implementation is defined as all Adolescent Health Program activities that have been carried out in the research area, while evaluation is defined as the extent to which the program has been successful

4. Study Variables

The variables in this study were divided into two, namely the implementation of the adolescent health program and the evaluation of the adolescent health program in the research area.

5. Study Instrument

The data collection tool is an interview guide as a reference to explore information related to existing inputs for The Youth Care Health Service Program, which consists of health human resources, health facilities, youth, networks, and health management. It is also a reference for obtaining information related to The Youth Care Health Service Program implementation process, which consists of program planning, program organization, program implementation, and program supervision.

6. Data Analysis

Data analysis was carried out qualitatively, namely the process of matching data together, how to make the vague real, linking effects with causes (Morese, 1995).

RESULTS

The results obtained by The Youth Care Health Service Program for the city of Ternate were found in 11 public health centers and of the 11 public health centers that are active in implementing are 9 public health centers, namely public health centers Sulamadaha, Siko, Kota, Kalumata, Jambula, Kalumpang, Bahari Berkesan, Gambesi and Hiri, while the public health centers Moti and Mayau are still not active.

The implementation of The Youth Care Health Service Program in the city of Ternate which has been implemented since 2007 is expected to reach all youth in the working area, both youth at school and outside of school such as in the community, orphanages, youth organizations, shelter homes, correctional institutions, to teenagers with special needs. There are 6 activities in the implementation of The Youth Care Health Service Program, which consists of health counseling activities and the

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.14

provision of Communication, Information, and Education, medical clinical services including supporting examinations, health screening, adolescent counseling, formation and training of peer counselors, and referral service.

The Youth Care Health Service Program in 2018 only reached 32% with services to adolescents netted from all public health centres was 0.36%, reaching 54% in 2019 and declining again in 2013. 2020, which is 34.50%. This figure is a benchmark that it turns out that the youth care program has not been able to reach the youth as a whole in Ternate City. This figure is also an absolute number obtained based on comparisons obtained with juvenile detention in Ternate City. This is also a special concern for the Ternate city government because The Youth Care Health Service Program was formed to be accessible to teenagers, fun, accepting teenagers with open arms, respecting teenagers, maintaining confidentiality, being sensitive to their health-related needs and being effective and efficient (Arsani, 2013).

Public health centres in the implementation of The Youth Care Health Service Program are required to provide training to schools, but until now not all public health centres With The Youth Care Health Service Program have fostered schools. Several research results state that the level of education does not affect the utilization of The Youth Care Health Service Program services in schools. (Karina, Sandra and Herawati, 2020) (Laili et al., 2019).

DISCUSSION

1. The Youth Care Health Service Program service at the Public health centre of Ternate City

The results of the researcher's interview with the holder of the UKM program, namely Mrs Safitry, found that the Public health centres in Ternate City that were actively implementing The Youth Care Health Service Program were 9 out of 11 Public health centres

> *"The establishment of The Youth Care Health Service Program at the Public health centre of Ternate City was started by the Health Service which has a new program, namely The Youth Care Health Service Program and meets the minimum requirements for a Public health centre that implements The Youth Care Health Service Program, which also has guidelines, namely Standard National Guidelines for the Implementation of The Youth Care Health Service Program 2014". (Safitri, holder of The Youth Care Health Service Program)*

The Youth Care Health Service Program at the Public health centre has a team in which the formation consists of several Public health centre officers with expertise in their respective fields. The Youth Care Health Service Program is included in individual health efforts as well as public health efforts. Psychologists are only available in one Public Health Center, namely the Kalumpang Public Health Center to serve adolescent counselling at the Psychologist Polyclinic, while the others do not have psychologists according to their field of knowledge,

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.14

but they have officers who are ready to help and be trained.

As stated by the person in charge of the Ternate City Health Office "*Indeed, only one Public health centre has a psychologist, but the others are The Youth Care Health Service Program officers who are ready to serve in this field"*

This has become a polemic in Indonesia because based on statistical data in 2015 only 33.33 per cent of all public health centres in Indonesia provided The Youth Care Health Service Program. Of the 33.33 per cent of public health centres that implement The Youth Care Health Service Program, only 25 per cent have achieved the strategic plan target. (Kemenkes RI, 2016).

Health care services for adolescents at the Public Health Center in Ternate City have two activities, namely activities outside the Public Health Center building and inside the building. There are only 6 Integrated Healthcare Centers that have been fostered, and even that was only established in 2020. This should be of particular concern because according to (Ningsih, 2018) The Integrated Healthcare Center for Youth has a function as a forum, guidance and communication medium for adolescents so that they do not misinterpret their behaviour.

The Youth Care Health Service Program at the Public health centre of Ternate City has not fully run under these five standards, this was also conveyed by the person in charge of the Ternate City health office.

"Until now, indeed, we have not evaluated The Youth Care Health Service Program Public health centre program following the guidelines"

Also there is no evaluation and assessment under the criteria of the 2014 The Youth Care Health Service Program Guidelines. This is a serious problem where there should be an ongoing program evaluation with the involvement of youth in The Youth Care Health Service Program, youth should be involved in various aspects from planning, implementation, to monitoring and evaluation (Muthmainnah, 2013). This is in line with research conducted by (Afrianti et al., 2017) who said that a standardized evaluation and recording had not been carried out by the Public Health Center in the research area so that no outstanding data was obtained for future improvements. This should not happen because the Public Health Center already has an integrated recording and reporting system. The Public Health Center is an activity and reporting of general data, facilities, personnel and health service efforts in the community (Decree Menkes No. 63/Menkes/ SK/11/1981; Rajab, 2009). The Public Health Center Integrated Recording and Reporting System is a complete recording and reporting procedure for the management of the Public Health Center, covering the physical condition, personnel, facilities, and main activities carried out as well as the results achieved by the Public Health Center (Effendy, 1998).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.14

2. Implementation of The Youth Care Health Service Program at the Ternate City Public Health Center

Youth care health services have national standards following The Youth Care Health Service Program guidelines. the following are the criteria for health facilities or public health centres.

1) Based on the results of the interview, there is only one Puskesmas with a psychologist, namely the Kalumpang Health Center which has implemented and carried out the provision of counselling services for adolescents who need counselling through the Psychology Poly with a person to person system, this is certainly very good because the role of psychologists is very important, according to (Agustini and Arsani, 2013)

To realize healthy adolescents, both physical and psychological attention is balanced. At least every public health centre that has The Youth Care Health Service Program should provide a psychologist and enter into a psychologist poly as stated in the study (Avilla, 2019) The Youth Care Health Service Program at the Dupak Public health centre is included in the Psychology Poly.

> *"Adolescents who want to consult at the psychological poly-clinic are carried out according to the schedule of the Public Health Center itself with predetermined hours so that teenagers do not get bored quickly and still feel comfortable and safe following the purpose of establishing The Youth Care Health Service Program, so try to have a place especially, although not in all public health centres".*

2) Conduct coaching at least one public school or religion-based school in one year. The guidance is to carry out Communication, Information And Education at least twice a year. The implementation of the Public health centre in Ternate City does not yet have a target school in the working area of each Public Health Center.

The results of the interview, namely that Communication, Information And Education were indeed carried out but not specifically in The Youth Care Health Service Program activities but integrated with other activities in the Public health centre. This is certainly a serious concern because the Communication, Information And Education program should be integrated with The Youth Care Health Service Program as stated in the Guidelines for Planning the Establishment and Development of a Public health centre The Youth Care Health Service Program (2008) which states that one of the services the minimum that must be owned by the public health centre The Youth Care Health Service Program is to carry out Communication, Information And Education activities (Anisah, 2020).

Communication, Information and Education are also not carried out at the regional public health centre in this study. (Sukaedah & Suhartini, 2017). 3)Train peer counsellors in schools; a minimum of 10% of the total number of students in the target schools. The implementation in Ternate City has implemented peer counsellors, but its implementation,

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.14

was combined during training activities for adolescent health cadres, this was carried out by the Ternate City Health Office because it wanted to try to continue to hold peer counsellor training and was carried out in 2017. In principle, peer counsellor training should be carried out by the program section of The Youth Care Health Service Program and included in THE Youth Care Health Service Program activities, this is as described in the study (Sari et al., 2017; Dewi et al., 2020).

Once the large role of peer counsellors should make this program a priority, several studies have shown that it is effective as an effort to stop smoking behaviour (Kurwiyah, 2019), problem solver (Astiti, 2019), guider (Prasanti and Pebriani, 2018), improve discipline (Widayat, 2016), prevent pregnancy in adolescents (Adyani et al., 2019), reduce and solve learning problems within the scope of boarding school (Hotifah, 2014).

3. Evaluation of the Implementation of The Youth Care Health Service Program based on the 2014 National Standard The Youth Care Health Service Program

Evaluation of the implementation of The Youth Care Health Service Program based on the 2014 National Standards published by the Ministry of the Republic of Indonesia, by looking at the standard achievements of the implementation of The Youth Care Health Service Program or activities at the Public health centre level. The Youth Care Health Service Program's National Standard regulates 5 aspects. The results of observations and interviews with related officers are described as follows:

a. Health Human Resources

Officer Knowledge and Competence; The public health centre in Ternate City has formed The Youth Care Health Service Program team located at each head of the Public health centre.

b. Medical facility

Service Packages; Public health centres have provided promotive, preventive, curative, and rehabilitative service packages. Procedure, Procedure and Service Flow. Public health centres have their procedures, and service flows, especially in buildings because they are intended to maintain confidentiality, privacy, convenience, and speed.

c. Adolescent

Communication, Information And Education Activities; Communication, Information And Education activities have not been fully organized both outside and inside the building following the needs of adolescents, namely following the service package according to the standard guidelines of The Youth Care Health Service Program 2014.

d. Network

Stakeholder Mapping; The public health centre has carried out activities in the field of adolescent health in the Kalumpang Public Health Center area by involving the National Narcotics Agency of North Maluku Province as a speaker. For other cross-sectors, it has not run optimally

Youth Participation; Youth participation is still limited to determining the schedule of activities and has had discussions that have helped the

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.14

overall planning process of The Youth Care Health Service Program itself but not in the last one year period. This is based on the results of the interview with Mrs Safitry's statement which can be shown from the following statement,

> "*Ternate City Office, this year has never involved youth in planning, implementation, or mone activities, but in 2017 held youth counsellor training and asked for input related to The Youth Care Health Service Program.*"

e. Health management

Advocacy; Until now, the Health Office has never conducted advocacy to various cross-sectoral and cross-programme stakeholders needed for youth health programs.

Recording and Reporting and Referral System; all guidelines from advocacy to recording reports use internal guidelines, in these internal guidelines the format for recording and reporting is written and the format used in recording and reporting. The results of recording reports are submitted every month to a higher level.

Youth care health service activities are only carried out in 9 health centres out of a total of 12 health centres, by conducting health promotions, both inside and outside the building. The activities of health care services for adolescents are classified as individual health efforts with counselling and community health activities by establishing an integrated health centre for adolescents. The Puskesmas has also used the 2014 National Standard for Adolescent Health Services as a guideline for the implementation of the Adolescent Health Service Program, but in practice, some implementations have not been maximized due to several factors. These factors are that not all activities can attract youth as a whole, partners are not maximized by adding cooperation from parties (non-government organization, health Corporate Social Responsibility) that can support and strengthen the activities of the Youth Care Health Service Program.

AUTHOR CONTRIBUTION

Muhlisa and Hetty Astri builds concepts, designs, and searches for literature searches, data collection, manuscript review, and manuscript finalization.

FUNDING AND SPONSORSHIP

No Financial Support and Sponsorship in this research.

ACKNOWLEDGEMENT

The auhor thanks the public health centre and the Health office of the city of Ternate for being ready to share data.

CONFLICT OF INTEREST

Muhlisa declares that there is no conflict of interest

REFERENCES

Adyani SAM, Muflih M, Syafitri EN (2019). Kerentanan Kehamilan Remaja Dan Konseling Sebaya: Tinjauan Teori', Jurnal Keperawatan Respati Yogyakarta. 6(1): 552. Doi: 10.35842/Jkry.-V6i1.300.

Afrianti N, Tahlil T, Mudatsir (2017). Analisis Implementasi Program

Pelayanan Kesehatan Peduli Remaja (PKPR). Jurnal Ilmu Keperawatan. 5(2): 11. Available At: Http://Jurnal.Unsyiah.-Ac.Id/Jik/Article/View/10544/8319.

Agustini NNM, Arsani NLKA (2013). Remaja Sehat Melalui Pelayanan Kesehatan Peduli Remaja Di Tingkat Puskesmas. Jurnal Kesehatan Masyarakat. 9(1): 66–73.

Anisah SN (2020). Program Pelayanan Kesehatan Peduli Remaja Di Puskesmas. Journal Of Public Health Research And Development (Higeia). 4(4): 846-854.

Apsari AR, Purnamasari SE (2018). Hubungan Antara Konformitas Dengan Perilaku Seksual Pranikah Pada Remaja. Insight: Jurnal Ilmiah Psikologi. 19(1): 1. Doi: 10.26486/Psikologi.V19i1.-596.

Arsani N, Luh KA (2013). Peranan rogram PKPR (Pelayanan Kesehatan Peduli Remaja) Terhadap Kesehatan Reproduksi Remaja Di Kecamatan Buleleng. Jurnal Ilmu Sosial Dan Humaniora, 2(1);129–137.

Astiti SP (2019). Efektivitas Konseling Sebaya (Peer Counseling) Dalam Menuntaskan Masalah Siswa. Ijip: Indonesian Journal Of Islamic Psychology. 1(2): 243–263. Doi: 10.18326/Ijip.V1i2.243-263.

Avilla T (2019). Gambaran Pelaksanaan Pelayanan Kesehatan Peduli Remaja (Pkpr) Di Puskesmas Dupak Surabaya. Jurnal Promkes. 7(1);78. Doi: 10.20473/Jpk.-V7.I1.2019.78-87.

Dewi PS, Nugrahaning, Shaluhiyah Z. Suryawati C (2020). Analisis Implementasi Pelayanan Kesehatan Peduli Remaja (Pkpr) Di Puskesmas. Jurnal Kesmas (Kesehatan Masyarakat) Khatulistiwa. 7(3): 98. Doi: 10.29406/-Jkmk.V7i3.2146.

Effendy N (1998). Keperawatan Kesehatan Masyarakat. Kedua. Jakarta: Egc.

Helda, Muchlisa N (2021). Attitudes concerning sexual behavior towards risky sexual behavior of sexual transmitted infections among male adolescents in Indonesia. National Public Health Journal, 16(2): 131–136. Doi: 10.21109/Kesmas.V16i2.4-845.

Hotifah Y (2014). Empowering Santri Dalam Mengatasi Permasalahan Pembelajaran Di Pesantren Melalui Model Peer Helping Berbasis Kearifan Lokal Pesantren. Jurnal Personifikasi. 5(1): 19–42.

Irsandef AB, Taufik T Netrawati N (2018). Profile of emotional intelligence and spiritual intelligence of adolescents from divorced families. Jurnal Penelitian Pendidikan Indonesia. 4(2): 84. Doi: 10.29210/0201-8241.

Juliyatmi RH, Sudargo T Ismail D (2018). Usia pubertas dan citra tubuh terhadap perilaku seksual pranikah pada remaja putri di Yogyakarta. Berita Kedokteran Masyarakat. 34(3): 115. Doi: 10.22146/Bkm.33801.

Karina CAl, Sandra C Herawati YT (2020). Faktor Yang Mempengaruhi Pemanfaatan Pelayanan

Kesehatan Peduli Remaja (PKPR) Oleh Remaja Sekolah Di Wilayah Kerja Puskesmas Bondowoso. Pustaka Kesehatan. 8(2): 93. Doi: 10.19184/Pk.V8-i2.15812.

Kemenkes RI (2012) Profil Kesehatan Indonesia 2011.

Kementrian Kesehatan Republik Indonesia (2016). Profil Kesehatan Indonesia. Kementrian Kesehatan Indonesia.

Kurwiyah N (2019). Peran Konselor sebaya terhadap upaya berhenti merokok di SMP 219 Jakarta. Indonesian Journal Of Nursing Sciences And Practice. 27–33. Available At: Https://Jurnal.-Umj.Ac.Id/Index.Php/Ijnsp/Article/View/4263.

Laili AN, Riyanti E, Bm S (2019) 'Faktor-Faktor Yang Berhubungan Dengan Praktik Pemanfaatan Pelayanan Kesehatan Peduli Remaja (Pkpr) Oleh Remaja di Wilayah Kerja Puskesmas Bandarharjo Kota Semarang. Jurnal Kesehatan Masyarakat (E-Journal). 7(1): 421–429.

Lubis R, Hindaun RZ, Jatnika R, Agustiani H (2021). Predictors of early sexual intercourse on middle adolescents in Medan. Humanitas: Indonesian Psychological Journal. 18(2): 112. Doi: 10.26555/Humanitas.V18i2.19009.

Mulya AP, Lukman M, Yani DI (2020). Correlation of media and parents role to adolescent sexual behavior in Sma Bandung. Jnc. 3(3): 191–198.

Muthmainnah (2013). Analisis Stakeholder Remaja Terhadap Implementasi Program Pelayanan Kesehatan Peduli Remaja (Pkpr) Di Kota Semarang. Jurnal Promkes. 1(2): 170–183.

Ningsih FPE (2018). Pencapaian Standar Nasional Pelayanan Kesehatan Peduli Remaja. Jurnal Administrasi Kesehatan Indonesia. 6(1).40–45.

O'dwyer MCT, Dune T, Bidewell J, Liamputtong P (2019). Critiquing The Health Belief Model And Sexual Risk Behaviours Among Adolescents: A Narrative Review Of Familial And Peer Influence. International Journal of Social Science Studies. 7(6): 62. Doi: 10.11114/Ijsss.V7i6.-4518.

Onu (2015) World Population Prospects 2015 - Data Booklet. Available At:Http://Www.Un.-Org/Esa/Population/Publications/Wpp2004/2004highlights_Finalrevised.Pdf.

Prasanti D Pebriani LV (2018). Sahabat Sebagai Konselor Sebaya Dalam Komunikasi Konseling Bagi Remaja Perempuan Urban. Munikasi Hasil Pemikiran Dan Penelitian, 4(2);1–10.

Rahmah R, Aan W (2017). Attitude and behavior sexual among adolescents in Yogyakarta. Indonesian Journal Of Nursing Practices. 1(2); 64–68. Doi: 10.18196-/Ijnp.1262.

Rajab W (2009). Epidemiologi Untuk Mahasiswa Kebidanan. Pertama. Jakarta: Egc.

Sari ND, Musthofa SB, Widjanarko B (2017). Hubungan Partisipasi

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.14

Remaja Dalam Kegiatan Pelayanan Kesehatan Peduli Remaja (PKPR) Dengan Pengetahuan Dan Persepsi Mengenai Kesehatan Reproduksi Di Sekolah Menengah Pertama Wilayah Kerja Puskesmas Lebdosari. Jurnal Kesehatan Masyarakat (E-Journal). 5(5); 1072–1080.

Sukaedah E, Suhartini S (2017). Analisis Penerapan Standar Nasional Pelayanan Kesehatan Peduli Remaja (PKPR) Pada Puskesmas Pkpr Di Kabupaten Lebak Tahun 2016. Jurnal Medikes (Media Informasi Kesehatan). 4(1);23–33. Doi: 10.36743/Medikes.-V4i1.67.

Sulastri E, Astuti DP, Handyani EW (2019). Pembentukan Posyandu Remaja Desa Madureso Kecamatan Kuwarasan Kabupaten Kebumen. In Urecol. 130–133.

Widayat DP (2016). Debora Primawati Widayat Program Pascasarjana. Universitas Negeri Malang. Jurnal Konseling Indonesia. 3(1): 1–15.

World Health Organization (2015) Adolescent Development: Topics At Glance.

NURSE AUTHORITY IN INVASIVE CARE AT THE PRIVATE NURSING CLINIC, SURAKARTA

Aris Prio Agus Santoso[1)], Musta'in[2)], Endrat Kartiko Utomo[2)], Aknes Galih Sumirat[1)]

[1)]Faculty of Law and Business, Universitas Duta Bangsa Surakarta
[2)]Faculty of Health Sciences, Universitas Duta Bangsa Surakarta

ABSTRACT

Background: Professional authority encompasses the power, relative autonomy, intellectual and political influence and respect that we as professional nurses are accorded within health care systems and society at-large because we provide our distinctive service very well. Nurses' accountability - our being answerable - to individuals, families and communities in relation to the profession's social mandate by which we are obligated to provide a particular public service. This study aimed to investigate nurse authority in invasive care at the private nursing clinic, Surakarta.
Subjects and Method: This was a normative-sociological juridical qualitative study with a descriptive design. The study was conducted in Surakarta, Central Java, Indonesia from July to September 2021. The number of samples in this study was seven respondents throughout Surakarta City. The key informants were 7 nurses. They were selected by purposive sampling. The data were collected by in-depth interview, document review, and observation. The data were analyzed by triangulation.
Results: There is the principle of lex superior derogate legi inferior in nursing law. The law no. 36/2009 should take precedence over the Minister of Health Regulation No. 26/2009. There is no regulation regarding the prohibition of nurses from performing invasive actions, thus giving rise to the growth of the principle of legality (nullum delictum nulla poena sine praevia lege poenali) in nursing services.
Conclusion: There is a low nurse's authority in carrying out invasive procedures.

Keywords: nurse authority, invasive action, independent nursing practice

Correspondence:
Aris Prio Agus Santoso. Duta Bangsa University. Bhayangkara Tipes, Serengan, Surakarta 57154, Central Java, Indonesia. Email: Arisprio santoso@udb.ac.id. Mobile: 081335096775.

BACKGROUND

The Indonesian constitution has guaranteed health insurance for its citizens, as embodied in Article 28H paragraph (1) of the 1945 Constitution of the Republic of Indonesia. This means that the Government has the responsibility to pay attention to and provide guarantees in accordance with the constitutional mandate, because Indonesian citizens have the same rights in eyes of law in accordance with the Concept of Human Rights. In order to achieve the national goals as stated in the 1945 Constitution of the Republic of Indonesia, a sustainable development effort is carried out which is a comprehensive, directed and integrated series of development, including health development. Health development is one of the elements of general welfare that must be realized by the government in accordance with the ideals of the Indonesian nation as referred to in the 1945 Constitution of

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.15

the Republic of Indonesia, namely to fortify the entire Indonesian nation and the entire homeland of Indonesia and to improve general welfare, educate the nation's life and participate in implementing world order based on freedom, lasting peace and social justice.

One of the efforts to realize Health Development in the community is to organize Individual Health Efforts (UKP). This UKP service to the community has been developed by professional organizations including the nursing profession which aims to find solutions to health problems that often occur in the community. UKP services in the form of independent nurse practice must be able to provide health services to the community in accordance with the authority of a professional nurse. Nursing services are in the form of comprehensive or holistic bio-psycho-socio-spiritual services aimed at individuals, families, and communities, both sick and healthy, covering all processes of human life.

The form of service that can be provided by nurses to the community is in the form of preventive, promotive, curative and rehabilitative services. Forms of preventive and promotive services are such as early detection and identification of risk factors for the occurrence of a disease in individuals or families and communities, as well as providing education or counseling and counseling to individuals, families or communities who are at risk or have experienced illness.

Based on the Central Regional Commission II National Working Meeting on the Healthy Paradigm of Promotive and Preventive Efforts in Disease Control and Environmental Health, it was stated that one of the focal points in the 2015-2019 RPJMN was the increase in promotive and preventive efforts by health workers. This is due to the high mortality and morbidity rates in Indonesia, which shows that promotive and preventive efforts are not yet optimal, and still places more emphasis on curative aspects. With the presence of independent nursing practice, preventive and promotive efforts can be used as a solution to overcome various health problems that exist in the community.

Reflecting on the rampant medical malpractice carried out by nurses, which is caused, among other things, by the absence of strict regulations from the Government. Especially the lack of supervision of independent nursing practice, plus the absence of regulations that clearly describe what things are allowed or prohibited in independent nursing practice, thus making nurses perform several nursing actions in the form of invasive actions which are considered very risky, especially if they are carried out independently without supervision from a doctor. In fact, the nurse's authority is the authority to carry out nursing care actions, while the authority to carry out medical actions is only obtained if there is a delegation of authority from the doctor.

Article 1 Permenkes No. 290/ Menkes/Per/III/2008 states that an invasive procedure is a medical action that can directly affect the integrity of the patient's body tissues. It is very possible that invasive measures, such as; injection, circumcision, and so on

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.15

which are carried out by nurses are medical actions and are the authority of doctors. This is where there is a legal dilemma in the health sector, plus there are not yet available instructions or regulations regarding the types of medical actions that can be performed by nurses in independent nursing practice, which often causes overlapping of nursing care tasks and tasks that are delegated from the doctor's authority.

SUBJECTS AND METHOD

1. Subjects and Method

Descriptive research was conducted using normative juridical and sociological juridical approaches. The study variable is the nurse's authority in invasive actions. The nurse's authority is the ability and competence to provide nursing care, counseling and counselors for clients, manage nursing services, research nursing, carry out tasks based on delegation of authority, and carry out tasks under certain limitations. Data collection techniques in this study were carried out by collecting primary and secondary data. Primary data were obtained from literature review and also legislation or statutes of approach, while secondary data was obtained by purposive sampling technique on nurses who performed invasive actions in independent nursing practice through questionnaires. The population in this study were nurses in the city of Surakarta, while the sample in this study were nurses who practiced independent nursing. The number of samples in this study were 7 respondents throughout the city of Surakarta. The object of this research is an invasive action that has been carried out in independent nursing practice. This research was conducted in Surakarta City for a period of three months starting from July 2021 to September 2021. The data analysis technique in this study was a qualitative analysis technique which was carried out to answer problems regarding the authority of nurses in carrying out invasive actions in independent nursing practice in terms of state administrative law.

2. Population and Sample

The population in this study were nurses in the city of Surakarta as many as 5370 people, while the sample in this study were nurses who practiced independent nursing. The number of samples in this study were 7 respondents throughout the city of Surakarta. The object of this research is an invasive action that has been carried out in independent nursing practice.

3. Study Instruments

The data collection instruments in this study were questionnaires, interviews, and observations.

4. Data analysis

The data analysis technique in this study is a qualitative analysis technique, to answer the problem of the nurse's authority in carrying out invasive actions in independent nursing practice in terms of state administrative law.

5. Research Ethics

The ethics of this research include informed consent, anonymity, confidentiality, and voluntary principles which are carried out in the field.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.15

RESULTS

Data obtained from the Health Human Resources Information of the PPSDM Agency of the Ministry of Health of the Republic of Indonesia As of December 31, 2020, the number of nurses in Central Java Province was 5370 people. In Surakarta, the number of nurses was 853 people as of December 31, 2020. Meanwhile, the data on nurses who practice Independent Nursing is only 7 people in the data held by the Surakarta City Health Office related to the independent practice licensing process that was issued. The data obtained is reinforced by the statement of Yuli Muhammad Kartiko who said that the nurses in the city of Surakarta mostly practice independent outside the city of Surakarta, such as in Karanganyar, Boyolali, Sragen, and Sukoharjo, so for exact data from the PPNI DPD of Surakarta itself doesn't know it yet.

Table 1. Nursing Certificate Type

Type	Available (%)	Unavailable (%)
Ownership of D3/S1 Nursing Certificate	100%	-
Possession of Competency Certificate (Wound Care, Cupping, Circumcision)	100%	-

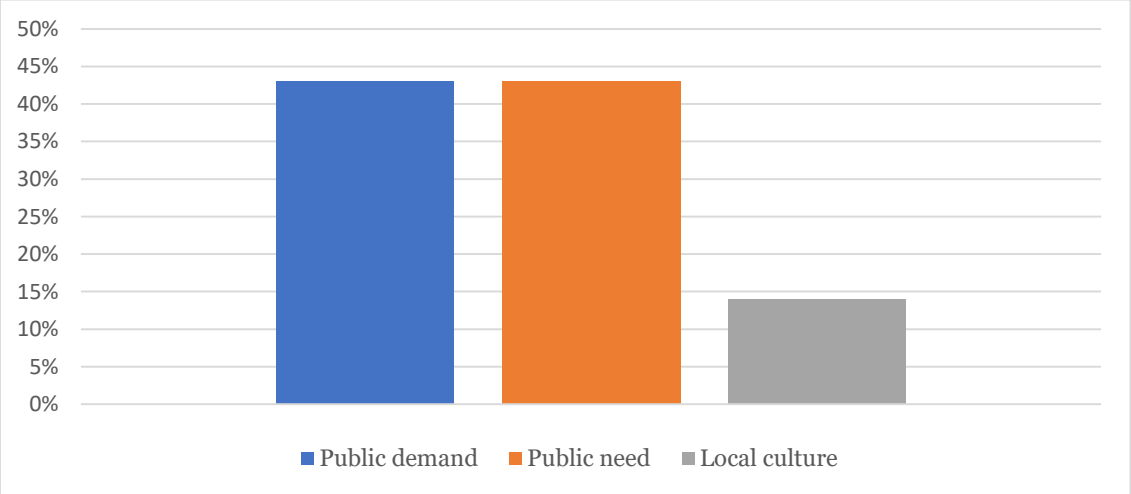


Figure 1. Reasons for Nurses Performing Invasive Actions

Table 2. Types of Invasive Actions Performed by Nurses

Invasive Action	Injection	Circum-cision	Cupping	Acupunc-ture	Infusion Installation	Necro-tomy
Nurse 1	√	√	√		√	√
Nurse 2	√					√
Nurse 3	√	√			√	√
Nurse 4	√					√
Nurse 5	√	√			√	√
Nurse 6	√					√
Nurse 7	√				√	√

DISCUSSION

Authority (authority, gezag) is formalized power both over a certain group of people, as well as power over a certain area of government unanimously originating from legislative

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.15

power or from government power, while authority (competence, *bevoegdheid*) only concerns certain parts or certain fields. just. So authority is a collection of powers. Authority is the ability to carry out a public legal action or juridically, authority is the ability to act given by the applicable law to carry out legal relations. Whereas power itself is the ability to, in a social relationship, carry out one's own will despite resistance and whatever the basis of this ability (*macht beduetet jede chance innerhalb einer soziale beziehung den eigenen willen durchzusetchen auch gegen widerstreben durchzustzen, gleichviel worauf diese chance beruht*) (de Raeve, 2002).

Authority is the power obtained by legal subjects on the basis of the ability they have to carry out such an authority, while the ability itself is closely related to competence. A person is called competent if he or she already has the skills to work in a particular field. From this point of view, competence is also defined as something that describes a person's qualifications or abilities, both qualitatively and quantitatively. Competencies are obtained from (1) formal education and (2) non-formal education (training, inheritance, and tradition).

Permenkes No. 26/2019 concerning Implementing Regulations of Law No. 38/2014 on Nursing explains the authority of nurses, namely (1) providing nursing care, (2) providing counseling and counseling, (3) managing nursing services, and nursing researchers.

Delegation of authority to perform medical actions from doctors can be in the form of delegation of delegated authority or mandate. The delegation of authority is mandated by medical personnel to nurses to perform a medical action under the supervision of medical personnel who delegate authority. Meanwhile, the delegated delegation of authority to carry out a medical action is given by medical personnel to nurses accompanied by the delegation of responsibilities.

Types of medical action in the delegation of authority by mandate include:

1) Provide parenteral therapy;
2) suturing the wound; and
3) Other medical actions in accordance with the competence of the nurse.

Types of medical action in the delegation of authority in a delegative manner include:

1) Install infusion;
2) Inject;
3) Basic immunizations; and
4) Other medical actions carried out in accordance with the competence of the nurse.

From the results and discussion above, it can be concluded that nurses have the authority to carry out invasive actions as long as these actions are used as alternative methods / choices that are incidental. The nurse's authority in carrying out invasive procedures is very limited, it can only be done if they have competence in the field of action. What has been done by the nurse aims to prevent complications and unwanted things from the patient being treated.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.15

The situation of overmacht coupled with requests from patients/ families themselves creates a law of engagement which gives birth to the authority to take invasive actions. Besides that, what the nurse did was an attributive order from Law no. 36/ 2009 concerning Health, which states that every person who does self-practice medicine is obliged to realize, maintain, and improve the health status of the community. This triggers the attachment of the principle of lex superior derogate legi inferior to nursing law, which means that Law no. 36/2009 must take precedence over the Permenkes No. 26/2009. In addition, there are no regulations regarding the prohibition of nurses from performing invasive actions, which has led to the growth of the principle of legality (nullum delictum nulla poena sine praevia lege poenali) in this type of nursing service.

FUNDING AND SPONSORSHIP

This International Proceedings article received a grant and full support from the Deputy for Strengthening Research and Development, Ministry of Education, Culture, Research and Technology in the amount of Rp. 19,700,000 which was maximized to complete research with the title "juridical analysis of invasive actions by nurses in independent nursing practice".

ACKNOWLEDGEMENT

The author would like to thank the Deputy for Strengthening Research and Development, Ministry of Education, Culture, Research and Technology for providing the Beginner Lecturer Research Grant. Hopefully in the next opportunity the author can be given the trust again to continue this research.

The author also expresses his gratitude to Universitas Duta Bangsa Surakarta for helping and guiding the author to be able to access the Beginner Lecturer Research Grant from the Ministry of Education, Culture, Research and Technology.

CONFLICT OF INTEREST

The research output in the form of international proceedings is in accordance with the requirements that must be met according to the expectations of the Deputy for Research and Development Strengthening, Ministry of Education, Culture, Research and Technology and has been supported by a good and correct process during research. In addition, the researcher states that there are no political and social personal interests that can affect the overall objectivity of this research.

REFERENCES

A'an E, Freddy P (2017). Hukum Administrasi (Administrative Law), Jakarta: Sinar Grafika.

BPPSDMK (2021). Data Tenaga Kesehatan di Indonesia (Data on Health Workers in Indonesia). http://bppsdmk.kemkes.go.id/info_sdmk/info/.

de Raeve L (2002). Medical authority and nursing integrity. J Med Ethics. 28(6). http://dx.doi.org-/10.1136/jme.28.6.353.

Gerardus G, Prio AS (2021). Analisis Yuridis Kewenangan Perawat dalam Pengobatan Bekam Pada Praktik Keperawatan Mandiri

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.15

(Juridical Analysis of Nurse Authority in Cupping Treatment in Independent Nursing Practice). 5(3): 348-356. http://dx.doi.org/10.36312/jisip.v5i3.2151

Gerardus G (2021). Perlindungan Hukum Tenaga Kesehatan Di Masa Pandemi Covid-19 (Legal Protection for Health Workers During the Covid-19 Pandemic). Jurnal Ilmiah Ilmu Hukum QISTIE. 14(2): 28-42. http://dx.doi.org/10.31942/jqi.v14i2.5589.

Hapsara HR (2016). Penguatan Upaya Kesehatan Masyarakat dan Pemberdayaan Masyarakat Bidang Kesehatan di Indonesia (Strengthening Public Health Efforts and Community Empowerment in the Health Sector in Indonesia), Yogyakarta: Gadjah Mada University Press.

Marbun (2012). Hukum Administrasi Negara I (State Administrative Law I), Yogyakrta: FH. UII Press.

Marbun (2015). Peradilan Administrasi Negara dan Upaya Administratif di Indonesia (State Administrative Courts and Administrative Efforts in Indonesia), Yogyakarta: UII Press.

Miriam B (2008). Dasar-Dasar Ilmu Politik (Political Science Fundamentals), Jakarta: Gramedia Pustaka Utama.

Nomensen S (2016). Hukum Administrasi Negara (State Administrative Law), Jakarta: Jala Pertama Aksara.

Nurcahyati, et al. (2017). Praktik Mandiri Perawat Sebagai Alternatif Solusi Masalah Kesehatan (Nurses' Independent Practice as an Alternative Solution to Health Problems) https://www.kompasiana.com/tridi8789/58d0eb8c357b6133199f9cea/praktik-mandiri-perawat-sebagai-alternatif-solusi-masalah-kesehatan-anda-sudahkah-anda-tau.

Peter MM (2015). Pengantar Ilmu Hukum (Introduction to Law), Jakarta: Prenadamedia Group.

Prio AS, Tatiana SW (2020). Juridical analysis of nurse authority in granting of red label drugs in the independent nursing practice. SOEPRA, 6(1): 70-80. https://doi.org/10.24167/shk.v6i1.2603

Prio AS (2020). Pengantar Hukum Administrasi Negara (Introduction to State Administrative Law), Yogyakarta: Pustaka Baru Press.

Prio AS (2020). Hukum Kesehatan (Suatu Pengantar Bagi Program Studi Sarjana Hukum) (Health Law (An Introduction to the Law Degree Study Program)), Yogyakarta: Pustaka Baru Press.

Prio AS (2022). Analisis Yuridis Tindakan Invasif Oleh Perawat Pada Praktik Keperawatan Mandiri (Juridical Analysis of Invasive Actions by Nurses in Independent Nursing Practice). Jurnal Delima Harapan, 9 (1). 37-50. https://doi.org/10.31935/delima.v9i1.149

Prio AS, et al. (2022). Kajian Yuridis Tindakan Circumsisi Oleh Perawat Pada Praktik Keperawatan Mandiri (Studi Kabupaten Sidoarjo) (Juridical Study of Circumcision Actions by Nurses in Independent Nursing Practice (Sidoarjo District Study)). Jurnal

Ilmu Sosial dan Pendidikan. 6(2): 3611-3625. http://dx.doi.-org/10.36312/jisip.v6i2.2816.

Ridwan HR (2003). Hukum Administrasi Negara (State Administrative Law), Yogyakarta: UII Press.

Peraturan Menteri Kesehatan Nomor 290/Menkes/Per/III/2008 tentang Persetujuan Tindakan Kedokteran.

Peraturan Menteri Kesehatan Nomor 26 Tahun 2019 tentang Peraturan Pelaksanaan Undang-Undang Nomor 38 Tahun 2014 Tentang Keperawatan.

Undang-Undang Nomor 36 Tahun 2009 Tentang Kesehatan.

Undang-Undang Nomor 36 Tahun 2014 tentang Tenaga Kesehatan.

Undang-Undang Nomor 38 Tahun 2014 tentang Keperawatan.

Sahya A (2018). Hukum Administrasi Negara (State Administrative Law), Bandung: Pustaka Setia.

Sukendar et al. (2021). Juridical Review of Nurse's Legal Responsibility for Patient Safety in Self Nursing Practice. UNIFIKASI: Jurnal Ilmu Hukum, 8(2): 167-175. https://doi.org/10.25134/-unifikasi.v8i2.2693

Sigalingging YE, Santoso APA (2021). Analisis Yuridis Pengaturan Sanksi Bagi Penolak Vaksinasi Covid-19. Juridical Analysis of Sanctions for Refusal of Covid-19 Vaccination JISIP. 5(3): 478-485. http://dx.doi.org/10.3631-2/jisip.v5i3.2192.

FACTORS AFFECTING THE USE OF PAPSMEAR AMONG FEMALE PARTICIPANTS OF THE NATIONAL HEALTH INSURANCE PROGRAM IN CENTRAL TAPANULI, NORTH SUMATERA

Minton Manalu, Alinda Sriwahyuni, Agustina Simamora

Masters Program, School of Health Sciences Deli Husada, North Sumatera

ABSTRACT

Background: A pap smear is a quick and simple method of cervical screening to detect change in the cervix that may lead to cervical cancer in women. Using the pap smear as a screening test to health detect any abnormal change earlier can have significant positive benefit on the patients, as treatment can be undertaken in the early stage of the conditions, which is more likely to be effective. This study aimed to examine factors affecting the use of pap smear among female participants of the national health insurance program in Central Tapanuli, North Sumatera.
Subjects and Method: This was an observational analytic study with cross-sectional design conducted at Pinangsori Community Health Center, Central Tapanuli, North Sumatera. A total of 196 housewives participating in the National Health Insurance (Jaminan Kesehatan Nasional) and visiting the community health center was selected for this study. The dependent variable was use of Pap smear. The independent variable included knowledge, attitude, and family income. The data were analyzed using multiple logistic regression.
Results: The likelihood of using Pap smear increased with better knowledge (OR= 24.06; 95% CI= 4.22 to 28.42; p=0.003), positive attitude (OR= 29.37; 95%CI= 6.45 to 316.44; p= 0.001), and higher family income (OR=9.35; CI= 0.82 to 1.64; p= 0.001).
Conclusion: The likelihood of using Pap smear increases with better knowledge positive attitude, and higher family income.

Keywords: national health insurance, cervical cancer, pap smear, housewife

Corespondence:
Minton Manalu. Masters Program. School of Health Sciences Deli Husada. Jl. Besar Delitua No.77, Deli Tua, North Sumatera. Email: mintonmaju@gamil.com. Mobile phone: +6281260824558.

BACKGROUND

Maternal and Child Mortality Rates are two indicators of the Millennium Development of Goals (MDG's) that are directly related to women's reproductive health. Reproductive health problems faced by women at this time are increasing infections in the reproductive organs, which in turn causes cancer, one of which is cervical cancer which is the second leading cause of death in women. The number of sufferers in Indonesia is also quite high. Every day there are 40 new cases, 20 of them die. This means that every hour one woman dies of cervical cancer. Moreover, cervical cancer is usually not accompanied by special symptoms in its early stages, so that patients only feel sick if the cervical cancer they have has reached an advanced stage (Wijaya and Delia, 2010).

The World Health Organization (WHO) (2014) states that every year more than 270,000 women die from

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.16

cervical cancer, more than 85% of these deaths are in low- and middle-income countries or developing countries. More women die of cervical cancer in developing countries than in developed countries. Indonesia is in sixth place out of 50 countries in the world with the most deaths from cervical cancer, which is 7,493 people.

Cervical cancer screening is testing for pre-cancerous and women who are at risk of developing cancer, most of which occur without the onset of symptoms. At a minimum, screening is recommended for every woman aged 30-49 years at least once in her lifetime. Based on routine data from the Cancer Sub-Directorate of the Directorate of Non-Communicable Diseases, the Directorate General of Disease Control and Environmental Health, the Indonesian Ministry of Health, until 2013, the early detection program for cervical cancer and breast cancer was only held in 717 health centers out of a total of 9,422 health centers in 32 provinces.

A study by Darnindro (2007) in Klender Jakarta found that out of 107 respondents only 33.7% had a Pap smear and there was a significant relationship between the age of the respondent and the Pap smear. Knowledge, attitudes and behavior of married women about papsmer are still low. According to Candraningsih (2011) several factors hindered pap smear examination, including the behavior of housewives participating in the Social Security Administration for Health (BPJS) who were reluctant to be examined due to lack of knowledge about pap smears, shyness and fear of examining cervical reproductive organs to health workers, the cost factor, especially for the weak economic group, sources of information and facilities or health services that are still minimal to carry out a pap smear examination.

There are still housewives who do not do pap smears and it is also found that housewives do not know about pap smears, so the researcher wants to know what factors are related to pap smear examinations on housewives participating in the Social Security Administering Body (BPJS) Health Health in the working area of the Puskesmas Pinangsori, Pinangsori District, Central Tapanuli Regency in 2016.

This study aims to determine the factors related to Pap smear examination on housewives participating in the Social Security Administering Body (BPJS) for Health in the work area of the Pinangsori Health Center, Pinangsori District, Central Tapanuli Regency in 2016.

SUBJECTS AND METHOD

1. Study design

This was an analytical observational study with a cross sectional design.

2. Population and sample

The population in this study were all housewives in the working area of the Pinangsori Health Center (*Puskesmas*), Pinangsori District, Central Tapanuli Regency and who had visited the Puskesmas. The sample selection method in this study was purposive sampling, namely housewives aged 35 to 60 years, willing to become respondents, and become participants of the Health Social Security Administration (BPJS), data analysis using univariate, bivariate and multivariate analysis.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.16

RESULTS

Table 1 characteristics of respondents

Characteristics	(N)	(%)
Age		
35-49 years	190	97
50-60 years	6	3
Education		
Low (<senior high school)	181	92.3
High (college)	15	7.7
Occupation		
Working	33	16.8
Unemployed	163	83.2
Income		
<Rp 2,500,000	48	24.5
>Rp 2,500,000	148	75.5
Parity		
Primi gravida	0	0
Multi gravida	181	92.3
Grande multi gravida	15	7.7
Age when married		
Risky (< 20 years or > 35 years)	29	14.8
Not risky (20-35 years)	167	85.2

Table 2. Frequency distribution of knowledge, attitude, and behavior on pap smear examination

Variable	n	%
Knowledge		
Good	135	68.9
Poor	61	31.1
Attitude		
Positive	135	68.9
Negative	61	31.1
Behavior		
Yes	101	51.5
No	95	48.5

1. Univariate Analysis

The results showed that the majority of respondents had good knowledge about pap smear examination in the work area of the Pinangsori Public Health Center, Pinangsori District, Central Tapanuli Regency in 2016 the majority of respondents had good knowledge, the attitude of respondents about Pap smear examination in the work area of the Pinangsori Public Health Center, Pinangsori District, Central Tapanuli Regency in 2016 the majority had a positive attitude, the act of Pap smear examination in the area The work of the Pinangsori Health Center, Pinangsori District, Central Tapanuli Regency in 2016 the majority of them carried out inspections.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.16

Table 3 Relationships of age, education, occupation, income, parity, age of marriage, knowledge, and attitude and Pap smears uptake

Variable	Pap Smear				RP	95% CI		p
	Yes		No			Lower limit	Upper limit	
	n	%	n	%				
Age (year)								
30-40	19	54.3	16	45.7	1.25	0.82	1.89	0.317
41-50	102	63.4	59	36.6				
Education								
High	91	61.9	56	38.1	1.01	0.76	1.45	0.932
Low	30	61.2	19	38.8				
Occupation								
Working	23	69.7	10	30.3	1.16	0.89	1.50	0.302
Unemployed	98	60.1	65	39.9				
Income								
>Rp 2,500,000	97	91.5	9	8,5	3.43	2.42	4.88	0.001
<Rp 2,500,000	24	26.7	66	73,3				
Parity								
Multi	80	55.2	65	44.8	2.29	1.28	4.10	0.001
Grande	41	80.4	10	19.6				
Age at married								
Not risky	67	58.8	47	41.2	1.21	0.83	1.18	0.314
Risky	54	65.9	28	34.1				
Knowledge								
Good	119	84.4	22	15.6	23.21	5.94	90.64	<0.001
Poor	2	3.6	53	96.4				
Behavior								
Positive	119	90.8	12	9.2	29.52	7.54	115.67	<0.001
Negative	2	3.1	63	96.9				

2. Bivariate Analysis

Table 3 showed that there is no relationships between age, education, occupation, parity, age at marriage, and income on the Pap smear examination. There was a relationships between knowledge and good behavior on Pap smear examination.

Table 4. Result of Multiple Logistics Regression

Variable	OR	95%CI		p
		Lower limit	Upper limit	
Attitude	171.43	22.89	1283.74	<0.001
Constant	0.002			<0.001

3. Multivariate Analysis

Table 4 showed that positive attitude increased the likelihood of Pap smear uptake and it was statistically significant (OR= 171.43; p< 0.001).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.16

DISCUSSION

1. Relationship of Age and Pap Smear Uptake

The results of this study are not in accordance with Darnindro (2007) in Klender Jakarta, which found that out of 107 respondents only 33.7% had a pap smear and there was a significant relationship between the age of the respondent and the pap smear. Age affects the perception and mindset of a person. The older they get, the more their grasping power and mindset will develop, so that the knowledge they gain is getting better. At middle age, individuals will play a more active role in society and social life and make more preparations for the success of efforts to adapt to old age, in addition middle age people will spend more time reading. Intellectual abilities, problem solving, and verbal abilities are reported to have almost no decline at this age.

2. Relationship of Education and Pap Smear Uptake

The results of this study are not in accordance with the results of research conducted by Pratiwi (2015), regarding factors related to pap smear examination on women. Parity, as well as the relationship of external factors, namely health insurance, access to health services, husband's support, knowledge and attitudes.

Education is a process of changing attitudes and behavior of a person or group of people in an effort to mature humans through teaching and training efforts. Women's low education will complicate the process of teaching and providing information, so that knowledge about early detection of cervical cancer is also limited. Knowledge is very closely related to education where it is expected that someone with higher education will have wider knowledge. However, it should be emphasized that a person with low education does not mean absolutely low knowledge. Increased knowledge is not absolutely obtained in formal education, but can also be obtained in non-formal education, a person's knowledge with an object also contains two aspects, namely positive and negative. These two aspects will ultimately determine a person's attitude towards a particular object. The more positive aspects of an object that are known, the more positive attitudes towards the object will grow.

3. Relationship of Income and Pap Smear Uptake

Economic status is the level of family income per month. Economic status is closely related to work, family income, area of residence, living habits, and economic status is also closely related to psychological factors in society (Noor, 2008). Income is a measure that is often used to measure social economy among community. The better the condition of the community's economic status, the higher the percentage used for health services. Health survey data in 1992, showed that the average use of health services was associated with an increase in income, both for men and women.

4. Relationship of Parity and Pap Smear Uptake

Parity with the number of children more than two people or the delivery distance is too close has a risk of changes to abnormal cells in the cervix. If the number of children causes abnormal cell changes from the

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.16

epithelium of the cervix which can develop in malignancy.

5. Relationship of age at marriage and pap smear uptake

Married age less than 20 years has a greater risk of experiencing changes in cervical cells. This is because at a young age the uterine cells are still immature. So these cells are not susceptible to chemicals carried by sperm and all kinds of changes. If it is not mature, when there is stimulation, the cells that grow are not balanced with the dead cells, so that excess cells can turn into cancer cells.

6. Relationship of Knowledge and Pap Smear Uptake

The results of this study are in accordance with Trisnawati (2014) showed that knowledge (p= 0.005), attitude (p= 0.003), perceived benefit (p= 0.033) were correlated with pap semar uptake. Good knowledge greatly influences a person in taking health action. A person's actions are strongly influenced by knowledge or cognitive. A person's behavior will be more lasting and lasting if it is based on good knowledge.

The respondent's lack of knowledge is because housewives still lack information about pap smears and mothers still don't get counseling about pap smears and it is hoped that health workers and related agencies will improve further counseling to increase respondents' knowledge about papasmears.

7. Relationship of Attitude and Pap Smear Uptake

The results of this study are in accordance with the results of research conducted by Salmah (2012) regarding the dominant factors related to the behavior of the Pap smear examination in women of childbearing age, the behavior of the Pap smear examination in Wus at Graha Prima Housing, Bekasi Regency in 2010. The results showed a relationship which means by Pap smear examination on income, knowledge, attitudes and social support. The most dominant factor is social support.

REFERENCES

BPJS (2015) Badan Penyelenggara Jaminan Sosial (Social Security Administrator) From: www.bpjs-kesehatan.go.id.

Candraningsih (2011). Hubungan tingkat pengetahuan WUS tentang kanker serviks dengan praktik deteksi dini kanker serviks di BPS IS Manyaran Semarang [Relationships women of childbearing age level of knowledge about cervical cancer with cervical cancer early detection practices in BPS IS Manyaran Semarang. From http://ejournal.ac.id/index.php/ilmukeperawatan /search.

Damalia (2014) Jurnal Penelitian. Upaya Preventif Permasalahan Kesehatan Reproduksi Perempuan Lapas (Preventive Efforts on Women's Reproductive Health Problems in Prisons). http://ojs.akbidylpp.ac.id.

Departemen Kesehatan RI (2007). Petunjuk teknis pencegahan-deteksi dini kanker leher rahim dan kanker payudara (Technical guidelines for prevention-early detection of cervical cancer and

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.16

breast cancer). Jakarta: Departemen Kesehatan RI.

Dinkes Tapanuli Tengah (2016) Laporan PUS yang melakukan Papsmer

Eka P (2015) Faktor yang berhubungan dengan pemeriksaan papsmear pada ibu-ibu PKK Dusun Tajek Sleman (Factors related to Pap smear examination for PKK women in Tajek Sleman Hamlet) ejournal.litbang.depkes.go.id/-index.php

Fitria (2007) faktor yang berhubungan dengan papsmer (Pap smear-related factors) From Undip.-ac.id

HPV Information Center (2014) Human Papillomavirus and Related Disease Report: Indonesia. From: http://www.bpjs-kesehatan.go.id/bpjs/ dmdocuments.

Sjamsudin (2010) Cermin Dunia Kedokteran: pencegahan dan deteksi dini kanker serviks (Mirror of the World of Medicine: prevention and early detection of cervical cancer) From: http//www.kalbe.co.id.

Sukaca (2011). Pengetahuan ibu tentang kanker serviks (Mother's Knowledge About Cervical Cancer) From : eprints.undip.ac.id.

Twain (2009). Minat melakukan papsmer ditinjau dari persepsi tentang kesehatan (Interest in doing Papsmer in terms of Perceptions about Health). From: eprints. Unika.ac.id.

Wahidin (2014) Faktor Yang Mempengaruhi Peserta Bpjs Memeriksa Kesehatan (Factors Affecting BPJS Participants Check Health) From: etd.eprints.ums.-ac.id.

WHO (2014). Cancer cntrol knowledge into action From: http//www.e--jurnal.com.

Wijaya dan Delia (2010). Cegah Dan Deteksi Kanker Serviks (Prevent and Detect Cervical Cancer). Jakarta: Elex Media Komputindo.

Wulan (2010). Faktor-faktor yang ber hubungan dengan perilaku pemeriksaan pap smear pada wanita usia subur di Puskesmas Kecamatan Makasar (Factors relating to the behavior of pap smear examination in women of childbearing age at the Makassar District Health Center), From: http://ejournal.unud.ac.id.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.16

DIVERSITY OF MEDICAL TERMINOLOGY BASED ON SNOMED-CT TO SUPPORT THE ACCURACY OF COVID-19 DIAGNOSTIC CODE ON ICD-10

Dewi Lena Suryani, Filda Ernawati, Diana Barsasella

Department of Medical Record and Health Information, Health Polytechnics Ministry of Health Tasikmalaya, East Java

ABSTRACT

Background: As the global terminology for health, SNOMED CT serves a common language for recording, sharing, integrating, and analyzing COVID-19. The collection of coded COVID-19 related data can be critical for frontline service delivery, pandemic surveillance, and retrospective data analysis. The purpose of this study was to investigate diversity of medical terminology based on SNOMED-CT to support the accuracy of COVID-19 diagnostic code on ICD-10.
Subjects and Method: A systematic review was conducted using the PMC and Google Scholar databases and the following search criteria: COVID-19 AND SNOMED CT AND ICD-10. The inclusion criteria were signs, investigations, and comorbidities of COVID19. The Exclusion criteria were COVID 19 on ICD-10-CM.
Results: COVID-19 medical terminology concept on SNOMED-CT were: (1) fever in code 119751000146104 and (2) Dyspnea: code 119751000146107. But, it was not added to ICD-10. Real time polymerase chain reaction (RT-PCR) COVID-19 encoding on SNOMED-CT was 399150003, but there was no specific code found on ICD-9-CM. Chest CT-scan encoding on SNOMED-CT was 169069000. Diabetes mellitus comorbidity can be mapped on ICD-10 an its code on SNOMED-CT was 73211009. The coding of positive cases and suspected COVID-19 in Indonesia uses the ICD-10 version 2010, which should use the ICD-10 version 2016. Currrently the SNOMED-CT medical terminology is used as the medical billing terminology standard. An electronic health record is needed for clinical COVID-19 data, so that an Ontology of COVID-19 codes and standard terminology SNOMED-CT and ICD-10 is formed .
Conclusion: Only 3 codes for COVID-19 cases on SNOMED-CT can be mapped to the 2016 version of ICD-10. As a result, laboratory examination services such as PCR and Rapid antigen test for COVID-19 patients are not entirely financed by insurance.

Keywords: medical terminology, SNOMED CT, diagnosis of COVID-19, ICD-10.

Correspondence
Dewi Lena Suryani. Department of Medical Record and Health Information, Health Polytechnics Ministry of Health Tasikmalaya, East Java. Email: poltekkes.tsm-@gmail.com. Mobile: 085871329510.

BACKGROUND

Coronavirus disease-19 (COVID-19) is a non-natural disaster that has reached the level of a pandemic according to the WHO statement (BNPB, 2020). The number of terms regarding COVID-19 makes people confused so they don't panic (Ministry of Health, 2020). The use of more than one term for the same disease can make it difficult to collect and obtain accurate and precise morbidity and mortality information (Hatta, 2017). Therefore, standard medical terms are needed according to those used in the

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.17

classification of diseases. The disease classification system used in Indonesia is the International Statistical Classification of Disease and Related Health Problem Tenth Revision (ICD-10) from WHO (Hatta, 2017).

The SNOMED-CT medical terminology standard can be used for clinical recording of health information systems with concepts related to COVID-19 (IHTSDO, 2020). The use of SNOMED-CT to perform coding with various data elements related to COVID-19, such as symptoms, risk factors and results of investigations (IHTSDO, 2020). During the COVID-19 pandemic, good quality epidemiological studies are needed to understand COVID-19. Therefore, the appropriate term SNOMED-CT can support the completeness of data regarding symptoms, patient assessment items, demographics, and lifestyle and health conditions associated with COVID-19 (Jani et al., 2020).

The Ministry of Health issues Decree Number HK.01.07/MENKES/-446/2020 regarding Technical Instructions for Claims for Reimbursement of Services for Certain Emerging Infectious Disease Patients for Hospitals Providing COVID-19 Services to facilitate inpatient payments. Submission of claims is claimed using software. Not all COVID-19 conditions can be coded on ICD-10 and ICD-9-CM, such as the diagnosis of dyspnea due to SARS-CoV-2 that is not specifically coded on ICD-10. However, the SNOMED-CT is described in detail. In Indonesia, SNOMED-CT is still in the introduction stage, namely at the National Central General Hospital (RSUPN) Dr. Cipto Mangunkusumo and Regional General Hospital Dr. Margono Soekarjo Purwokerto (Margono Hospital, 2020).

SUBJECTS AND METHOD

1. Study Design

This was a literature review. The articles used in this study were obtained from search databases, namely PMC and Google Scholar. Using keywords: signs and symptoms of COVID-19, laboratory and radiology test COVID-19, Comorbidities COVID-19, SNOMED-CT, and ICD-10.

2. Inclusion Criteria

The inclusion criteria for articles that can be reviewed are complete paper articles with experimental study designs, articles using English, interventions provided from medical terminology of symptoms, signs, investigations and comorbidities of COVID-19 on SNOMED-CT and diagnostic codes on ICD-10.

3. Exclusion Criteria

Articles published other than English with non-Odds Ratio results. Research related to CPT medical terminology and COVID-19 codes using ICD-10-AM, ICD-10-CM, ICD-10-PCS and ICD-11.

4. Operational Definition of Variable

SNOMED-CT is to perform coding with various data elements related to COVID-19, such as symptoms, risk factors and results of investigations.

Covid-19 is an infectious disease caused by the SARS-CoV-2 Virus.

5. Data Analysis

The research database is operational with boolean AND and OR in its advanced search feature. After the research article goes through the

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.17

screening and assessment process, it is necessary to extract data.

RESULTS

Table 1 shows the use of medical terminology based on SNOMED-CT by each study below. They were grouped based on Symptoms and Sign, Supporting Examination of COVID-19, and Comorbidity of COVID-19.

Based on the use of the term SNOMED-CT for the accuracy of the COVID-19 diagnosis code on the ICD-10, it can be seen the coding of the COVID-19 condition on SNOMED-CT and ICD-10 according to Table 2.

Table 1. The use of medical terminology based on SNOMED-CT

Study	Symptoms and Sign	Supporting Examination of CoVID-9	Comorbidity of COVID-19
Shanbehzadeh, et.al (2021)	1. General Symptoms and Sign: Fever 2. Respiratory System: Dry Cough/ Cough and Dyspnea, 3. Cardiovascular System: Chest Tightness	1. Laboratorium: Real Time PCR, Nasopharyngeal Swab, CBC Routine Test, Coagulation/ Bleeding Test, Blood Lipids and Electrolytes, Blood Gases Analysis, Liver and Renal Function. 2. Radiology: Chest CT-Scan	1. Endocrine, Nutritional and Metabolic Disease: Type 1 Diabetes Mellitus (T1DM) and Type 2 Diabetes Mellitus (T2DM)
Izquierdo, et al (2020)	1. General Symptoms and Sign: Fever, weakness 2. Respiratory System: Dry Cough/ Cough, Dyspnea, and Respiratory Crackles. 3. Cardiovascular System: Tachypnea dan Chest Pain 4. Cognition, Perception, Emotional State and Behaviour: Anosmia 5. Musculoskeletal Systems: Myalgia 6. Digestive System: Diarrhea	-	1. Endocrine, Nutritional and Metabolic Disease: T1DM and T2DM
Zhao et al (2021)	1. General Symptoms and Sign: Fever 2. Cognition, Perception, Emotional State and Behavior: Anosmia, Ageusia	-	*1.* Endocrine, Nutritional and Metabolic Disease: T1DM and T2DM
Garcia, et al (2020)	1. General symptoms and sign: fever, headache, chills and rigor 2. Respiratory System: Sore Throat 3. Cognition, Perception, Emotional State and Behaviour: New Olfactory and Taste Disorder 4. Musculoskeletal Systems: Myalgia	-	*1.* Endocrine, Nutritional and Metabolic Disease: T1DM and T2DM

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.17

Salg, et al (2021)	-	1. Laboratorium: Real Time PCR 2. Radiology: Chest CT-Scan	1. Endocrine, Nutritional and Metabolic Disease: T1DM and T2DM
Barron, et al. (2020)	-	-	1. Endocrine, Nutritional and Metabolic Disease: T1DM and T2DM 2. Cardiovascular Disease: Coronary Heart Disease, Cerebrovascular Disease dan Heart Failure
Graziani, et al., (2020)	-	-	1. Endocrine, Nutritional and Metabolic Disease: T1DM and T2DM 2. Respiratory Disease: COPD
Bhaskarana, et al (2021)	-	-	Endocrine, Nutritional and Metabolic Disease: T1DM and T2DM Respiratory Disease: Asth-ma Mental and Behavior Disorder: Dementia

Table 2. Coding of Symptoms and Signs and Supporting Examination of COVID-19 in ICD-10, CID-9-CM and SNOMED CT

No.	Case SAmple	Vocabulary code	Selected code	SNOMED CT code
Symptoms and Signs				
1.	Dry cough	ICD 10	R06.2	49727002
2.	Dyspnea	ICD 10	R06.8	230145002
3.	Fever	ICD 10	R50.9	722892007
4.	Weakness	ICD 10	R11	8579004
Laboratory examination				
5.	Serum creatinine raised	ICD10	R79.8	166717003
6.	Positive COVID-19	ICD10	R84.5	13320001000004109
CT - Scan				
7.	Bilateral chest CT-scan	ICD-9-CM	87.41	426827002
8.	Lung consolidation	ICD10	J18.1	95436008
9.	Right lower zone pneumonia	ICD10	J18.1	301001009
10.	Pleural effusion	ICD10	J11.1	81075000

Source: Shanbehzadeh,et, al (2020)

The medical record data of COVID-19 patients is coded using a classification and nomenclature system, one of which is ICD-10. All codes for conditions related to COVID-19 will be mapped into the integrated SNOMED-CT code (Shanbehzadeh et al., 2020).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.17

Table 3. ICD-10 and SNOMED CT coding for COVID-19

Terminology	Code	Code Description
ICD 10	U07.1	COVID-19, virus identified
	U07.2	COVID-19, virus not identified Clinically epidemiologically diagnosed COVID-19 Probable COVID-19 Suspected COVID-19
	U07.1+codes for Symptoms	COVID-19, virus identified
	U07.2;Z20.8+codes for symptoms	Contact or suspected exposure
	U07.2; Z20.8+ codes for symptoms	Contact or suspected exposure
	U07.2+codes for symptoms	Contact or suspected exposure
	U07.2+codes for any symptoms	Contact or suspected exposure
SNOMED CT	840539006	COVID-19
	840544004	Suspected COVID-19
	840534001	SARS-CoV-2 vaccination
	840536004	Antigen of SARS-CoV-2
	840535000	Antibody to SARS-CoV-2
	840546002	Exposure to SARS-CoV-2

Source: Zeng et al (2020)

The use of ICD-10 is an international disease classification and SNOMED CT is a standard medical terminology that can be used to overcome information overload so that health data can be standardized. Terminology has become an important part of exchanging information and communicating during the COVID-19 pandemic (Zeng et al., 2020) (table 3).

Table 4. Coding of Covid-19 in ICD-10 and SNOMED CT

Terminology	Code	Code Description
ICD	U07.1	COVID-19, virus identified
	U07.2	COVID-19, virus not identified
SNOMED CT	3947185011	COVID-19
	120646007	Antibody Screen
	258603007	Respiratory sample (specimen)
	430304001	Specimen from unspecified body site (specimen)
	3947197012	Suspected disease caused by SARS-CoV-2 (situation)
	3947183016	Disease caused by SARS-CoV-2 (disorder)

Source: Visweswaran, et al (2021)

The SNOMED-CT and ICD-10 codes mentioned in table 4 are emergency codes used in the comprehensive COVID-19 Ontology as the initial step of research on COVID-19 (Visweswaran, et al., 2021). The use of SNOMED-CT in the EHR captures detailed clinical information needed by all health services (Shanbehzadeh, et al 2020) in the form of clinical COVID-19 data quickly, so that a COVID-19 ontology is formed that

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.17

contains standard codes and terminology such as SNOMED-CT. and ICD-10 (Visweswaran et al., 2021). Knowledge Organization Systems (KOSs) that use SNOMED-CT can be used as a standard Medical Billing Terminology used by all health organizations that support medical payments, including organizations that use ICD for reimbursement of diagnoses and procedures (Zeng et al., 2020).

DISCUSSION

The SNOMED TCT code uses stepwise tracking from the Main concept (parent) to the specification (child) (IHTSDO (2021). Symptoms and signs of COVID-19 in the form of Fever and Dyspnea (Shanbehzadeh et al., 2021; Izquierdo et al., 2020; Zhao et al., 2020; Zhao et al., 2021; and Garcia et al., 2020).

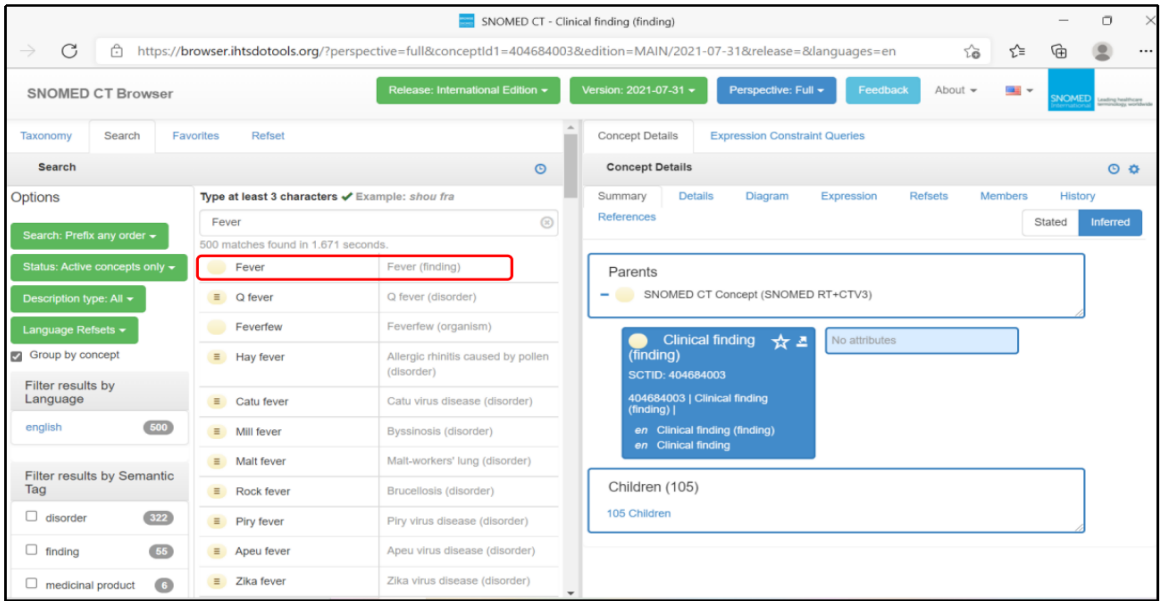


Figure 1. Fever search on SNOMED CT browser
Source: IHTSDO (2021)

Most patients infected with COVID-19 show symptoms such as fever (fever) and shortness of breath (dyspnea). with Parent of Abnormal body temperature (finding). The code is in accordance with what was found (Shanbehzadeh et al., 2020), but is a History of Fever in SNOMED-CT with code 866621000000103 (Jani et al., 2020).

The use of SNOMED-CT on all information in the patient's medical record can be coded including symptoms and signs and previous history (Sanderson, 2009). One of the children shown in Figure 1 is Fever SARS-CoV-2 (Disorder) with the code 119751000146104.

The medical terminology of laboratory examination is in accordance with the SNOMED-CT concept which includes laboratory examinations during the COVID-19 investigation process (IHTSDO, 2021). The SNOMED-CT RT-PCR code for COVID-19 cases has its own code 399150003, which is different from the PCR code in other cases. The COVID-19 special code as shown in

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.17

Figure 3 below will assist in surveillance data during the pandemic (IHTSDO, 2021).

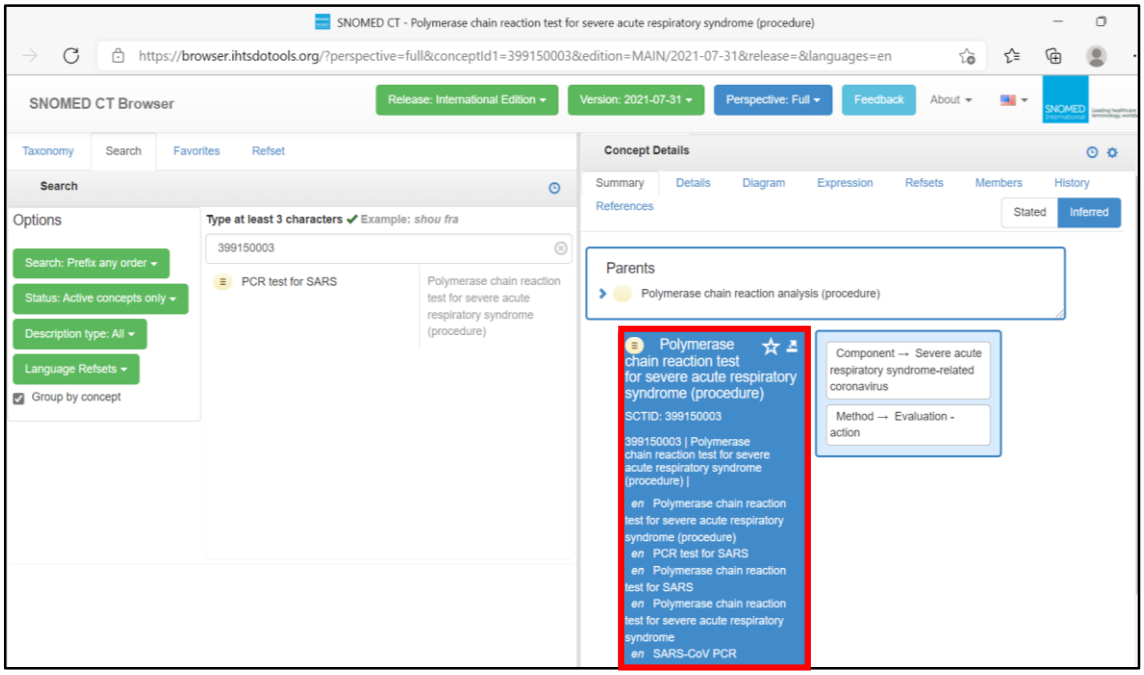


Figure 2. Search Parent Code SNOMED-CT browser RT-PCR
Source: IHTSDO (2021)

Radiological examination can be in the form of CT-Scan (Ubeda et al., 2020) or Chest CT-Scan (Shanbehzadeh et al., 2021) and Salg et al., (2021). The concept detail does not show any specificity of Chest CT examination for COVID-19 cases, so the code for SNOMED CT Chest CT for COVID-19 cases is 169069000 (IHTSDO, 2021). There are different codes for bilateral chest CT-scan (Shanbehzadeh, et.al (2021), with code 426827002 (table 1). However, on SNOMED-CT, describing Ultrasound scan of chest wall (procedure). inaccurate, judging from the parental differences between the concept of Chest CT-scan and Ultrasound scan of chest wall (Shanbehzadeh et al., 2021).

Parent Chest-CT on SNOMED-CT is Computerized Axial Tomography (CAT) (procedure), while Ultrasound scan of chest wall is USG of thorax (procedure). In addition, there are differences between CAT and ultrasound. Detailed CAT imaging of sliced organs/insides of the body sent to a computer, while ultrasound is imaging using sound waves that produce visual images of the inside of the body (Thierer et al., 2010). Coding errors can occur due to errors in rewriting or entering code into the computer. Resulting in inaccuracies in giving procedures to patients, errors in the financing process and causing poor data quality (Abdelhak, 2001).

Diabetes has the code SNOMED-CT 73211009. The parent of this concept is a disorder of endocrine system and disorder of glucose metabolism which is a secondary condition

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.17

that arises from a primary condition that occurs (IHTSDO, 2021). Children from the concept include Diabetes Mellitus Type 1 and Type 2 (IHTSDO, 2021). The comorbid conditions of Diabetes Mellitus, COPD and Asthma are included in the SNOMED-CT concept with parent disease (disorder) (IHTSDO, 2021).

A list of mappings from SNOMED-CT to ICD-10 code version 2016 has been created (Shanbehzadeh, et.al (2021), Zeng et al (2020) and Visweswaran, et al (2021). A total of 145 SNOMED-CT contents related to COVID-19 related to symptoms, follow-up examinations, and comorbidities of COVID-19 which are valid from July 31, 2020 (IHTSDO, 2021). However, these 142 concepts do not have a mapping on ICD-10. Most of the concepts do not have a mapping from SNOMED- CT to ICD-10 and ICD-9-CM are secondary/comorbid conditions and complications of COVID-19 and laboratory tests for COVID-19.

SNOMED-CT codes can be mapped into medical concepts, codes or terminology electronically, such as ICD-10 and ICD-9-CM. SNOMED-CT clinical information contains data relevant to reports, as well as statistics and claims billing (Bhattacharrya, 2016). The coding of COVID-19 cases for filing claims in Indonesia refers to Kepmenkes Number HK.01.07/Menkes/446/2020 with the 2010 revised ICD-10 to code the diagnosis and 2010 revision of the ICD-9-CM to code actions/procedures. The following are the details of the COVID-19 condition code according to WHO and the SNOMED-CT mapping which refers to the 2016 version of the ICD-10 and according to Kepmenkes No. 446 of 2020.

Table 4. COVID-19 codes on ICD-10 version 2016 and ICD-10 version 2010

Condition of COVID-19	Code of ICD-10 (version 2016)	Code of ICD-10 2010 version
Confirmed COVID-19	U07.1	B34.2
Suspected COVID-19	U07.2	Z03.8

Source: WHO (2010)

Table 4 shows the reference code in Kepmenkes Number HK.01.07-/Menkes/446/2020 that is not in accordance with the instructions for coding cases of COVID-19 according to WHO (2020) and IHTSDO (2021) regarding SNOMED-CT code mapping. In the 2016 version of ICD-10, code U07.1 is for confirmed COVID-19 and code U07.2 is for suspected COVID-19. This code is not used for COVID-19 services in Indonesia because Indonesia is still using the 2010 version of the ICD-10. So the code is equated with code B34.2 for confirmed cases of COVID-19 and code Z03.8 for suspected cases of COVID-19. 19 (Kepmenkes, 2020).

Reimbursement for hospitalization costs for COVID-19 patients includes RT-PCR laboratory examinations and chest x-ray radiology examinations. The laboratory examination is not yet complete in the Ministry of Health. The handling of COVID-19 in Indonesia (Tursina et al., 2020) uses the Rapid Test of Antibodies and/or Rapid Test of Antigens and the results

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.17

of the examination must still be confirmed by RT-PCR. The Antibody Rapid Test detects the presence of antibodies in an individual's blood (Yanti et al., 2020) with the code SNOMED-CT 1240461000000109 (measurement of SARS-CoV-2 antibody) (IHTSDO, 2021). Meanwhile, the Antigen Rapid Test is carried out to detect the presence of the COVID-19 viral protein (antigen) in samples from a person's respiratory tract (Yanti et al., 2020), namely the Oropharyng/ Nasopharyng Swab which has the code SNOMED-CT 871556004 or 87155-7008. are the details of the COVID-19 laboratory examination code found on SNOMED-CT and ICD-9-CM:

Table 5. Coding of COVID-19 laboratory tests found on SNOMED-CT and ICD-9-CM

Laboratory examination	Code of SNOMED CT	Code of ICD-9-CM
Rapid test antibody	1240461000000109	90.52 (Microscopic examination of blood-culture)
Rapid test antigen	871556004 atau 871557008	90.42 (Microscopic examination of specimen from trachea, bronchus, pleura, lung, and other thoracic specimen, and of sputum-culture)
PCR	399150003	90.42 (Microscopic examination of specimen from trachea, bronchus, pleura, lung, and other thoracic specimen, and of sputum-culture)

Source: IHTSDO (2021) dan WHO (2010)

The SNOMED-CT concept of laboratory examination which includes PCR, Rapid Antibody Test and Antigen Rapid Test on COVID-19 which is valid from July 31, 2020, has no mapping found in the ICD-9-CM (IHTSDO, 2021). The ICD-9-CM code from the PCR, Antigen Rapid Test, and Antibody Rapid Test does not specifically refer to the COVID-19 test (WHO, 2010) and does not explain the method of the examination. This can cause the costs of supporting examinations of COVID-19 patients in Indonesia not entirely able to be billed in claims (Kepmenkes, 2020). Incomplete disease codes and procedures, hampering insurance/¬claims billing, (Wager et al., 2017) where laboratory investigations need to be recorded completely and specifically (Wager et al., 2017) and use of Logical Observation Identifiers Names and Codes terminology (LOINC) to keep abreast of the latest developments in COVID-19 diagnostic tests, considering that LOINC has released code updates regarding COVID-19 (Garcia et al., 2020).

The use of SNOMED-CT as a Medical Billing Terminology (Zeng et al., 2020), which is one of the standard medical terminology that strongly facilitates insurance billing services (Wager et al., 2017), the accuracy of the code is influenced by the medical terminology used, so the terminology Standard medical standards will support the accuracy of the code (Rahmawati and Utami, 2020) and an accurate code related to the accuracy

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.17

of claim collection (Pusparini and Pratiwi, 2020).

The use of SNOMED-CT is recommended for EHR for COVID-19 because it can capture clinical information needed by all health care providers in detail (Shanbehzadeh et al., 2020) and is renewable, marked by an increasing number (Fudholi, 2017) The current state of the pandemic , an EHR is needed for COVID-19 clinical data quickly, so a COVID-19 Ontology is formed that contains standard codes and terminology such as SNOMED-CT and ICD-10 (Visweswaran, et al (2021). Ontology is a solution in compiling a vocabulary dictionary that large, structured, integrated and standardized one of which is SNOMED-CT (Fudholi, 2017).

AUTHOR CONTRIBUTION

Concept: Filda Ernawati, Method: Filda Ernawati, Dewi Lena Suryani; Data analysis: Filda Ernawati, Dewi Lena Suryani; Writing: Filda Ernawati; Project administration: Diana Barsasella; Writing, Review, Editing: Dewi Lena Suryani,Diana Barsasella

FUNDING AND SPONSHORSHIP

This study is self-funded.

ACKNOWLEDGEMENT

We would like to thank the campus Department of Medical Record and Health Information, Health Polytechnic of The Ministry of Health Tasikmalaya.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Abdelhak M (2001). Health Information: Management of Strategic Resource. W.B Saunders Company, Philadelphia.

Barron E, Bakhai C, Kar P, Weaver A , Bradley D, Ismail H, Knighton P, Holman N, Khunti K, Sattar N, et al. (2020). Associations of type 1 and type 2 diabetes with COVID-19- related mortality in England: a whole-population study. Elsevier. 813-22. DOI: 10.1016/S2213-8587(20)30272-2.

Bhaskarana K, Bacon S, Evans SJW, Bates CJ, Rentsch CT, MacKenna B, Tomlinson L, Walker AJ, Schultze A, Morton CE el al (2021). Factors associated with deaths due to COVID-19 versus other causes: population-based cohort analysis of UK primary care data and linked national death registrations within the Open SAFELY platform. The Lancet Regional Health – Europe. Elsevier. 1-13, https://doi.org/10.1016/j.lanepe.2021.100109.

Bhattacharyya, S, 2016, Introduction to SNOMED CT, Springer. 157-82. https://link.springer.com/book/10.1007/978-981-287-89-5-3.

Fudholi DH (2017). Penerapan Ontologi Bidang Medis dalam Sistem Pelayanan Kesehatan. Seminar Nasional Informatika Medis. 2-6 Yogyakarta. https://journal.uii.ac.id/snimed/article/view/8505.

Macarena G, Nikolay L, Jame T, Roniqua W, Stein EE, Kinley

Teresa K (2020). Centers for Disease Control and Prevention 2019 novel coronavirus disease information management: addressing national health-care and public health needs for standardized data definitions and codified vocabulary for data exchange. Journal of the American Medical Informatics Association.1476–87. DOI: 10.1093/jamia/ocaa141.

Graziani D, Soriano JB, Del Rio-CB, Morena D, Díaz T, Castillo M, Alonso M, Ancochea J, Lumbreras S, Izquierdo JL (2020). Characteristics and Prognosis of COVID-19 in Patients with COPD. Journal of Clinical Medicine. 9 (10); 2-11. doi: 10.3390/-jcm9103259.

Hatta GR (2017). Pedoman Manajemen Informasi Kesehatan di sarana Pelayanan Kesehatan, Penerbit Universitas Indonesia (UI-Press), Jakarta.

SNOMED International (2021). International Health Terminology Standards Development Organisation. SNOMED International. Retrieved from SNOMED International. https://confluence.ihtsdotools.org/display/DOCCV19

Izquierdo JL, Ancochea J, Soriano JB, Izquierdo JL, Ancochea J, Joan B, Soriano JB (2020). Clinical Characteristics and Prognostic Factors for Intensive Care Unit Admission of Patients With COVID-19 Retrospective Study Using Machine Learning and Natural Language Processing, Journal of Medical Internet Research. 1-13. doi: 10.2196-/21801.

Jani BD, Pell JP, McGagh D, Liyanage H, Kelly D, Lusignan SD, Weatherburn, CJ, Burns R, Sullivan FM, Mair, FS (2020). Recording COVID-19 consultations: review of symptoms, risk factors, and proposed SNOMED CT terms. BJGP Open, 1-10, doi: 10.3399-/bjgpopen20X101125.

Kementerian Kesehatan Republik Indonesia (2020). Keputusan Menteri Kesehatan Republik Indonesia Nomor HK.01.07/-MENKES/446/2020 Tentang Petunjuk Teknis Klaim Penggantian Biaya Pelayanan Pasien Penyakit Infeksi Emerging Tertentu Bagi Rumah Sakit Yang Menyelenggarakan Pelayanan Corona Virus Disease 2019 (COVID-19). Kemenkes RI. Jakarta.

Rahmawati EN, Utami TD (2020). Hubungan Ketepatan Penulisan Terminologi Medis terhadap Keakuratan Kode pada Sistem Cardiovascular. Jurnal Manajemen Informasi Kesehatan Indonesia. 8(2): 93-101. DOI: 10.335-60/jmiki.v8i2.251.

Rumah Sakit Umum Daerah Dr Margono Soekarjo Purwokerto (2020). Workshop Manajemen Standar Data untuk Berbagai Data Klinis dan Keperawatan (SNOMED-CT dan LOINC) pada Era E-Klaim BPJS (Data Standard Management Workshop for Various Clinical and Nursing Data (SNOMED-CT and LOINC) in BPJS E-Claim Era).

https://rsmargono.jatengprov.go.id/ppid/informasipublik/file/kak-workshop-snomed-ct-dan-loinc-pada-era-ekliam-bpjs-rsud-margono-2020.

Salg GA, Ganten MK, Bucher AM, Kengott HG, Fink MA, Seibold, Luger, Fischbach RE, Schlamp K, Velandia CV (2021). A reporting and analysis framework for structured evaluation of COVID-19 clinical and imaging data. Nature Partner Journals. 4(1): 1-9. DOI: 10.1038/s41746-021-00439-y

Sanderson SM (2009). Electronic Health Records for Allied Health Careers, The McGraw-Hill Companies, New York.

Shanbehzadeh M, Kazemi-Arpanahi H, Mazhab-Jafari K, Haghiri, H (2020). Coronavirus diseases 2019 COVID-19 surveillance system: Development of COVID-19 minimum data set and interoperable reporting framework. Journal of Education and Health Promotion. 9 (203) 1-11, DOI: 10.4103/jehp.jehp_456_20.

Sittig DF (2014). Electronic Health Record Challenges in Design and Implementation. Apple Academic Press. Canada.

SNOMED International. SNOMED-CT Browser International Edition 2021. https://browser.ihtsdotools.org/?perspective=full&conceptId1=404684003&edition=MAIN/2021-01-31&release=-&languages=en.

SNOMED International (2021). SNOMED CT COVID-19 Related Content. https://confluence.ihtsdotools.org/display/snomed/SNOMED+CT+COVID-19+Related+Content.

Sullivan DD (2019). Guide to Clinical Documentation, F.A Davis, Philadelphia.

Susilo A, Rumende CM, Pitoyo CW, Santoso WD, Yulianti M, Herikurniawan, Sinto R, Singh G, Nainggolan L, Nelwan EJ (2020). Coronavirus Disease 2019: Tinjauan Literatur Terkini. Jurnal Penyakit Dalam Indonesia. 7(1): 45-67. http://dx.doi.org/10.7454/jpdi.v7i1.415.

Thierer N, Nelson D, Ward JK, Young L (2010). Medical Terminology Language for Health Care. McGraw-Hill. New York.

Ubeda PL, Galiano MC, Martin-Noguerol T, Luna A, Lopex LA, Valdivia MT (2020). COVID-19 detection in radiological text reports integrating entity recognition. Computers in Biology and Medicine. Elsiver. 127. DOI:-10.1016/j.compbiomed.2020.104066.

Universitas Esa Unggul (2020). Pengenalan SNOMED-CT dalam Standarisasi Data Kesehatan. https://www.esaunggul.ac.id/-pengenalan-snomed-ct-dalam standarisasi-data-kesehatan/.

Visweswaran S, Samayamuthu MJ, Morris M, Weber GM, MacFadden D, Trevvet, Matth (2021). Development of a COVID-19 Application Ontology for the ACT Network. medRxiv. 1-8, DOI: 10.1101/2021.03.15.-21253596.

Wager KA, Lee FW, Glaser JP (2017). Health Care Information System A Practical Approach for Health Care Management, John Wiley & Son, United States of America.

World Health Organization (2020). Clinical management of COVID-19 Interim guidance. https://-apps.who.int/iris/handle/10665/332196.

World Health Organization (2011). COVID-19 Coding in ICD-10. https://www.who.int/classifications/icd/COVID-19-coding-icd-10.pdf.

World Health Organization (2011). International Classification of Diseases and Related Health Problems Tenth Revision Vol 1 Tabular List. WHO. Geneva.

World Health Organization (2011). International Classification of Diseases and Related Health Problems Tenth Revision Volume 2 Instruction Manual, WHO. Geneva.

World Health Organization (2011). International Classification of Diseases and Related Health Problems Tenth Revision Volume 3 Alphabetical Index, WHO, Geneva.

World Health Organization (2011). List of Official ICD-Updates. https://www.who.int/standards/classifications/classification-of-diseases/list-of-official-icd-10-updates.

Yanti B, Ismida FD, Sarah KE (2020). Perbedaan uji diagnostik antigen, antibodi, RT-PCR dan tes cepat molekuler pada Coronavirus Disease 2019. Jurnal Kedokteran Syiah Kuala. 172-77. https://doi.org/10.24815/jks.v20i3.18719.

Zeng ML, Hong Y, Clunis J, He S, Coladangelo L (2020). Implications of Knowledge Organization Systems for Health Information Exchange and Communication during the COVID-19 Pandemic, SCIENDO: Special issue: Data and Information Management. 4(3): 1-23. https://doi.org/10.2478/dim-2020-0009.

Zhao JG, rabowska ME, Kerchberger VE, Smith JC, Eken HN, Feng, Peterson JF, Rosenbloom, ST, Johnson KB, Wei WQ (2021). Concept WAS: A high-throughput method for early identification of COVID-19 presenting symptoms and characteristics from clinical notes. Sience Direct: Journal of Biomedical Informatics. 117:103748: 1-11. DOI: 10.1016/j.jbi.2021.103748

ANALYSIS OF THE USE OF INTERNATIONAL CLASSIFICATION OF FUNCTIONING, DISABILITY, AND HEALTH TO SUPPORT DIAGNOSIS ACCORDING TO ICD 11

Dewi Lena Suryani, Resti Marini, Diana Barsasella

Department of Medical Record and Health Information,
Health Polytechnics of The Ministry of Health Tasikmalaya, West Java

ABSTRACT

Background: Studies show that diagnosis (ICD-11) alone does not predict service needs, length of hospitalization, level of care or functional outcomes. The presence of a disease or disorder is not an accurate predictor of receipt of disability benefits, work performance, return to work potential, or likelihood of social integration. ICD-11 gives users an etiological framework for the diagnosis classification of diseases, disorders and other health conditions. By contrast, International Classification of Functioning, Disability and Health (ICF) classifies functioning and disability associated with health conditions. The ICD-10 and ICF are therefore complementary, and users are encouraged to use them together to create a broader and more meaningful picture of the experience of health of individuals and populations. This study aimed to determine the results of using ICF to support the diagnosis according to ICD-11.
Subjects and Method: This was a literature review with the keywords: "ICF" AND "ICD-11"AND "physiotherapy" AND "ICF case studies". Online articles were searched from electronic databases, including PMC and PubMed.
Results: ICF had been used for physiotherapy cases of ICD-11, including musculoskeletal disorder, stroke, shoulder pain, autism spectrum disorder, and vertigo. The types of examination and treatment included pharmacological, non-pharmacological, physiotherapy, MRI/ MRA, X-ray, ultrasonography, Hawkins-Kennedy test, arthroscopy shoulder investigation, electro myelography therapeutic methods applied behavior analysis (ABA), therapeutic methods, and treatment and education of autistic and related communication handicapped children (TEACCH). The application of ICF in physiotherapy plays a role in restoring the patient's condition, such as reducing pain. The problem was that there was no platform that standardized the incompetent officers in using ICF.
Conclusion: The overall obstacles in the use of ICD-11 and ICF in all countries have been emerged due to the limited socialization to the coders and the lack of policies applied by the government. Health workers are suggested to write down the diagnosis and completeness of the patient's medical record so that it is legible, complete, and clear, as a reflection of the quality of health service.

Keywords: literature review, diagnosis, ICF, ICD-11.

Correspondence:
Dewi Lena Suryani. Department of Medical Record and Health Information, Health Polytechnics of Ministry of Health Tasikmalaya. Jl. Cilolohan No. 35 Tasikmalaya. Email: poltekkes.tsm@gmail.com. Mobile: 085871329510.

BACKGROUND

The Law of the Republic of Indonesia Number 44 Year 2009 stipulates Hospitals in Indonesia as a complete individual health service provider that provides inpatient, outpatient, and emergency services. Based on the category, there are special hospitals,

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

which function to provide primary services for a particular type of disease based on disciplines, age groups, organs, types of diseases, or other specificities, namely Orthopedic Hospitals. Some cases of orthopedic therapy, one of which is physiotherapy.

The World Health Organization (WHO) regulates the use of codes for physiotherapy cases, classified in the International Classification of Functioning, Disability, and Health (ICF). The ICF classification is a classification of health-related domains, because a person's function and disability occur in a context, the ICF is also included in the list of environmental factors. The ICF framework is according to WHO for measuring health and disability at the individual and population levels (WHO, 2001).

The codes in the ICF are also used to support the diagnosis according to the International Classification of Diseases 11th Revision (ICD-11). The ICD-11 code is an international classification of mortality and morbidity data on the 11th revision managed by the WHO Family of International Classification (WHO-FIC). The use of ICD-11 and ICF simultaneously can create an integrated information system that will benefit the implementation of electronic health records, but currently there is no or no standard platform (Escorpizo et al., 2013).

Philbois et al. (2016) revealed that the use of ICF can be achieved through academic and professional training. Its use, can provide evidence of functional impairment, profile individual body functions across health-related life domains and complement the ICD-11 statistical classification. While the weakness of the ICF is that if you use all the categories in the ICF, it will be time consuming and impractical, because many categories are irrelevant to certain conditions (Mahdi et al., 2017).

The data collected can describe the district/city level. A total of 31.9% of the population aged 15 years or over have problems with disability status (Riskesdas, 2007) when compared to the results of the Household Health Survey (SKRT, 2004) which is 16%. The results of Riskesdas (2007) showed a significant increase (2 times). In Indonesia itself, the use of ICF has not been fully implemented, but for conditions related to ICF it has begun to be used to determine the quality of life of patients (Pradono et al., 2009).

Based on the above background, the formulation of the research problem is "How are the results of using ICF to support the diagnosis according to ICD-11?". The purpose of the study was to find out cases of ICD-11 diagnosis used in ICF, to know the various types of therapy used in ICF, to know the use of ICF to determine therapeutic actions, and to find out the problems of using ICF to support a diagnosis according to ICD-11.

SUBJECTS AND METHOD

1. Study Design

The study design was a systematic review method, by selecting and then taking the essence of the evidence to answer specific questions (Barbara, 2020). The data used are secondary data, where this data is obtained from notes, books, reports, articles, and so

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

on. The data obtained from this secondary data does not need to be processed again (Sujarweni, 2020). The main sources of this research are the ICD-11 browser and the ICF browser and several books, articles or research journals.

The keywords used in this study to search for journals are “ICF”, “ICF and ICD-11”, “Physiotherapy”, and “ICF Case studies”. The database used is in the form of online journals. One of the journal databases used in this research is "PMC", "PubMed" and "ICF Case Studies".

2. Inclusion Criteria

The inclusion criteria for articles that can be reviewed are complete paper articles with experimental study designs, articles using English, interventions provided from Journals published from 2004 to 2021, regarding ICF and ICD-11, categories and components of ICF, shared use of ICD-11 and ICD-11, as well as classification compounds in general.

3. Exclusion Criteria

They are articles published other than English with non-Odds Ratio results, research related to inaccessible journals, autism spectrum disorders, questionnaire for upper extremity cases.

4. Operational Definition of Variable

The International Classification of Functioning, Disability, and Health is a domain classification related to health, because a person's function and disability occur in a context. International Classification of Diseases (ICD), is a standard diagnostic tool for epidemiology, health management and clinical purposes.

5. Data Analysis

The research database uses the boolean AND and OR operations in its advanced search feature. After the research articles go through the screening and assessment process, data extraction is necessary. The search strategy used with the aim of finding and getting journals or articles that are in accordance with this research uses a boolean system. Boolean system is a command used in search engines by using the words "AND", "OR", or "NOT" in keywords. One of the boolean systems used in this study is the “AND” PMC database using the ICF AND ICD-11 journal search strategy and Physiotherapy. PubMed is also with ICF AND ICD-11, as well as ICF Case Studies for ICD-11. Properties that work on child and adolescent ICF. Literature search using several databases (PMC, PubMed, ICF Case Studies) with keywords ICF and ICD-11 with a journal search strategy using the Boolean System (AND, OR, NOT).

RESULTS

There were cases of ICD-11 diagnosis in the use of ICF, (Brockow et al, 2004) including musculoskeletal disorders such as Low Back Pain (LBP), Osteoarthritis (OA), Osteophorosis (OP), and Rheumatoid Arthritis (RA). There is also a diagnosis of Chronic Widespread Pain (CWP). Musculoskeletal disorders and CWP (77-88%) where the diagnosis can be associated with ICF. Results 70% (Geyh et al, 2004) ICF code, where the cases include Ischemic Stroke, Suffered a Hemorrhage and the etiology of both. Shoulder Pain with a percentage of

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

86.3% was also associated with the ICF of these cases (Roe et al. (2013). The case of ICD-11 diagnosis (Mahdi et al, 2018) was obtained using ICF, namely Autism Spectrum Disorder (ASD). Mueller et al (2012) revealed that in cases of ICD-11 diagnosis in the use of ICF there was a diagnosis of vertigo which had an impact on aspects of body function and disability.

The type of ICF therapy in cases of musculoskeletal disorders is an effective pharmacological treatment, such as symptom-modifying drugs and structure-modifying drugs. Symptom modifier drugs are drugs that are directed at controlling symptoms, such as relieving pain and improving function, while structure modifying drugs that have an effect on joint structure regardless of the direct effect on symptoms (Reginster et al, 2018). The type of therapy for ischemic stroke cases is reperfusion therapy using systemic thrombolysis or endovascular mechanical thrombectomy (Bhaskar et al, 2018). Types of Shoulder Pain therapy include MRI/MRA, x-ray, ultrasound, Hawkins-Kennedy test, shoulder arthroscopic examination and electromyelography (Roe et al, 2013). In contrast to ischemic stroke, the types of therapy used in Autism cases include behavioral therapy, biomedical therapy, and physical therapy (Mahdi et al, 2018). With regard to cases of vertigo, the type of therapy used is pharmacology or therapy using drugs (Mueller et al., 2012).

The use of ICF for determining therapeutic actions, namely physiotherapy (Paschoal et al., 2019) obtained relevant identification for several cases with physiotherapy measures, including: s720 structure of shoulder region, s730 structure of upper extremity, s740 structure of pelvic region, s750 structure of lowe extremity, s760 structure of trunk, d445 hand and arm use, dan d450 walking. By ICF category, an average of 80% or higher (Finger et al., 2006) was associated with physiotherapy. The use of ICF used in physiotherapy measures is the s760 structure of trunk and d450 walking. The ICF category (Huber et al, 2011) that is often used in physiotherapy is therapy for walking, where walking alone in the ICF is included in activity and participation (d) with code d450 with a percentage of 80%.

DISCUSSION

Based on 5 (five) journals related to ICD-11 that cases of ICD-11 diagnosis in the use of ICF obtained several cases with diagnostic components, including musculoskeletal disorders such as Low Back Pain (LBP), Osteoarthritis (OA), Osteophorosis (OP), Rheumatoid Arthritis (RA), and Chronic Widespread Pain (CWP) (Brockow et al., 2004). Other diagnoses include Ischemic Stroke and Suffered a Hemorrhage (Geyh et al., 2004), Shoulder Pain (Roe et al., 2013), and Vertigo (Mueller et al., 2012).

In addition to the diagnostic component included in the ICD-11 case in the use of ICF (Mahdi Soheil et al., 2018), there are also disorder components such as in the case of Autism Spectrum Disorder (ASD) and hearing loss (Leeuwen et al., 2020). Hearing loss is due to changes in the function and structure of the hearing organ which results in activity and is caused

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

by environmental and personal factors. There are also cases of ICD-11 in the use of ICF with an external cause component, one of which is fracture (Saravanan, 2016).

The initial display of the ICF browser search on the website, the Search column on the ICF Browser and the Search Result Data Display are shown in Figure 1, and Figure 2

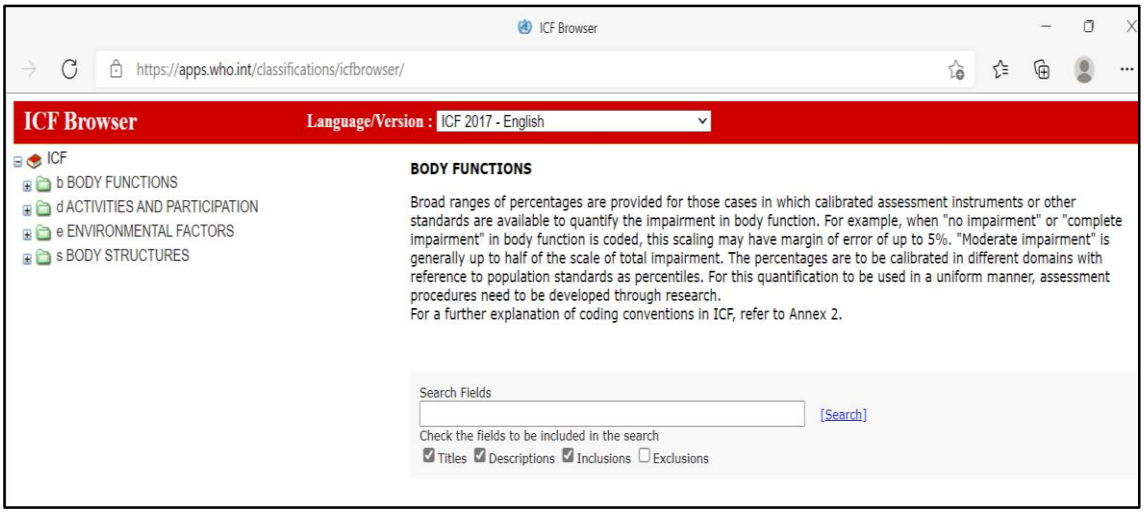


Figure 1. Initial View of ICF browser
Source: WHO (2021)

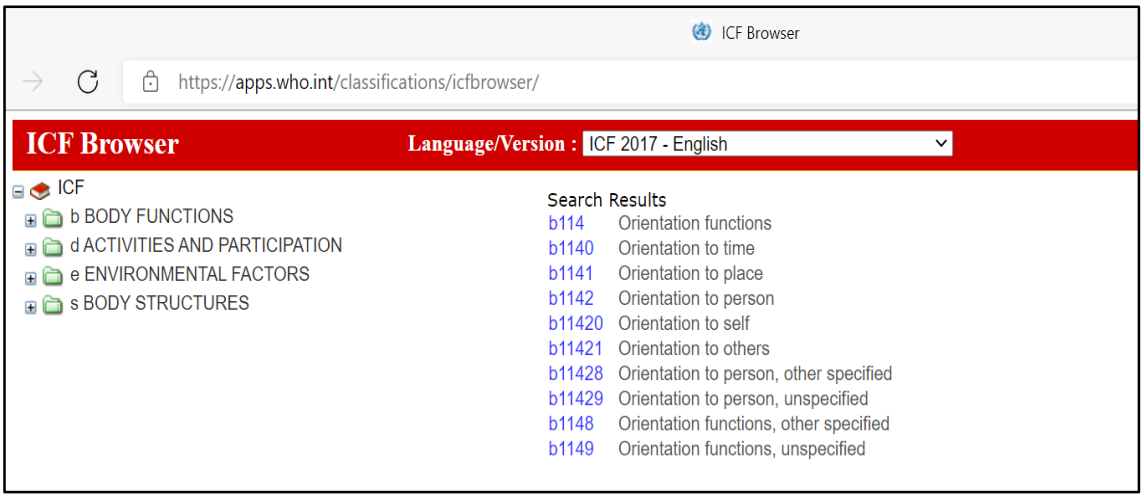


Figure 2. Display of Search Result Data on ICF Browser

Another thing was found that the therapy used in patients with low back pain (Meytari & Sulistyaningsih, 2021) is physiotherapy with an increase in daily physical activity, such as self-care, lifting activities, walking, sitting, standing, sleeping, sexual activity, social life and traveling. This shows that physical activity is interrelated with the functional ability of patients with low back pain. The type of therapy for ischemic stroke cases (Bhaskar et al, 2018) is in the form of reperfusion therapy using systemic thrombolysis or endovascular mechanical thrombectomy. Music therapy or Music Movement Therapy (MMT) can improve the daily activities of stroke

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

sufferers. The MMT therapy was carried out by stroke patients for 14 days (Rantepadang & Tendean, 2019).

Types of Shoulder Pain therapy (Roe et al., 2013) include MRI/MRA, X-ray, ultrasound, Hawkins-Kennedy test, shoulder arthroscopic examination and electromyelography. While the therapy used in the case of shoulder pain is manipulation therapy (Zaimsyah, 2020) where this therapy is joint mobilization to reduce pain and improve joint dysfunction.

Regarding cases of autism (Mahdi et al., 2018; Jaja and Wulandari, 2013) the therapies used are behavioral therapy, biomedical therapy, and physical therapy. The Applied Behavioral Analysis (ABA) therapy method and the Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) therapy method are also used for Autism sufferers. The ABA therapy method is therapy by providing special training, such as providing positive reinforcement (gifts/praise) to sufferers. While the TEACCH therapy method seeks to educate children with autism by using their relative strengths in structured things and their enjoyment of routines and predictable things and is relatively able to succeed in a visual environment compared to an auditory one. Integrated treatment for people with autism (Jaja and Ruwanti, 2013) can be done using behavioral therapy, biomedical therapy, physical therapy, social therapy, play therapy, developmental therapy, visual therapy, music therapy, drug therapy, dolphin therapy, and socialization to regular schools.

Furthermore, the type of therapy used in cases of vertigo (Mueller et al., 2012) uses pharmacological therapy or therapy using drugs. Therapy in cases of vertigo can be in the form of non-pharmacological therapy, pharmacology and surgery. There are five types of non-pharmacological treatment maneuvers that can be done alone at home. In addition, supporting examinations for vertigo can also be carried out, such as neurological examinations, autoneurological examinations, and hearing function tests (Setiawati and Susianti, 2016). Improvements in the ICF category or intervention targets are expected to lead to the achievement of the cycle goals. Identification of common goals and appropriate intervention targets serves as the main source of information for planning interventions in the next rehabilitation program (Rehab-Cycle patient) (Swiss Paraplegic Centre, 2018) as shown in table 1 .

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

Table 1. ICF Interventions and ICF Assessment

	Intervention target	Intervention	Phy	Nurse	PT	OT	Psych	First value*	Goal value*	Final value*
Body function / -structure	s810 Structure of the skin	Daily monitoring	-	x	-	-	-	0	0	0
	b134 Sleep functions	Daily monitoring	-	x	-	-	-	2	0	1
	b28012 Pain in lower belly	Medication	x	-	-	-	-	2	1	1
	b28014 Pain in the right upper limb	Medication	x	-	-	-	-	3	0	0
	b7101 Mobility of several joints	Active / passive exercises based on treatment scheme	-	-	x	x	-	2	0	0
		Adapting brace for limiting ROM	-	-	-	x	-			
	b7300 Power of isolated muscles (M. triceps brachii)	Active / passive exercises based on treatment scheme, Manual and machine muscle power training 6 weeks postsurgery	-	-	x	-	-	3	2	2
	b7401 Endurance of muscle groups	Repetitive exercises. Endurance training with arm ergometer 6 weeks post-surgery	-	-	x	-	-	3	1	1
	b7603 Supportive functions of the arms	Repetitive prop-up training 6 weeks post-surgery. Muscle power training with machine 6 weeks post-surgery	-	-	x	-	-	3	1	2
	b820 Healing of the scars	Daily wound control	x	-	-	-	-	0	0	0
Activity / Participation	d230 Carrying out daily routine	Behavioral approach	-	-	-	-	x	3	1	1
	d410 Changing basic body position	Support, assistance	-	x	x	-	-	4	0	2
	d4200 Transferring oneself while sitting	Support, assistance	-	x	-	-	-	4	0	2
		Functional training, Prop up training 6 weeks post-surgery	-	-	x	-	-			
	d440 Fine hand use	Functional games	-	-	-	x	-	4	2	2
	d445 Hand and arm use	Functional games	-	-	-	x	-	3	2	2
	d510 Washing oneself	Support, assistance	-	x	-	-	-	4	3	3
	d520 Caring for body parts	Support, assistance	-	x	-	-	-	3	3	3
	d530 Toileting	Support	-	x	-	-	-	4	4	4
	d540 Dressing	Support, assistance	-	x	-	-	-	4	3	4
	d550 Eating	Assistance	-	x	-	-	-	3	2	2
	d560 Drinking	Assistance	-	x	-	-	-	3	1	1
Personal factors	pf Compliance		-	-	-	-	-			
	pf Sense of responsibility	Behavioral approach	-	-	-	-	x	3-	1-	1-
	pf Purposefulness		-	-	-	-	-			

Source: Swiss *Paraplegic Centre (*2018)

Table 2. Display of ICF Evaluation



Source: Swiss *Paraplegic Centre* (2018)

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

The use of ICF for determining therapeutic actions, namely physiotherapy (Paschoal et al., 2019) obtained relevant identification for several cases with physiotherapy measures, including: s720 structure of shoulder region, s730 structure of upper extremity, s740 structure of pelvic region, s750 structure of lowe extremity, s760 structure of trunk, d445 hand and arm use, and d450 walking. Means 80% or higher for all physiotherapy-related ICF categories (Finger et al, 2006). This can be seen in the results of several ICF codes, such as b280 sensation of pain, b710 mobility of joint function, s760 structure of trunk, d230 carrying out daily routine, d410 changing body position, d450 walking, e310 immediate family and e355 health professionals.

The ICF category (Huber et al., 2011) that is often used in physiotherapy is the function to walk with code d450 with a percentage of 80%. Thus, physiotherapy plays a role in restoring the patient's condition in reducing pain, increasing muscle strength, increasing Range of Motion (ROM), preventing joint stiffness, reducing edema and can help restore the patient's functional activity (Widyasari and Djawas (2021). Functional ability of the lower leg in cases of post-orif cruris dextra fracture, where this exercise therapy or physiotherapy is effective in improving the functional ability of the lower leg.

Determination of physiotherapeutic measures will first be carried out by measuring pain using the VAS (Visual Analogue Scale), measuring muscle spasm, muscle strength with MMT (Muscle Manual Testing), checking the range of motion of the joints with a goneometer, and functional activities (Santoso and Prasetyo, 2018). Regarding the determination of physiotherapy measures (Anggoro & Wulandari, 2019) the measurement of pain with VAS, spasm with palpation, muscle weakness/ strength with MMT, Scope of Joint Motion (LGS) with a goneometer will be carried out, and functional activity with the womac index. Examples of the use of ICF in Evaluation, as in Table 2.

Until now, the problem with using ICF to support diagnoses coded according to ICD-11 is that there is no standardized platform from the country, on disease and the impact of the disease, where the platform can be used simultaneously in health information systems (Reuben et al., 2013). On the other hand, WHO's ICF update has created a web-based (online) ICF update platform, which is open to anyone in the general public. This platform also provides services for Functioning and Disability Reference Group (FDRG) and Update and Revision Committee (URC) experts to process renewal proposals (Nenad, 2011).

The incompetence of officers in mastering ICF and the incompetence of professional officers in the use of ICF, especially for neurological cases, are problems (Paschoal et al. (2019) in addition to the knowledge of officers about ICF (Philbois, 2016). This occurs because there has been no socialization regarding the use of ICF to them, because there is a relationship or influence between the knowledge of a coder and the accuracy of the diagnosis code (Maimun et al., 2018).Therefore,

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

it is necessary for hospitals to hold trainings on coding for coders so that they have skills in providing diagnostic codes. which has been determined by the doctor (Kurnianingsih, 2020).

Based on a review of 5 journals related to cases of ICD-11 diagnosis in the use of ICF, several diagnoses were obtained, including musculoskeletal disorders such as Low Back Pain (LBP), Osteoarthritis (OA), Osteophorosis (OP), Rheumatoid Arthritis (RA), Chronic Widespread Pain (CWP), Ischemic Stroke, Suffered a Hemorrhage, Shoulder Pain, Autism Spectrum Disorder (ASD), Vertigo, Hearing Loss, and Fractures.

The types of therapy used in this case in ICF include administering drugs to treat symptoms that arise, reperfusion therapy using systemic thrombolysis or endovascular mechanical thrombectomy, physiotherapy, pharmacological therapy, non-pharmacological therapy such as exercise, spinal manipulation, acupuncture, TENS, and cognitive behavior. therapy, MRI/MRA, X-ray, ultrasound, Hawkins-Kennedy test, shoulder arthroscopic examination and electromyelography, manipulation therapy Applied Behavioral Analysis (ABA) method, Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH). Other therapies also include: behavioral therapy, biomedical therapy, physical therapy, social therapy, play therapy, developmental therapy, visual therapy, music therapy, drug therapy, dolphin therapy, and regular school socialization, surgery, neurological examinations, autoneurological examinations, and hearing function tests.

Health workers, both doctors and nurses, are expected to write the patient's diagnosis in the medical record document clearly and accurately. Socialization or counseling needs to be done to doctors and nurses to write down the impact of the disease on body functions, on disability, and on other health problems in the medical record document for coding according to the ICF, because writing down the impact of the disease on the body will provide complete information. Hospitals also need to conduct training on coding for coders so that they have skills in providing diagnostic codes that have been determined by doctors, especially training on coding procedures for ICD-11 and ICF.

AUTHOR CONTRIBUTION

Concept: Resti Marini, Method: Resti Marini, Dewi Lena Suryani, Data analysis: Resti Marini, Dewi Lena Suryani, Writing: Resti Marini, Project administration: Diana Barsasella; Writing, Review, Editing: Dewi Lena Suryani, Diana Barsasella

FUNDING AND SPONSORSHIP

None.

ACKNOWLEDGEMENT

Trimakasih kepada pihak kampus Department of Medical Record and Health Information, Health Politechnic of The Ministry of Health Tasikmalaya.

CONFLICT OF INTEREST

None.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

REFERENCE

Anggoro, Adi D, Irine W (2019). Penatalaksanaan Fisioterapi pada Osteoarthritis Knee Billateral dengan Modalitas TENS, Laser dan Terapi Latihan di RSUD Bendan Kota Pekalongan. Jurnal PENA (Management of Physiotherapy in Bilateral Knee Osteoarthritis with TENS, Laser and Exercise Therapy Modalities at Bendan Hospital, Pekalongan City. PEN Journal). 33(2). DOI: 10.31941/jurnalpena.v33i2.895.

Barbara L (2020). Systematic Review dalam Kesehatan (Systematic Review in Health). Langkah demi Langkah, Deepublish, Yogyakarta

Bhaskar S, Stanwell P, Cordato D, Attia J, Christopher L (2018). Reperfusion therapy in acute ischemic stroke: dawn of a new era?. BMC Neurology. 18:8. DOI: 10.1186/-s128830171007-y.

Thomas B, Cieza A, Kuhlow H, Sigl T, Franke T, Harder M, Gerold, S (2004). Identifying the concepts contained in outcome measures of clinical trials on musculoskeletal disorders and chronic widespread pain using the international classification of functioning, disability and health as a reference. Journal Rehabilitation Medicine. 1-2. DOI: 10.10-80/16501960410015371.

Esakki S, MacDermid J, Saipriya V (2016). Linking of the american academy of orthopaedic surgeons distal radius fracture clinical practice guidelines to the international classification of functioning, disability, and health; international classification of disease; and ICF core sets for hand conditions. American Association for Hand Surgery (AAHS). 11 (3);314-21, DOI: 10.1177/155894471562730 5.

Escorpizo R, Kostanjsek N, Kennedy C, Meri M, Nicol R, Stucki G, Tevfik BU (2013). Harmonizing WHO's International Classification of Diseases (ICD) and International Classification of Functioning, Disability and Health (ICF): importance and methods to link Disease and functioning. BMC Public Health. 742. DOI: 10.1186/1471-2458-13-742

Finger ME, Alarcos-Cieza, Juerg-Stoll, Gerold-Stucki, Erika OH (2006). Identification of intervention categories for physical therapy, based on the international classification of functioning, disability and health: a delphi exercise. Physical Therapy & Rehabilitation Journal. 86 (9). DOI: 10.2522/-ptj.20050134.

Geyh S, Kurt T, Thomas-Brockow T, Cieza A, Ewert T, Omar Z, Karl R (2004). Identifying the concepts contained in outcome measures of clinical trials on stroke using the international classification of functioning, disability and health as a reference. Journal Rehabilitation Medicine. 56-62. DOI: 10.1080/16501960-410015399.

Huber EO, Tobler A, Gloor JT, Grill E, Gubler BG (2011). The ICF as a way to specify goals and to

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

assess the outcome of physiotherapeutic interventions in the acute hospital. Journal Rehabilitation Medicine. 43(2):174-7. DOI: 10.2340/165019770629

Kostandjsek N (2011). Use of The International Classification of Functioning, Disability and Health (ICF) as a conceptual framework and common language for disability statistics and health information systems. BMC Public Health 31 (11). DOI: 10.1186/1471245811-S4-S3.

Kurnianingsih W (2020). Hubungan pengetahuan coder dengan keakuratan kode diagnosis pasien Rawat Jalan BPJS Berdasarkan ICD-10 di Rumah Sakit Nirmala Suri Sukoharjo, Jurnal Manajemen Informasi dan Administrasi Kesehatan (JMIAK). 03(01). https://doi.org/10.32585/jmiak.v3i01.680.

Leeuwen L, Pronk M, Merkus PS, Goverts T, Terwee CB, Sophia EK (2020). Operationalization of the brief ICF core set for hearing loss: an ICF-based e-intake tool in clinical otology and audiology practice. The Official Journal of the American Auditory Society. 41 (6);1533-44. DOI: 10.1097/-AUD.0000000000000867.

Mahdi S, Viljoen M, Yee T, Selb M, Singhal N, Almodayfer O, Granlund M J, de-Vries, P, Zwaigenbaum L, Sven B (2018). An international qualitative study of functioning in autism spectrum disorder using the world health organization international classification of functioning, disability and health framework. Autism Research. 11(3):463-475. DOI: 10.1002/aur.1905.

Maimun N, Natassa J, Trisna W, Supriatin Y (2018). Pengaruh Kompetensi Coder Terhadap Keakuratan dan Ketepatan Pengkodean Menggunakan ICD-10 di Rumah Sakit "X" Pekanbaru Tahun 2016 (The Effect of Coder Competence on the Accuracy and Accuracy of Coding Using ICD-10 at Hospital "X" Pekanbaru in 2016). Jurnal Kesmas 1(1); 31-43.

Meytari NW, Kusmanto S (2021). Aktivitas fisik meningkatkan kemampuan fungsional penderita low back pain non spesifik: Narrative Review (Physical activity improves functional ability of patients with non-specific low back pain: narrative review). Jurnal Ilmiah Fisioterapi. 21(1): 8-18.

Mueller M, Schuster E, Strobl R, Grill E (2012). Identification of aspects of functioning, disability and health relevant to patients experiencing vertigo: a qualitative study using the international classification of functioning. disability and health. Health and quality of life outcomes. 10(75) 1-9.

Paschoal LN, Nery PD, Maria CB, Moran CM, Battistella LR (2019). Identification of relevant categories for inpatient physical therapy care using the international classification of Functioning, disability and health: a brazilian survey. Brazilian Journal of Physical Therapy. 23(3):

212-20. DOI: 10.1016/j.bjpt.2018.08.006.

Philbois SV, Martins J, Souza CS, Rosana F, Sampaio RF , Oliveira AS (2016). Health professionals identify components of The International Classification of Functioning, Disability and health (ICF) in questionnaires for the upper limb. Brazilian Journal of Physical Therapy. 20(1): 15-25. DOI:10.1590/bjptrbf.2014.0135.

Pradono J, Hapsari D, Sari P (2009). Kualitas Hidup Penduduk Indonesia Menurut International Classification of Functioning, Disability and Health (ICF) dan Faktor-faktor yang Mempengaruhinya (Analisis Lanjut Data RISKESDAS 2007). Buletin Penelitian Kesehatan; Buletin of Health Research. Supplement: 1 – 10.

Rantepadang A, Tendean A (2021). Pengaruh music movement therapy terhadap kemampuan aktivitas harian pada pasien stroke di RSUP. Prof. Dr. R.D. Kandou Manado (The Influence of Music Movement Therapy on the Ability of Daily Activities in Stroke Patients at RSUP Prof. Dr. R.D. Kandou Manado). Jurnal Skolastik Keperawatan. 5(1): 308. DOI: 10.35974/jsk.v5i1.727.

Reginster JL, Arden NK, Haugen IK, Rannou F, Cavalier E, Bruyère O, Branco J, Chapurlat R, Basset SC, Al-Daghri NM, et al. (2018). Guidelines for the conduct of pharmacological clinical trials in hand osteoarthritis: consensus of a working group of the european society on clinical and economic aspects of osteoporosis, osteoarthritis and musculoskeletal disease (ESCEO); Seminars in Arthritis and Rheumatism. ScienceDirect. 48(1); 1-8. DOI: 10.1016/j.semarthrit.2017.12.003.

Roe Y, Soberg HL, Holter EB, Ostensjo S (2013). A systematic review of measures of shoulder pain and functioning using The International Classification of Functioning, Disability and Health (ICF). BMC Musculoskeletal Disorders. 14(73): 73.

Santoso A, Prasetyo EB (2018). Penatalaksanaan Fisioterapi pada Kondisi Trigger Finger dengan Intervensi Ultrasound (US), Infrared (IR) dan Transverse Friction di RSUD Bendan Pekalongan (Management of Physiotherapy on Trigger Finger Conditions with Ultrasound (US), Infrared (IR) and Transverse Friction Interventions at Bendan Hospital Pekalongan). Jurnal Fisioterapi dan Rehabilitasi. 2(2). DOI: 10.33660/jfrwhs.v2i2.22.

Setiawati M, Susianti (2016). Diagnosis dan Tatalaksana Vertigo (Vertigo diagnosis and management). Majority. 5(4): 91-5.

Sujarweni V, Wiratna (2020). Metodologi Penelitian (Research methodology), Pustaka Press, Yogyakarta.

Suteja J, Wulandari R (2013). Bentuk dan model terapi terhadap anak-anak penyandang autisme (Keterbelakangan Mental) (Forms

and Models of Therapy for Children with Autism (Mental retardation), Scientiae Educatia: Jurnal Pendidikan Sains. 2(1). DOI: 10.24235/sc.educatia.v2i1-.530.

Swiss Paraplegic Centre (2018. ICF Case Study: Goal-Setting, dilihat 18 Februari 2021. Retrieved from: https://www.icfcasestudies.org/introduction/aboutthe project/theicfbasedcasestudiesp roject.

Undang-Undang Republik Indonesia Nomor 44 Tahun (2009). Tentang Rumah Sakit. Retrieved from: https://peraturan.bpk.go.id/Home/Details/38789/uu-no-44-tahun-2009.

WHO (2001). International Classification of Functioning, Disability and Health. WHO. Geneva.

WHO (2017). ICF Browser. Retrieved from: https://apps.who.int/-classifications/icfbrowser/.

Zaimsyah FR (2020). Perbedaan pengaruh stretching dengan terapi manipulasi terhadap peningkatan aktivitas fungsional bahu pada penderita frozen shoulder (Differences in the effect of stretching with manipulation therapy on increasing shoulder functional activities in frozen shoulder patients). Jurnal Ilmiah Fisioterapi. 03 (02). DOI: 10.36-341/jif.v3i2.1433.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.18

IMPROVING PATIENT'S ENGAGEMENT AND LOYALTY BY APPLICATION OF EXCELLENCE AND WOW SERVICE IN SOCIAL HEALTH INSURANCE ADMINISTRATION IN PRIVATE HOSPITALS IN INDONESIA

Fifi Endah Irawati, Milad Naufal Akbar, Nur Shabrina Al Baiti

Study Program in Digital Business,
Universitas Muhammadiyah Kudus, Central Java, Indonesia

ABSTRACT

Background: The service received by the Indonesian public using social health insurance administration is considered unequal compared to those with non-social health insurance administration. Moreover, the patients also felt the different in service received in private hospitals, which should provide good service standards. The difference felt by the patient should not have happened because each patient has the same rights in terms of excellent service. This study aimed to determine whether the provision of excellence and the wow service concept will increase patient's engagement and loyalty for social health insurance administration at private hospitals in Indonesia.
Subjects and Method: This was a qualitative study conducted at 5 private hospitals in Central Java. A sample of 200 patients who used social health insurance administration was selected for this study. The dependent variables were patient engagement and loyalty. The independent variables were excellence and wow service of social health insurance administration. The data were collected by in depth interview.
Results: Improvements made to the excellence and wow service concept significantly affect patient engagement and loyalty. Timely, comfortable, and sincere services were the main components of patient expectations using social health insurance administration, especially in Central Java.
Conclusion: Application of excellence and wow service concept in social health insurance administration is expected to enhance the patient engagement and loyalty in private hospitals.

Keywords: excellence service, wow service concept, customer engagement, loyalty, social security administration

Correspodence:
Fifi Endah Irawati. Study Program in Digital Business, Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No. 1, Purwosari, Kudus 59316, Central Java. Email: fifiendah-@umkudus.ac.id. Mobile: +62 818246663.

BACKGROUND

The difference in services felt by BPJS patients is felt to be very unequal when compared to the services received by non BPJS patients, especially at private hospitals in Indonesia which should apply good service standards to customers. Patients as customers in hospitals should receive good service even above empathy. Pain is not a choice, who is the human being on this earth who wants to experience pain or the closest family suffers from a certain disease. Moreover, if it is constrained by the cost of the hospital which is considered quite large, so that this sense of care and sincerity is wanted by the patients. Meanwhile, for BPJS patients, they do not have many choices, because BPJS Kesehatan feels

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.19

that there are minimal facilities and class restrictions cannot meet expectations of fulfillment. good service. In terms of the choice of hospitals, it is also limited to hospitals that cooperate. When a patient wants to get maximum treatment, his choice will fall on a private hospital whose facilities are expected to be better.

As we know, private hospitals apply good service standards in their services. Creating a good experience for patients is considered important so that patients will feel loyal to the hospital, so many steps are taken by private hospitals in Indonesia to meet customer expectations. The concept of 'service is caring' with service excellence is applied to create a good experience and fulfill customer expectations (Hermawan Kertajaya., 2014). However, in reality, this is not felt by many BPJS patients.

There is a separation of services for general patients and BPJS as evidence of the service gap, although this is done to reduce queues and facilitate services. And in practice the difference in service, attitude, perceived comfort is very significant. Although the research conducted by Ria Mardiana in 2018 regarding service quality for BPJS patients stated that there was a people ability factor where the reason for the service gap was due to the large number of patients to be served, communication skills and lack of understanding from the patients themselves.

Customers are people who demand companies to meet certain quality standards, which do not depend on the manufacturer and are important to be satisfied (Nasution, 2010). Service quality is the level of excellence expected and control over the level of excellence in meeting consumer desires, especially in the world of health (Royne, 2001). Service Excellence is good/best service in accordance with applicable service standards/owned by the agency that provides services (Mhd Rusydi, 2017) and this concept will be achieved if the customer's wishes are satisfied. The dimensions of service excellence (Service Excellence) according to Vincent Gespersz are divided into:

a. Timely service
b. Service accuracy
c. Courtesy and hospitality
d. Responsibilities in handling customer complaints
e. Convenience

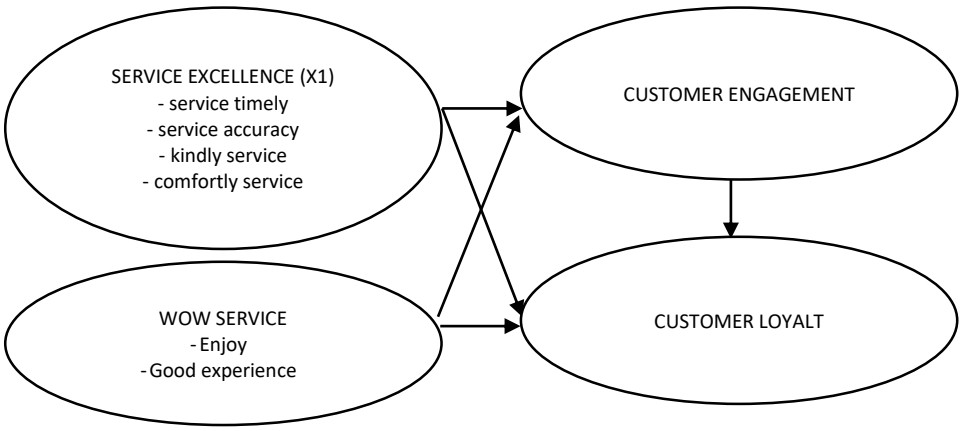


Figure 1. Dimension of Service Excellence

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.19

WOW is an expression of admiration/surprise about something, wow service is a surprising service concept (Hermawan Kartajaya, 2014). Now is the era of Consumer Engage, Wow service can only be achieved if service employees are able to understand the personal needs of consumers, in this case it is the entire dimension of Service Excellence in order to create a service that enjoys, experiences, in creating Engage customers. All these dimensions are done with the ultimate goal is to achieve customer loyalty.

Customer Engagement is defined as a process that has a psychological impact on a person from creating a sense of attachment to brands, services and mechanisms and this forms customer loyalty to always make repeat purchases or repurchase (Brodie et al., 2011) while Customer Loyalty is an attitude or behavior of a consumer who makes purchases regularly or continuously and at least twice in a certain time interval which is more towards a person's attitude and behavior seen from his psychological condition and related to his attitude towards a product.

SUBJECTS AND METHOD

1. Study Design

This was a quantitative methods which aim to produce a more comprehensive study of a phenomenon. This research was conducted at 5 private hospitals in Central Java to find out how the effect of increasing service excellence and Wow service on BPJS patients.

2. Population and sample

The population in this study were BPJS patients who used the services of 5 private hospitals in Central Java where due to the limited time of the study, the researchers determined 200 patients as the study sample using the convenience sampling technique. The data was obtained by distributing questionnaires or surveys to 200 BPJS patients that the researchers met by accident. The research questionnaire uses a Likert measurement scale of 1-5.

3. Study Variables

The dependent variable (X) in this study is Service Excellence and WOW Service

Independent variables (Y) in this study are Customer Engagement and Customer Loyalty

4. Operational Definition of Variables

A. Variabel Independen (X)

-Service Excellence (X1)

good/best service in accordance with applicable service standards/owned by the agency providing the service, with indicators (Gespersz, 2005):

X1.1 Speed: related to service speed, service waiting time

X1.2 Accuracy: related to accuracy and service process

X1.3 Hospitality: related to the courtesy and friendliness of the staff

X1.4 Convenience: related to location, waiting room, service area, etc.

-WOW Service Concept (X2)

an expression of admiration/surprise at something, wow service is a surprising service concept (Hermawan Kertajaya, 2014) with indicators:

X2.1 Enjoy: enjoy and memorable service, service according to SOP

X2.1 Good experience: good interaction, create a good impression on customers

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.19

B. Variabel dependen

-Customer Engagement (Y1)

With indicators (Wang and So, 2014) as follows:

Y.1.1. Attention: the level of attention that customers give to a brand

Y.1.2. Enthusiasm: the level of customer interest and interest in the brand

Y.1.3. Interaction: participation of customers in a brand

Y.1.4. Absortion: the psychological state of the customer on the interaction relationship with the company

-Customer Loyalty (Y2)

With indicators (Kotler and Keller, 2006):

Y.2.1. Repeat purchase: willingness to return in the future.

Y.2.2. Referrals: willingness to recommend the hospital to others in the vicinity.

Y.2.3. Retention: willingness to keep choosing a hospital over other hospitals

5. Study Instruments

Data were collected using the interview method using research instruments, namely a list of questions that had been prepared to the respondents in the form of a questionnaire, with the measurement scale used was an interval scale using a Likert Scale or a Likert Scale.

6. Data Analysis

The research method in determining the relationship between variables is to use Structural Equation Modeling (SEM) to test the causal relationship (Suliyanto, 2018), this analysis combines regression, factor and path analysis and how to represent a series of causal relationships in a path diagram (path diagram). using the AMOS program. And from these results, they are described and analysed.

7. Research Ethics

In this study, we ensure that there is no conflict of interest and no coercion to any party to be the research sample or when filling out the questionnaire. We ensure that data is presented anonymously so that the privacy of respondents and hospitals is maintained.

8. Study Informants

This research was conducted on BPJS patients/users at 5 private hospitals in Central Java that the researchers appointed who we accidentally met at the location and were willing to be samples when the researchers conducted research. The data was obtained by giving a questionnaire and conducting a few direct interviews with the sample.

RESULTS

The results of the study presented the results of the univariate analysis in the form of sample characteristic data and the results of the Structural Equation Model (SEM) analysis.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.19

Table 1. Sample Characteristics

Characteristics	Frequency	Percentage
X1.1		
Strongly disagree	0	0
Don't agree	0	0
Neutral	2	0.01
Agree	184	0.92
Strongly agree	14	0.07
X1.2		
Strongly disagree	0	0
Don't agree	0	0
Neutral	4	0.02
Agree	183	0.915
Strongly agree	13	0.065
X1.3		
Strongly disagree	0	0
Don't agree	0	0
Neutral	2	0.01
Agree	188	0.94
Strongly agree	10	0.05
X2.1		
Strongly disagree	0	0
Don't agree	0	0
Neutral	33	0.165
Agree	167	0.835
Strongly agree	0	0
X2.2		
Strongly disagree	0	0
Don't agree	0	0
Neutral	1	0.005
Agree	185	0.925
Strongly agree	14	0,07
Y1.1		
Strongly disagree	0	0
Don't agree	0	0
Neutral	3	0.015
Agree	184	0.92
Strongly agree	13	0.065
Y1.2		
Strongly disagree	0	0
Don't agree	56	0.28
Neutral	79	0.395
Agree	55	0.275
Strongly agree	10	0.05
Y1.3		
Strongly disagree	0	0
Don't agree	0	0
Neutral	1	0.005
Agree	181	0.905
Strongly agree	18	0.09
Y1.4		
Strongly disagree	0	0
Don't agree	51	0.255

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.19

Neutral	90	0.45
Agree	59	0.295
Strongly agree	0	0
Y2.1		
Strongly disagree	0	0
Don't agree	0	0
Neutral	0	0
Agree	161	0.805
Strongly agree	39	0.195
Y2.2		
Strongly disagree	0	0
Don't agree	49	0.245
Neutral	83	0.415
Agree	68	0.34
Strongly agree	0	0
Y2.3		
Strongly disagree	0	0
Don't agree	40	0.2
Neutral	36	0.18
Agree	124	0.62
Strongly agree	0	0

Table 2. Structural Equation Model

Dependent Variable	Independent Variable	b	95%CI		p
			Lower Limit	Upper Limit	
Structural					
Customer Loyalty	Customer Engagement	0.85	0.54	0.75	1.47
	Service Excellent	0.83	0.843	1.06	1.03
	WOW Service				1.02
Customer Engagement	Service Excellent	0.85	0.83	1.06	1.17
	WOW Service	0.87	0.85	1.08	1.13
Measurement					
Service Excellent	Kecepatan	0.97	0.66	0.93	1.06
	Ketepatan	0.96	0.65	0.93	0.68
	Keramahan	0.97	0.58	1.06	0.81
	Kenyamanan	0.97	0.60	0.82	0.88
WOW Service	Enjoy	0.97	0.79	1.12	1.02
	Good Experience	0.97	0.66	0.94	1.03
Customer Engagement	Attention	0.96	0.57	0.81	0.68
	Enthusiasm	0.97	0.58	0.82	0.99
	Interaction	0.96	0.74	1.05	1.00
	Absortion	0.97	0.64	0.91	0.998
Customer Loyalty	Repeat purchase	0.97	0.56	0.79	0.99
	Referrals	0.97	0.66	0.93	1.02
	Retention	0.97	0.62	0.87	0.98

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.19

Fit Model

Table 3. Excellent Service to Customer Engagement

Parameter Goodness of fit	Cut of Point	Analysis Results	Conclusion
Chi-Square	59.303	56.73	Good
Probability	≥ 0.05	0.08	Good
AGFI	≥ 0.90	0.93	Good
CFI	≥ 0.95	0.99	Good
CMIN/DF	≤ 2.00	1.32	Good
GFI	≥ 0.90	0.95	Good
RMSEA	≤ 0.08	0.04	Good
TLI	≥ 0.95	0.99	Good

Tabel 4. Service Excellence terhadap Loyalitas

Parameter Goodness of fit	Cut of Point	Analysis Results	Conclusion
Chi-Square	37.652	19.48	Good
Probability	≥ 0.05	0.77	Good
AGFI	≥ 0.90	0.96	Good
CFI	≥ 0.95	1.00	Good
CMIN/DF	≤ 2.00	0.78	Good
GFI	≥ 0.90	0.98	Good
RMSEA	≤ 0.08	0.00	Good
TLI	≥ 0.95	1.00	Good

Table 5. WOW Service on Engagement

Parameter Goodness of fit	Cut of Point	Analysis Results	Conclusion
Chi-Square	30.14	17.12	Good
Probability	≥ 0.05	0.58	Good
AGFI	≥ 0.90	0.96	Good
CFI	≥ 0.95	1.00	Good
CMIN/DF	≤ 2.00	0.90	Good
GFI	≥ 0.90	0.98	Good
RMSEA	≤ 0.08	0.00	Good
TLI	≥ 0.95	1.00	Good

Table 6. WOW Service on loyalty

Parameter Goodness of fit	Cut of Point	Analysis Results	Conclusion
Chi-Square	37.65	19.48	Good
Probability	≥ 0.05	0.77	Good
AGFI	≥ 0.90	0.96	Good
CFI	≥ 0.95	1.00	Good
CMIN/DF	≤ 2.00	0.78	Good
GFI	≥ 0.90	0.98	Good
RMSEA	≤ 0.08	0.00	Good
TLI	≥ 0.95	1.00	Good

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.19

Table 7. Customer Engagement towards Customer Loyalty

Parameter Goodness of fit	Cut of Point	Results Analysis	Conclusion
Chi-Square	30.14	10.36	Good
Probability	≥ 0.05	0.94	Good
AGFI	≥ 0.90	0.97	Good
CFI	≥ 0.95	1.000	Good
CMIN/DF	≤ 2.00	0.54	Good
GFI	≥ 0.90	0.99	Good
RMSEA	≤ 0.08	0.00	Good
TLI	≥ 0.95	1.00	Good

Data Analysis and Research Model Testing

The Cronbach Alpha test statistic is 0.908 with a significance of : 5%. Question items are said to be reliable if the SPSS output has a correlation coefficient of Cronbach's Alpha 0.70 (source: Tavakol and Dennick 2011) so that it can be concluded that the question instrument is reliable (has high reliability).

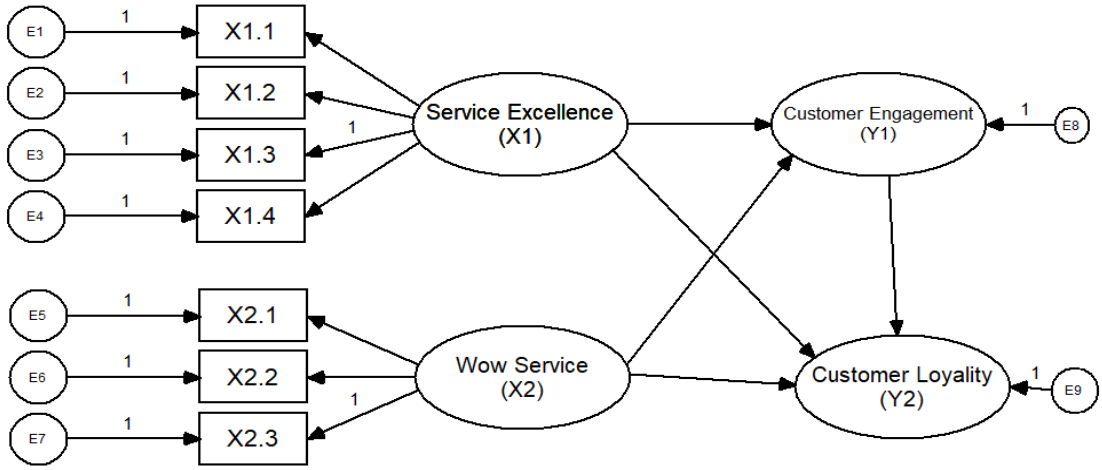


Figure 2. Equation Model Structural

DISCUSSION

From the information above, it can be concluded that with the increase in Service Excellence applied to hospitals for BPJS patients, the higher the Engagement for BPJS patients will be. This is in accordance with research conducted by Ayu Wulandari (2020), Ahmad Fauzi (2019), Amin et al. (2017) who found that the implementation of good Service Excellence had a significant effect on increasing consumer engagement with the company.

The better the improvement in service excellence can be applied, it will increase patient loyalty. This is in accordance with research conducted by Chen and Quester (2015), Rheitz (2012) and Keiningham (2015) which found that the application of good service or excellence has a significant effect and increases consumer loyalty to the company.

The application of Wow service carried out by hospitals with services that enjoy and good experience for patients will also increase the patient's

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.19

sense of engagement with the hospital. This is in accordance with the statement of Hermawan Kartajaya and Bayu Asmara (2014) and research conducted by Shamila Aisya (2020), and Vivie Senjaya (2018) which found that the application of WOW service had a significant effect and could increase the sense of customer engagement.

The application of Wow service carried out with services that enjoy and good experience for patients will also increase patient loyalty to the hospital, this is in accordance with the statement of Hermawan Kartajaya and Bayu Asmara (2014) and research conducted by Perdana, Mokhamad Zorgy Fhasa (2016) which states the application of WOW service has a significant effect on increasing customer loyalty.

Engagement felt by the patient will increase patient loyalty as evidenced by the acquisition of the highest score. This is in line with research conducted by Boateng and Narteh (2016), Prateeksha and Vanita (2018).

Based on the results of this study, it can also be seen about the importance of implementing good service, especially in terms of service equality so that there is no inequality in service perceived by customers.

From the open-ended questions we gave to the correspondents, it was found that the most important elements they expected were speed of service, sincere and fair service delivery. The Wow service concept by Hermawan Kertajaya that we offer, although it is very interesting for them to apply, is not their main priority, they are quite satisfied if the service excellence has been implemented, but even more grateful if it is equipped with the Wow service concept to complete it. Learning from existing health services, the application of patient safety should be the main thing that must be applied by every health service provider regardless of the social class and health facilities that we use (Hermawan Kartajaya, 2014) and this should be a lesson for private hospitals in Indonesia, especially in Central Java, because from the results of our interviews, many still complain about BPJS services at the private hospital.

Service improvement with the implementation of Service Excellence and the Wow service concept is expected to be able to provide a new service concept to be applied by private hospitals, especially in Central Java, although in reality there are still many obstacles and challenges that are often encountered in real life.

Like other studies, our study still has many limitations, especially on the people factor where we only see from the patient's expectations and perspectives. The suggestions that are expected for future researchers are that this research can be carried out in two directions, namely on the patient and on the hospital side. So that a comprehensive conclusion can be drawn from two directions.

AUTHOR CONTRIBUTION

Fifi Endah Irawati acts as the main researcher who coordinates the research, carries out all stages of the research, and prepares the research framework, processes research data, presents the results of analyst research

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.19

and develops research ideas, Milad Naufal Akbar acts as compiling research papers, developing research ideas and hypotheses. And Nur Shabrina Al Baiti helped the process of collecting data and compiling research papers.

CONFLICT OF INTEREST

There is no conflict of interest in this study

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGEMENT

We would like to thank the Chancellor of the University of Muhammadiyah Kudus, the Chairperson of the LPPM Muhammadiyah Kudus University, the respondents and all parties who have helped the entire process of carrying out this research activity.

REFERENCE

Kartajaya H, Asmara B (2014). WOW Service is Care. Jakarta PT. Gramedia Pustaka Utama. Jakarta.

Parihar P, Dawra J, Sahay V (2018). The role of customer engagement in theinvolvement-loyalty link. Marketing Intelligence & Planning.

Rahmawati E, Sanaji (2018). Pengaruh Customer Engagement terhadap Kepuasan Pelanggan dan Kepercayaan Merek Serta Dampaknya pada Loyalitas Merek (The Influence of Customer Engagement on Customer Satisfaction and Brand Trust and Its Impact on Brand Loyalty). Journal of Research in Economics and Management (Jurnal Riset Ekonomi dan Manajemen) 15 (2): 246-261.

Ratnawati A, Cokrohadisumarto WBM, Kholis N (2020). Improving the satisfaction and loyalty of BPJS healthcare in Indonesia.

Rusydi M (2017). Customer Excellence. Yogyakarta: Gosyen Publishing.

Senjaya V (2018). Pengaruh WOW Service terhadap Customer Satisfaction & Customer Loyalty di Kafe Excelso Tunjungan Plaza Surabaya.

Suliyanto (2018). Metodologi Penelitian. Yogyakarta: Andi Offset.

Sunarsih, Harsono M (2019). Model-Model Pendekatan Kualitas Layanan untuk Memprediksi Kepuasan Pelanggan (Service Quality Approach Models to Predict Customer Satisfaction).

Yusuf A (2018). Pengaruh Variabel-Variabel “Service with Care” (Melayani dengan Hati dan Karakter) pada Kepuasan Nasabah di Bank Cimb Niaga Cabang Padang (The Effect of "Service with Care" Variables on Customer Satisfaction at Bank Cimb Niaga Padang Branch).

Yusuf RM (2018). The effect of employee ability, hospital’s ethic and leadership to job satisfaction through the employee commitment: A Study on Indonesian Type a Private Hospital.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.19

BUILDING A HEALTHY ECONOMY BASED ON THE SHARIA ECONOMY

Yunus Mustaqim, Nunung Agus Firmansyah, Nurani Puspa Ningrum

Universitas Muhammadiyah Kudus

ABSTRACT

Background: From an economic point of view, the importance of health factors for humans will be closely related to the quality of human resources. The high and low quality of human resources will be determined by health status, education, and per capita income level. In economic activities, these three factors will determine the productivity of human resources as an indicator of the quality of human resources. This study aimed to review the health economy based on sharia economics.
Subjects and Method: This was a literature review using library electronic database. The data were obtained from documentation of various literature. The object of this study was document, information media, and literature that discussed health economics in the perspective of Islamic economics.
Results: A sharia-based health economy is looking for something related to meeting daily needs can be done comfortably and safely if the individual has a healthy self-condition, and can use sharia-based health economy in a useful way and not overdo it.
Conclusion: Building a sharia-based health economy can be done by paying attention to the process of obtaining it.

Keywords: economy, health, sharia

Correspondence:
Yunus Mustaqim. Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No. 1, Purwosari, Kudus 59316, Central Java. Email: yunusmustaqim@umkudus.ac.id. Mobile: +62 81568395667.

BACKGROUND

Health is an important need for humans. Better health status is relatively desired by every individual human living on this earth. Each individual will try to achieve this health status by investing and or consuming a number of health goods and services.

From an economic point of view, the importance of health factors for humans is closely related to the quality of human resources. The high and low quality of human resources will be determined by health status, education and per capita income level (Wisana, 2001). In economic activity, these three factors will determine the productivity of human resources as an indicator of the quality of human resources.

Advances and mastery of technology can be a factor that can affect the increase in the productivity of human resources along with the education factor. However, high education and mastery of sophisticated technology are not necessarily able to optimize this productivity if the ideal health status for activities and work is not achieved.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.20

Because health is able to contribute to economic growth. This is in accordance with the results of the meeting at the level of the minister of health which was on the agenda of The Third APEC High Level Meeting on Health and the Economy, in Nusa Dua Bali in 2013 it was recommended that to help achieve a sustainable health system throughout the APEC economy, in order to improve the quality of life and productivity. These recommendations are expected to be able to contribute to economic growth and reduce individual, national and inter- APEC health costs.

Seeing this, the level of health affects the economy (income) earned by a person. However, what is happening today, many people who get the economy are used for activities that do not pay attention to the health side, such as consuming food and drinks that can cause their health to decline..

In Islam, health must also be maintained properly by:

1. Regulate food and drink patterns

The Qur'an instructs people to pay attention to what they eat, as emphasized in the Qur'an Surah 'Abasa verse 24:

Meaning: "So let people pay attention to their food" (Surah 'Abasa: 24)

2. Balance activity and rest

Islam emphasizes the regularity of regulating the rhythm of life by getting enough sleep, adequate rest, in addition to its rights to God through worship. Islam gives guidance to arrange time for rest for the body.

3. Sports as an effort to maintain health

In general, the law of doing sports is permissible, it can even have the value of worship, if worship is intended or in order to be able to do it, perform worship perfectly and its implementation does not conflict with Islamic norms.

4. Suggestions for maintaining cleanliness

Islamic teachings are very concerned about the issue of hygiene which is one of the important aspects in medical science. The Prophet said: "From 'Ali ra., from the Prophet, he said: "The key to prayer is purification" (Narrated by Ibn Majah, al-Turmudzi, Ahmad, and al-Darimi)

Based on the description above, an in-depth analysis is needed regarding the existence of a distributed health economy that provides physical and spiritual benefits to a person, namely by looking at the sharia economy. This study aims to analyze building a health economy based on sharia economics.

SUBJECTS AND METHOD

1. Study Design

This study is a literature review using a library electronic database. The data was obtained from the documentation of various literatures.

2. Data Analysis

Data analysis was carried out using qualitative descriptive analysis, which is a method used to describe or analyze a research result but is not used to make broader conclusions using deductive and inductive methods (Arikunto, 2013).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.20

RESULTS

Health in Economic Development

Health can affect economic growth in several ways, such as improving a person's health will lead to an increase in labor participation. Public health has an important role in efforts to improve the quality of human resources, reduce poverty and economic development. The human development index puts health is one of the main components of measurement besides education and income.

According to Mulyadi, the role of health in economic development on the one hand, is a function of policies and institutions as well as input factors on the other. Health has a very strong economic role in human resources and company capital through various mechanisms (cakrawala-news.co.id).

Sharia Economics-Based Health Economics

Health economics is the application of economics in the health sector and the factors that influence health with the aim of achieving a more optimal health degree. In addition, health economics is also a study of the supply and demand for resources involved in health care and the impact of health on society.

In general, the health economy concentrates more on quantifying resources to achieve health development goals and on quantifying the impact of curative, preventive and rehabilitative efforts on individual productivity as well as national productivity.

DISCUSSION

Health in Economic Development

Analyzing the various relationships between health and economic development, it can be seen that at the micro level, namely at the individual and family level, health is the basis for work productivity and capacity to learn in schools. Workers who are physically and mentally healthy will be more energetic and strong, more productive, and earn high incomes.

This situation is especially true in developing countries, where the largest proportion of the workforce is still working manually.

In Indonesia, for example, male workers who suffer from anemia are 20% less productive than male workers who do not suffer from anemia (Atmawikarta, 2002). Furthermore, healthy children have better learning abilities and will grow into more educated adults. In a healthy family, children's education tends to be uninterrupted when compared to an unhealthy family.

At the macro level, a population with good health is an important input for poverty reduction, economic growth, and long-term economic development. Several major historical experiences have proven successful economic takeoff such as rapid economic growth supported by important breakthroughs in the fields of public health, disease eradication and improved nutrition. This occurred among others in Britain during the industrial revolution, Japan and South America in the early 20th century, and developments in Southern Europe and East Asia in the

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.20

early 1950s and 1960s (Atmawikarta, 2002).

Sharia Economics-Based Health Economics

Islam is a perfect and complete religion. Islam also establishes principles in maintaining the balance of the human body. Among the ways of Islam to maintain health by maintaining cleanliness and carrying out ablution and bathing regularly.

Health is a physical condition in which all functions are in a healthy state. Being healed after being sick is the best gift from God to human beings. It is impossible to act righteously and pay proper attention to obedience to God if the body is not healthy.

To maintain a good health economy, we can do this by paying attention from the process of making money to getting food and drinks properly and correctly. The Word of Allah SWT:

وَكُلُوا۟ مِمَّا رَزَقَكُمُ ٱللَّهُ حَلَٰلًا طَيِّبًا ۖ وَٱتَّقُوا۟ ٱللَّهَ ٱلَّذِىٓ أَنتُم بِهِۦ مُؤْمِنُونَ ﴿٨٨﴾

Meaning: "And eat lawful and good food from what Allah has provided for you, and fear Allah in whom you believe" (Al-Maidah: 88)

Shaykh Abdurrahman bin Nasir as-Sa'di (1886) explained eat from Allah's sustenance which has been given to you by obtaining it which is lawful; not by stealing, looting, and other ways that are not right. The food must also be thayib which does not contain disease. Therefore excluded in this case the disgusting animals of the wild and other types.

Thus, it can be understood that a health economy based on a health economy is looking for something related to meeting daily needs that can be done comfortably and safely, if you have a healthy self condition. And can use it in a useful way and not overdo it.

AUTHOR CONTRIBUTION

The first researcher is responsible for the entire research starting from determining the research topic, collecting data, interpreting the data and writing research articles. Furthermore, the second and third researchers are responsible for guiding and directing this research from start to finish and are responsible for providing an assessment of the research results to proofreading research articles.

ACKNOWLEDGMENT

The researcher expresses his deepest gratitude to the University of Muhammadiyah Kudus, especially LPPM Muhammadiyah Kudus University who has guided and directed the completion of this research.

FUNDING AND SPONSORSHIP

This research is a research funded or sponsored by LPPM Muhammadiyah Kudus University.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Al-Qur'an (2012). Al-Qur'an dan Terjemahnya (The Qur'an and its translation). Jakarta: Kementerian Agama.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.20

Atmawikarta A (2002). Investasi Kesehatan Untuk Pembangunan Ekonomi (Health Investment for Economic Development). Jakarta: BAPPENAS.

Tarigan AA (2012). Tafsir Ayat-Ayat Ekonomi Al-Qur'an (Interpretation of Economic Verses of the Qur'an). Bandung: Citapustaka.

http://www.cakrawalanews.co.id/artikel/799/Peranan-Kesehatan-dalam-Pembangunan-Ekonomi/.

Wisana IDGK (2001). Kesehatan Sebagai Suatu Investasi (Health as an Investment). Jurnal Ekonomi dan Pembangunan Indonesia. 1(1).

Arikunto S (2013). Prosedur Penelitian Suatu Pendekatan Praktik. Bandung: Rineka Cipta

As-Sa'di SABN (1886). Taisir Karimirrahman fi Tafsiri Kalamil Mannan. Mesir: Dar al Fikr.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.20

Susceptible-Infected-Recovered Epidemic Model on the Spread of Tuberculosis Disease in Central Java

Muhammad Faudzi Bahari[1)], Ade Ima Afifa Himayati[1)], M.Adib Jauhari Dwi Putra[1)], Putri Indriyani[2)]

1) Mathematic Departement, Faculty of Science and Technology, Universitas Muhammadiyah Kudus
2) Study Program of Mathematic, Faculty of Science and Technology, Universitas Muhammadiyah Kudus

ABSTRACT

Background: In order to understand tuberculosis (TB) trends, the epidemiologist need to focus on the long-term consequences of tuberculosis epidemics, which can be observed with the analysis of epidemiological models. Susceptible, infectious, recovered (SIR) model is an epidemiological models consist of compartments which represent sets of individuals grouped by TB status. This study aimed to examined SIR model on the spread of TB disease.
Subjects and Method: This was a cross sectional study. The study population was tuberculosis patients in Central Java, Indonesia, from 2018 to 2019. The study involved three sub-populations, included (1) suspected (high risk infected to TB), (2) infected (TB patients), (3) cured (TB survivors). TB cases were obtained from medical record. The data were analyzed by susceptible, infectious, recovered (SIR) model.
Results: The epidemic model found that an infected TB patient may disseminate TB cases to 2 suspected persons. SIR model can be used to calculate reproduction number of TB.
Conclusion: SIR model can be used to calculate reproduction number of TB.

Keywords: tuberculosis, SIR model, COVID-19

Correspondence:
Muhammad Faudzi Bahari. Mathematic Department, Faculty of Science and Technology, Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No.I, Purwosari, Kudus, Central Java. Email: muhammadfaudzi@umkudus.ac.id. Mobile: +6281218382619.

BACKGROUND

Tuberculosis (TB) or TB is an infectious disease of the lungs caused by the bacterium Mycobacterium tuberculosis. Altho-ugh commonly known as lung disease, other parts of the body, such as the kidneys, spine, and brain, can be damaged by tuberculosis. Tuberculosis was declared a viral epidemic for the first time on March 24, 1882 by a German scientist Robert Koch. Koch discovered that Mycobacterium tuberculosis is a pathogenic bacterium that transmits tuberculosis.

Since it was first declared as a disease caused by a virus, tuberculosis is still a world health problem today. Tuberculosis has become even more frightening during the COVID-19 pandemic. As we know, the corona virus also attacks the respiratory tract so that the risk of death will increase when the mycobacterium tuberculosis germs are already in the patient's body. Based on this, the Indonesian government is currently intensively vaccinating against COVID-19, but TB sufferers have several special rules before vaccinating. In tuberculosis patients who are under-

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.20

going treatment, it is necessary to give anti-tuberculosis drugs first, at least 2 weeks before receiving the vaccine. This is done so that the risks that may occur after vaccination can be avoided to a minimum.

Central Java is one of the provinces in Indonesia which certainly cannot be separated from the same health problems. The Central Java government has also made various efforts to reduce the death rate from tuberculosis. However, based on data, there was a significant increase in the number of tuberculosis sufferers in Central Java between 2018 and 2019. This indicates the need to increase efforts to eradicate tuberculosis transmission in Central Java. Tubercu-losis can be transmitted through the air, so transmission can take place very quickly because of the many interactions between sufferers and susceptible people.

Several scientists have conducted research on the spread of the infectious disease tuberculosis by making mathematical models of its spread. Several studies have been conducted by Syafruddin Side (Side, 2015; Iskandar et al., 2017; Schipper et al., 2020; Das et al., 2021). The SIR Mathematical Model was first introduced by Kermack and McKendrick (1938).

Based on the things that have been described previously, we are interested in conducting research on the spread of TB disease in Central Java.

SUBJECTS AND METHOD

1. Study Design

The factorial design method was carried out to determine the pattern of transmission of tuberculosis in Central Java for the 2018-2019 period.

2. Population and Sample

The population studied is the population of Central Java for the period 2018 and 2019 which includes 3 subpopulations, namely the suspected population, the infected population, and the recovered population.

3. Study Variables

The dependent variable is the number of suspected, infected, cured, and the basic reproduction rate. The independent variables are the transmission rate and the cure rate.

4. Operational Definition of Variables

The suspicious population is a group of people who have a risk of contracting tuberculosis.

The infected population is a group of tuberculosis sufferers.

The recovered population is the tuberculosis survivor group.

5. Data Analysis

The analysis used is to test the equilibrium point in the SIR model.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.20

RESULTS

The illustration of the SIR model in Figure 1 can be explained as follows:

$$\frac{dS}{dt} = A - \beta SI - \mu S$$
$$\frac{dI}{dt} = \beta SI - \alpha I - \mu I$$
$$\frac{dR}{dt} = \alpha I - \mu R$$
$$A = \mu S = \mu I = \mu R = 0$$

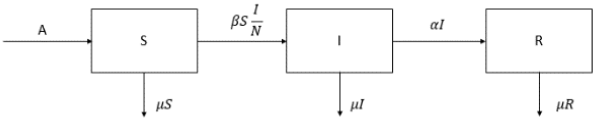


Table 1. SIR Model Compartment Diagram

Table 1 showed the number of residents of Central Java, both infected and recovered in 2018 and 2019.

Based on these data, then we substituteinto the specific solution the sub-population of the number of people who are susceptible to tuberculosis, so that: $S(t) = S(0)e^{\left(\frac{\alpha}{\beta}\right)R(t)}$.

Table 1. The number of the population of Central Java infected and cured of tuberculosis

Year	Numbers Of Population		
	Total Population	Infected	Recovered
2018	34490835	49616	15325
2019	34718204	73171	17283

Based on these data, then substituted into a special solution from the sub-population of the number of people who are susceptible to tuberculosis, namely S so that S (t) represents the number of people who are susceptible to tuberculosis and S (0) represents the initial population and R(t) states that the number of people infected with TB disease obtained the following results:

$$\frac{\beta}{\alpha} = 3.8 \times 10^{-7}$$

As we know, the cure and death rate from TB is 10 years so:

$$\alpha = \frac{1}{10} = 0.1.$$

The result, obtained a model of the spread of Tuberculosis:

$$\begin{cases} \frac{dS}{dt} = 34490835 - 3.8 \times 10^{-8} S(t)I(t) \\ \frac{dI}{dt} = 3.8 \times 10^{-8} S(t)I(t) - 0.1I(t) \end{cases} \quad (1)$$

Model analysis is needed to obtain research results on the spread of tuberculosis in Central Java using the SIR model.

Mathematical Model Analysis

1. Critical Point

To find the critical point, the system (1) is made at a constant position with respect to time, that is, a condition where $\frac{dS}{dt} = 0, \frac{dI}{dt} = 0,$ dan $\frac{dR}{dt} = 0.$

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.20

2. Equilibrium point and stability

If we assume I in the second equation in equation (2), we can get the conclussion $7.6 \times 10^{-8}S - 0{,}1 = 0$, So $S = 2631580$.

Then, the equilibrium point of the System of Equation (2), (S,I)= (26315 80,344908350) is obtained which states that the number of individuals who are susceptible and infected with Tuberculosis are 2631580 people and 344908350 people, respectively.

For example, $\frac{dS}{dt} = f_1(S,I)$ and $\frac{dI}{dt} = f_2(S,I)$, Then a stability test will be carried out using the first derivative of each function on each variable in the jacobian matrix.

$$Jf(S,I) = \begin{bmatrix} -3.8 \times 10^{-8}I & -3.8 \times 10^{-8}S \\ 3.8 \times 10^{-8}I & 3.8 \times 10^{-8}S - 0.1 \end{bmatrix}$$

$$Jf(2631580,344908350) = \begin{bmatrix} -13.106 & -0.1 \\ 13.106 & 0 \end{bmatrix}$$

Based on $Jf(S,I)$, following the following characteristic equation:

$$\lambda^2 + 13.106 + 1.3106 = 0$$

Earned λ_1=-13.00523 and λ_2=-0.100775, we can see $\lambda_{1,2} < 0$, so obtainned local asymptotic equilibrium point (S, I)= (2631580,344908350) This showed that the number of susceptible individuals and the number of infected individuals is very small, so that with increasing time the population reaches a balance point (S,I) = (2631580,344908350) which means that Tuberculosis is still present in the community.

3. Basic Reproduction Number

βA is the basic reproduction rate that is influenced by the birth or migration rate and the transmission rate of tuberculosis so that:

$$R_0 = \beta A = 3.8 \times 10^{-8} \times 34490835 = 1.31065$$

From the above formula it can be seen that one infected individual can, on average, infect 1 to 2 susceptible individuals in the TB disease population.

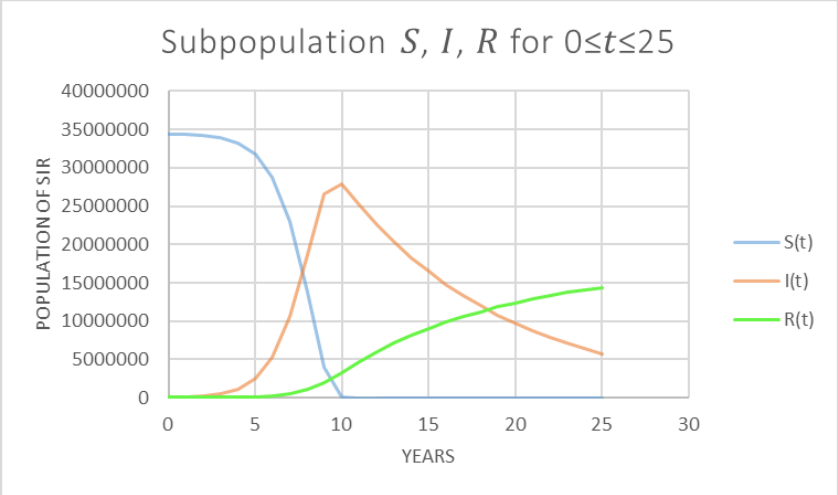


Figure 2. The Spread of The Tuberculosis Virus in Central Java in the Next 25 Years Using the SIR Model

Based on Figure 2, it can be seen that after 25 years it can be seen that the infected population will increase even more than the susceptible population, so that the disease becomes endemic.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.20

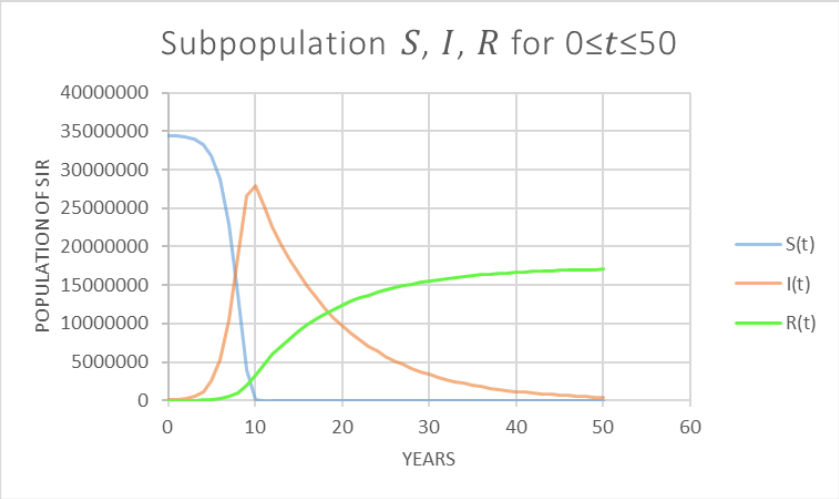


Figure 2. The results of the AUC classification process for heart failure datasets using the naïve Bayes Algorithm

Based on Figure 3, it can be seen that the number of people who are susceptible to tuberculosis will be smaller and closer to zero. Another interesting thing is the decrease in the number of people infected and the increase in the number of people who have recovered. This shows that there is still hope that tuberculosis will no longer be an endemic disease and even disappear in Central Java.

DISCUSSION

In this study, the model used shows that the basic reproduction number denoted R_0 has a value of more than 1. It can also be seen that when the value of R_0>1, the model used shows that the local asymptotic endemic equilibrium point. So it can be concluded that tuberculosis will still be an endemic disease in Central Java Province.

This is in line with research that has been conducted in several cities in Central Java. In a study conducted by May Fadilla at a public health center (PusKesMas) in the city of Purbalingga, it was shown that it was still necessary to increase public awareness of the importance of a Clean and Healthy Lifestyle and improvement of the sanitation system in every home that has patients infected with tuberculosis. (Fadilla and Utomo 2018) This research can also be used as a rough description of several factors for the spread of tuberculosis in other cities in Central Java.

Another research is Baharo's research on the spread of tuberculosis in Kudus Regency which shows the same points as this study. In this study, the researchers found that using the SIR model, it was found that the endemic equilibrium point was stable and an indication that tuberculosis will still be an endemic disease in Kudus Regency (Bahari et al., 2022).

Based on the research that has been done, we found that Central Java has the potential to be free from tuberculosis in the future. Our research on the spread of tuberculosis in the Central Java area can still be developed.

There are several things that might be considered in further

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.20

research, namely using more complex models such as the SEIR and SEIR models with vaccination which are also used by several researchers including Rahmat Syam (Syam et al., 2021; Side et al., 2017; Roudhotillah and Chandra, 2021).

In addition to the development of research models regarding the spread of tuberculosis, the development can be carried out with a larger scope of research, for example the island of Java or throughout Indonesia.

AUTHOR CONTRIBUTION

Muhammad Faudzi Bahari as the main author is in charge of managing team work in general, dividing tasks, explainning research concepts, searching for data, performing calculations on case examples used, and compiling research into a journal to be published. Ade Ima Hafifa Hamiyati and M. Adib Jauhari Dwi Putra as the second and third authors helped explain to Putri Indriyani regarding the calculation mechanism using the SIR model face-to-face, in collaboration with LPPM UMKU regarding research publications. Putri Indriyani is tasked with finding data, performing calculations on the case examples used.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This research was funded by The Institution of Research and Community Services Universitas Muhammadiyah Kudus.

ACKNOWLEDGMENT

The authors grateful to Central Statistics Agency for providing the data needed to conduct this research. We also thank the Institute for Research and Community Service, Universitas Muhammadiyah Kudus, Central Java for facilitating this research.

REFERENCES

Das K, Murthy BSN, Samad SA, Biswas MHA (20210. Mathematical Transmission Analysis of SEIR Tuberculosis Disease Model. Sensors International 2 (June): 100120. DOI: 10.1016/j.sintl.2021.100120.

Fadilla M, Utomo B (2018). Analisis Faktor Risiko Tuberkulosis Paru Di Wilayah Kerja Puskesmas Kaligondang Kabupaten Purbalingga Tahun 2017 (Analysis of Pulmonary Tuberculosis Risk Factors in the Work Area of Kaligondang Public Health Center, Purbalingga Regency in 2017). Buletin Keslingmas 37 (3): 347–53. DOI: 10.31983/keslingmas.v37i3.3899.

Fredlina KQ, Oka TB, Dwipayana IME (2012). Model SIR (Susceptible, Infectious, Recovered) Untuk Penyebaran Penyakit Tuberkulosis." E-Jurnal Matematika 1 (1): 52–58. DOI: 10.24843/MTK.2012.v01.i01.p009.

Iskandar T, Chaniago NA, Munzir S, Halfiani V, Ramli M (2017). Mathematical model of tuberculosis epidemic with recovery time delay, AIP Conference Proceedings, 1913. DOI: 10.1063/-1.5016655.

Kermack, McKendrick (1938). A Con-

tribution to the Mathematical Theory of Big Game Hunting', The American Mathematical Monthly, 45(7): 446. DOI: 10.2-307/2304150.

Roudhotillah D, Chandra TD (2021). Analisis Kestabilan Model Penyebaran Penyakit Tuberkulosis Dengan Menggunakan Mseitr (Analysis of the Stability of the Tuberculosis Spread Model Using Mseitr). Wahana Matematika Dan Sains: Jurnal Matematika, Sains, Dan Pembelajarannya 15 (2): 56–74. Retrieved at: https:-//ejournal.undiksha.ac.id/index.-php/JPM/article/view/34503.

Schipper L (2020). The COVID-19 resource centre is hosted on Elsevier Connect , the company ' s public news and information. Ann Oncol: 19–21.

Side S (2015). A susceptible-infected-recovered model and simulation for transmission of tuberculosi', Advanced Science Letters, 21(2): 137–139. DOI: 10.1166/asl.2015.-5840.

Side S, Mulbar U, Sidjara S, Sanusi W (2017). A SEIR Model for Transmission of Tuberculosis. AIP Conference Proceedings 1830 (March 2018). DOI: 10.1063/1.4-980867.

Syam R, Side S, Said CS (2021). Model SEIRS Penyebaran Penyakit Tuberkulosis Di Kota Makassar. J Math Stat 3 (1): 11. DOI: 10.35-580/jmathcos.v3i1.19180.

ACCEPTANCE OF ELECTRONIC HEALTH ALERT CARD (E-HAC) FOR COVID-19 SCREENING AMONG FLIGHT PASSENGERS AT SOEKARNO – HATTA AIRPORT

Deni Tri Hananto[1)], Budi Sampurna[2,3)], Aria Kekalih[2,3)]

[1)]Specialist Program in Aviation Medicine, Faculty of Medicine,Universitas Indonesia
[2)]Department of Community Medicine, Faculty of Medicine, Universitas Indonesia
[3)]Cipto Mangunkusumo Hospital, Jakarta

ABSTRACT

Background: Passenger screening and security checks are a familiar aspect of air travel – but the ways in which passengers are screened has changed over the years, from simple x-ray systems, to the more complex and sophisticated systems we see today, including Electronic Health Alert Card (E-HAC). Health Belief Model (HBM) constructs have widely used to explain a variety of health preventive behaviors. This study aimed to investigate the association between HBM constructs and acceptance of E-HAC.
Subjects and Method: This was a cross-sectional study conducted at Soekarno-Hatta Airport, Jakarta, in July 2021. A sample of 200 domestic and international passengers was selected at random. The dependent variable was acceptance E-HAC. The independent variables were HBM construct. The data were collected by a set of questionnaires. Association between variables was analyzed using Pearson correlation.
Results: Acceptance of E-HAC was positively correlated with attitude ($r= 0.67$; $p<0.001$), ease of application ($r= 0.72$; $p<0.001$), and perceived benefit ($r= 0.70$; $p<0.001$). Acceptance of E-HAC was negatively correlated with perceived privacy ($r= -0.44$; $p <0.001$). The association between perceived risk and acceptance of E-HAC was statistically non-significant ($r= 0.08$; $p= 0.413$).
Conclusion: Acceptance of E-HAC is positively correlated with attitude, ease of application, and perceived benefit. Acceptance of E-HAC is negatively correlated with perceived privacy.

Keywords: COVID-19, E-HAC, screening, flight passengers.

Correspondence:
Deni Tri Hananto. Faculty of Medicine, Universitas Indonesia, Jl. Salemba Raya No. 6, Central Jakarta 10430. Email: dr.denitrihananto@yahoo.com. Mobile: +628222590818.

BACKGROUND

COVID-19 is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). SARS-CoV-2 is a new type of coronavirus that has never been previously identified in humans. Common signs and symptoms of COVID-19 infection include symptoms of acute respiratory distress such as fever, cough and shortness of breath. The average incubation period is 5-6 days with the longest incubation period being 14 days (Riadi, 2019). The chain of transmission of the SARS-CoV-2 pandemic is currently spreading globally, involving more than one country, so contact tracing must be carried out.

Close contacts of confirmed cases of COVID-19 should be identified according to WHO guidelines for contact tracing. Digital tools, such as cell phones and applications for contact tracing, can support and complement

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.01

surveillance in close contact tracing (WHO, 2020).

Smartphone applications were first used as contact tracing in 2014-2016 in West Africa during the Ebola pandemic. Smartphone applications have the advantage of increasing data completeness, storage, and accuracy, compared to filling in data with paper (Danquah, 2019). COVID-19 transmission is high in asymptomatic individuals, making pandemic control by manual contact tracing impossible. The use of contact tracing apps that record close contacts and immediately notify contacts of positive cases will be enough to stop the pandemic if used by enough people. South Korea has integrated digital technology into government-coordinated mitigation processes, including screening and contact tracing. By identifying and isolating COVID-19 early, South Korea has maintained the lowest per capita mortality rate in the world (Case Fatality Rate of 0.5% COVID-19 deaths per 100,000 people) (Ferre¬tti, 2020). Applications with a similar purpose have been implemented in China. Sustained suppression of the epidemic has been achieved in China, less than 150 new cases have been reported daily from March 2 to April 22, down from previously thousands of cases daily at the peak of the epidemic (Chen, 2020).

Along with the increasing transmission of COVID-19 disease in Indonesia and new mutations of COVID 19 disease from other countries. Therefore, an adequate digital tracking instrument is needed, in order to reduce the risk of COVID-19 transmission in Indonesia. The Electronic Health Alert Card (E-HAC) system is expected to support easy access to services for all passengers, as a tracking of the risk of spreading diseases carried by passengers (Ministry of Health, 2020).

Internal data from the Soekarno-Hatta Port Health Office reports that the implementation of E-HAC from September 2020 to March 28, 2021, only amounted to 66,292 cases out of a total of 310,121 cases (21%) on international flights. In addition, there are still many implementations of E-HAC on domestic flights that do not implement E-HAC (324,000 passengers from 1,246,648 passengers) in November 2020 to March 2021. Therefore, study is needed to analyze the causes of the low passenger acceptance in implementing E-HAC (Velicia-Martin, 2021). This study aims to determine the relationship between HBM construction and E-HAC acceptance at Soekarno-Hatta Airport.

SUBJECTS AND METHOD

1. Study Design

This was a cross-sectional study conducted at Soekarno-Hatta Airport, Jakarta, in July 2021.

2. Population and Sample

A sample of 200 domestic and international passengers was randomly selected. The inclusion criteria used are as follows: (1) international flight passengers coming from abroad; (2) domestic flight passengers coming from outside the city; and (3) agreed to the informed consent. The exclusion criteria in this study were invalid E-HAC data filling and not agreeing to informed consent.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.01

3. Study Variables

The dependent variable is the acceptance of E-HAC. The independent variable is the HBM construct.

4. Operational Definition of Variables

E-HAC acceptance is defined as passengers implementing E-HAC and passengers not implementing E-HAC.

Perceived ease of use is defined as the degree to which a person believes that using an application will require minimal effort.

Perceived usefulness is defined as the degree to which a person believes that using the system will improve their performance.

COVID-19 risk perception is how uncertain a person feels when deciding whether to do something or not regarding the risk of contracting COVID-19.

Attitude towards the application is the user's feeling about using the application being studied.

5. Study Instrument

All samples that meet the inclusion criteria will fill out the E-HAC validation and the Technology Acceptance Model (TAM) questionnaire was expanded as the instrument used in this study.

5. Data Analysis

Data were analyzed using SPSS version 21.0 software with Pearson correlation test.

RESULTS

1. Sample Characteristics

On domestic flights, the majority of passengers are aged 17–15 years (53%), the education level is high school as many as 52 people (48%), a history of comorbidity is often found in international passengers, international passengers understand more about E-HAC rules as many as 64 people (57 %) (Table 1).

2. Attitude and behavior profile using E-HAC

Table 2. shows the results that attitudes to use E-HAC, trust in applications, perceptions of ease of application and perceptions of application benefits for domestic passengers are better than international flight passengers.

3. Factors influencing behavioral intention to use E-HAC

Table 3. shows that E-HAC acceptance is positively correlated with attitudes ($r= 0.67$; $p<0.001$), ease of application ($r= 0.72$; $p<0.001$), and perceived benefits ($r= 0.70$; $p<0.001$). E-HAC acceptance was negatively correlated with perceived privacy ($r= -0.44$; $p <0.001$). The relationship between perceived risk and acceptance of E-HAC was not statistically significant ($r= 0.08$; $p= 0.413$).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.01

Table 1. Sample Characteristics (n=200)

Variable	Domestic flights (n=100)		International flights (n=100)		p
	n	%	n	%	
Age					
17 - 25	36	36.0%	32	31.4%	0.550
26 - 35	29	29.0%	32	31.4%	
36 - 45	14	14.0%	24	23.5%	
46 - 55	18	18.0%	9	8.8%	
> 55	3	3.0%	5	4.9%	
Education					
No formal education	1	1.0%	4	4.0%	0.016
PS graduate	5	5.0%	22	21.8%	
JHS graduate	8	8.0%	6	5.9%	
SHS graduate	52	52.0%	50	49.5%	
College	34	34.0%	19	18.8%	
Comorbid diseases	3	3%	12	12%	0.015
Behavior of not using E-HAC	50	50%	65	65%	0.032
Passengers understand the mandatory rules of E-HAC	57	57%	64	64%	0.810
Level of restriction (Domestic)					
Level 4	96	96%			
Level 3	4	4%			
Zoning Risk (International)					
High			14	14%	
Moderate			14	14%	
Low			72	72%	

Table 2. Attitude and behavior profile of using E-HAC

Variable	Domestic flights		International flights		p
	Mean	SD	Mean	SD	
Attitude to use E-HAC (score 3-15)	12.0	1.6	10.5	1.8	0.001
App privacy issues (score 3-15)	8.7	2.2	8.9	2.6	0.557
Trust in the application (score 3-15)	11.7	1.7	10.1	1.7	0.001
Perception of convenience (score 5-25)	19.6	2.5	17.3	3.3	0.001
Perceived benefits (score 3-15)	11.6	1.6	10.4	2.0	0.001
COVID-19 risk perception (score 4-23)	16.1	3.3	15.9	2.9	0.649
Intention to use E-HAC (score 3-15)	11.5	1.5	10.9	2.0	0.689

Table 3. Relationships between attitude, perceptions of privacy issues, trust, the risk of COVID-19, and intention to use E-HAC

Variable	Intention to behave using E-HAC	
	r	p
Attitude to the application	0.67	<0.001
Ease of application	0.72	<0.001
Application benefits	0.70	<0.001
Perceived privacy	-044	<0.001
COVID-19 risk	0.08	0.413

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.01

DISCUSSION

The sample data in this study consisted of domestic and international flight passengers with digital questionnaires at Soekarno-Hatta Airport. The majority of domestic flight passengers are aged 17-25 (36%) years, while for international flight passengers, the 17-25 year age group is the same as 26-35 years old (32 percent each). The education level of flight passengers, both domestic and international, is dominated by high school graduates (52% and 56%). More comorbid illnesses were found among international passengers (12%) than domestic passengers (3%).

There are differences in the level of use of E-HAC for domestic and international passengers, 50% of domestic passengers use E-HAC, while only 35% of international passengers use E-HAC. The level of knowledge of passengers on the mandatory rules of E-HAC is also different, namely 57% for domestic passengers, and more, namely 64% of international patients who know that there are regulations that require the use of E-HAC.

There are differences in the zoning of domestic and international passengers, i.e. almost all domestic passengers come from level 4 PPKM zones. Meanwhile, on international flights, the domicile of passengers is divided into high, medium, and low risk, with the majority of passengers coming from zones with a high risk of COVID-19 transmission. low (72%). Demographic data of the sample shows that passengers on domestic flights are better than international passengers in implementing E-HAC.

The results of this research data indicate that the behavioral intention of flight passengers to use E-HAC is related to several factors, both for domestic and international passengers. Passengers' attitudes and beliefs about the E-HAC application are positively related to the intention to behave using E-HAC. This finding is in line with the study by f et al which stated that better attitudes and beliefs towards the application of E-HAC increased the behavioral intention of passengers to use E-HAC.

The results of this study also have some differences compared to the previous study by Velicia-Martin et al. (2021) who found that concerns about the transmission of COVID-19 for passengers and their families influenced their behavioral intentions to use the application positively. In addition, in previous studies, the importance of privacy concerns was found to not significantly affect the behavioral intention of passengers to participate in contact tracing efforts, while the results of the current study stated that privacy concerns were negatively related to behavioral intentions using E-HAC (Velicia-Martin et al., 2021). This is due to differences in the number of sample populations and differences in sample characteristics on the importance of privacy and health.

This study proves that the attitude of using E-HAC is positively related to the perception of the convenience and benefits provided by the E-HAC application. The perception of the ease of using the E-HAC application increases the attitude of passengers to use E-HAC. Likewise with the benefits, the more useful the E-HAC application, the attitude of passengers to use E-HAC will increase. The results of this study

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.01

are in line with the study by Velicia-Martin et al., 2021 which states that user perceptions of the convenience and benefits of contact tracing applications are the biggest factors influencing user acceptance of the application (Velicia-Martin et al., 2021). There is a difference in the strength of the correlation, namely a strong correlation for passengers on domestic flights, while for passengers on international flights there is a moderate correlation (Velicia-Martin et al., 2021).

From this study, various conclusions can be drawn, namely as follows: (1) The attitude of domestic and international flight passengers towards the implementation of E-HAC is positively related to the behavioral intention of passengers to use E-HAC; (2) Domestic and international flight passengers' trust in E-HAC is positively related to the behavioral intention of passengers to implement E-HAC; (3) The perception of the risk of COVID-19 on domestic and international flight passengers is not related to the behavioral intention of passengers to use E-HAC; (4) The issue of privacy in the use of E-HAC is negatively related to the behavioral intention of domestic and international flight passengers to use E-HAC; (5) Ease of use of E-HAC is positively related to attitudes towards the use of E-HAC for domestic and international flight passengers; (6) The benefits felt by domestic and international flight passengers are positively related to the attitude of using E-HAC; (7) Factors that influence the acceptance of flight passengers in the implementation of E-HAC include attitudes, beliefs, privacy issues, perceptions of convenience, and perceptions of benefits in using E-HAC.

This research has successfully demonstrated the factors that influence the use of E-HAC. However, the sample size used in this study was relatively small and only taken from one research site. Therefore, further research is needed to examine aspects of the convenience and benefits required by airline passengers in using E-HAC.

AUTHOR CONTRIBUTION

Deni and Budi S conceptualize and analyze the data in this study. Aria K developed the methodology and analyzed the data. Budi S acts as supervisor.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSHORSHIP

This study is self-funded.

ACKNOWLEDGMENT

We would like to thank Darmawali as the Head of the Soekarno Hatta Port Health Office who helped provide access to data collection for this research.

REFERENCES

Chen S, Yang J, Yang W, Wang C, dan Bärnighausen T (2020). COVID-19 control in China during mass population movements at New Year. Lancet. 395: 764–766. DOI: 10.1016/S0140-6736(20)30421-9

Danquah LO, Hasham N, MacFarlane M, Conteh FE, Momoh Fatoma, Tedesco AA, Jambai A, et al. (2019). Use of a mobile application for Ebola contact tracing and monitoring in northern Sierra

Leone: A proof-of-concept study. BMC Infect Dis. 19: 1–12. DOI: 10.1186/s12879-019-4354-z

Direktorat Surveilans dan Karantina Kesehatan Ditjen Pencegahan dan Pengendalian Penyakit (2021). Buku Saku Pelacakan Kontak (Contact Tracing) Kasus COVID-19 (Handbook of Contact Tracing for COVID-19 Cases). Jakarta: Kementerian Kesehatan RI.

Direktorat Surveilans dan Karantina Kesehatan Ditjen Pencegahan dan Pengendalian Penyakit (2020). Panduan Pengguna Aplikasi E-HAC (E-HAC Application User Guide). Jakarta, Kementerian Kesehatan Republik Indonesia.

Ferretti L, Wymant C, Kendall M, Zhao L, Nurtay A, Abeler-Dorner L, Vonsal D, et al (2020). Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing. Science. 368(6491): eabb6936. DOI: 10.1126/science.abb6936

Presiden Republik Indonesia (2018). Undang Undang Nomor 6 tahun 2018 tentang Kekarantinaan Wilayah. Natl. Stand. Agency Indones. 31–34.

Riadi A (2019). Pedoman dan Pencegahan Coronavirus (COVID- 19) (Coronavirus (COVID-19) Guidelines and Prevention). Math Didact J Pendidik Mat. 4: 1–214.

Rowe F, Ngwenyama O, dan Richet JL (2020). Contact-tracing apps and alienation in the age of COVID-19. Eur J Inf Syst. 29: 545–562. DOI: 10.1080/0960085X.2020.1803155.

Velicia-Martin F, Cabrera-Sanchez JP, Gil-Cordero E, dan Palos-Sanchez PR (2021). Researching COVID-19 tracing app acceptance: incorporating theory from the technological acceptance model. Peer J Comput Sci. 7: 1–20. DOI: 10.7717/peerj-cs.316.

World-Health-Organization (2020). Risk assessment tool to inform mitigation measures for international travel in the context of COVID-19.

THE ASSOCIATION BETWEEN ATTITUDE AND ADHERENCE TO TAKE ANTI-TUBERCULOSIS DRUGS IN TUBERCULOSIS PATIENTS IN KUPANG HEALTH CENTER, EAST NUSA TENGGARA, INDONESIA

Bringiwatty Batbual[1)], Wanti[1)], Kusmiyati[1)], Jefrin Sambara[1)], Irfan[1)], Florentianus Tat[1)], Petrus Belarminus[1)], Yohan Charles[2)]

[1)]Health Polytechnics Ministry of Health, Kupang, East Nusa Tenggara
[2)]Kupang District Health Office, East Nusa Tenggara

ABSTRACT

Background: Based on data from Perdaki NTT (2021), the absolute number of TB case finding in 2018-2020 in NTT in 2018 was 7,632 cases. In 2019 there were 7,575 cases and in 2020 there were 5,126 cases. This decrease in case finding could be due to the decreased number of tracing due to the impact of COVID-19. This study aimed to determine the relationship between the attitudes of TB patients and adherence to taking antituberculosis drugs.
Subjects and Method: This was a cross-sectional study conducted at Tarus, Naibonat, and Camplong Health Centers, Kupang, East Nusa Tenggara, Indonesia, from July to October 2021. A number of 40 TB patients was selected purposively. The dependent variable was adherence to take anti-TB drugs. The independent variable was attitude. The data were collected by medical record and questionnaire. The data were analyzed by Pearson correlation.
Results: Most of TB patients had positive attitude (92.5%) and adherent to take anti-TB drugs (95.0%). Positive attitude was associated with improved adherence to take anti-TB drugs ($r= 0.56$; $p < 0.001$).
Conclusion: Positive attitude is associated with improved adherence to take anti-TB drugs.

Keywords: tuberculosis, attitude, compliance.

Correspondence:
Bringiwatty Batbual, Health Polytechnics, Ministry of Health, Kupang, East Nusa Tenggara, Jl Piet A. Tallo, Liliba, Kupang, East Nusa Tenggara. Email: wattybatbual-155@gmail.com Mobile: +6282147293150.

BACKGROUND

Tuberculosis is a disease caused by the bacterium Mycobacterium tuberculosis, until now it is still a global public health problem (Kemenkes RI, 2011). TB cases in Indonesia globally rank third after India (27%) and China (9%), Indonesia (8%) (WHO, 2019). The high number of TB cases in Indonesia has triggered the government's efforts to improve performance to reduce cases and achieve TB elimination by 2030 and Indonesia to be free of TB in 2050 (Kemenkes RI, 2019). Based on data from the NTT Perdhaki (2021) the absolute number of TB case findings in 2018-2020 in NTT in 2018 was 7,632 cases, in 2019 there were 7,575 cases and in 2020 there were 5,126 cases. The discovery of TB cases in Kupang Regency in 2018 was 473 cases, in 2019 it increased to 489 cases and in 2020 it decreased to 325 cases.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.02

Meanwhile, data from cadres at 6 Health center with a decrease in case findings could be due to the decreased number of tracing due to being affected by COVID-19. The most TB cases found in the Kupang Regency area since 2018-2020 include: Tarus Health Center as many as 19 cases, Naibonat Health Center as many as 114 cases, Camplong Health Center as many as 61 cases. This study aims to determine the relationship between the attitudes of TB patients with adherence to taking anti-tuberculosis drugs.

SUBJECTS AND METHOD

1. Study Design

This was a cross-sectional study at the Health center Taurus, Naibonat, and Camplong, Kupang, East Nusa Tenggara, Indonesia, from July to October 2021.

2. Population and Sample

The target population is TB patients who live in the Kupang Regency area as many as 326 cases. The sampling was done using purposive sampling with a total sample of 40 patients.

3. Variables

The dependent variable is adherence to taking anti-TB drugs. The independent variable is attitude.

4. Operational Definition of Variables

Adherence to taking anti-TB medicine is a condition in which patients regularly take anti-tuberculosis drugs according to the time and dose, using a questionnaire with a choice of compliant and non-compliant answers.

Attitude is something that is complex in the form of evaluative statements either pleasant or unpleasant, using a questionnaire with positive and negative answer choices.

5. Instrument

The study instruments used were medical records and questionnaires.

6. Data Analysis

Data analysis was carried out using Spearman's rank correlation to determine the relationship between patient attitudes towards adherence to taking anti-tuberculosis drugs including the significance of the relationship, the strength of the relationship and the direction of the relationship.

RESULTS

1. Characteristics of Sample

Based on Table 1. It can be seen that the majority of respondents who suffer from pulmonary TB are productive aged between 21-60 years as many as 32 people (80%).

Based on Table 2 regarding the patient's attitude in dealing with their condition, it shows that the majority of TB patients have a positive attitude as many as 37 people (92.5%) and 3 people (7.5%).

Based on Table 3. regarding patient compliance in taking antituberculosis drug therapy, it was found that most of them were compliant as many as 38 people (95%) and non-adherent as many as 2 people (5%).

Based on Table 4. It shows that a positive attitude is associated with an increase in adherence to taking anti-TB drugs ($r= 0.56$; $p < 0.001$).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.02

Table 1. Sample Characteristics

Characteristics	n	(%)
Age (year)		
10-20	2	5.0
21-30	11	27.5
31-40	9	22.5
41-50	5	12.5
51-60	7	17.5
61-70	3	7.5
71-80	3	7.5
Gender		
Male	20	50.0
Female	20	50.0
Education		
PS graduate	12	30.0
JHS graduate	12	30.0
SHS graduate	18	40.0
Occupation		
Working	13	32.5
Not working	17	42.5

Table 2. Distribution of pulmonary TB patients' attitudes in dealing with their condition at the Kupang District Health Center in 2021

Attitude	n	(%)
Positive	37	92.5%
Negative	3	7.5%

Table 3. Distribution of patient compliance following anti-tuberculosis drug therapy at the Kupang district health center in 2021

Obedience	n	(%)
Yes	38	95.0%
No	2	5.0%

Table 4. The relationship between attitudes towards adherence in taking anti-tuberculosis drug therapy in Kupang Regency in 2021

Variable	Obedience	
	r	p
Attitude	0.56	<0.001

DISCUSSION

The characteristics of patients with pulmonary TB in this study were equally numerous between men and women, each with 50%. This is different from the research of Fitria et al. (2017) and Sari et al. (2016) who found that the majority of pulmonary TB patients were male. The majority who suffer from pulmonary TB are between 21-30 years, which is 27.5% which is in accordance with the research of Sari et al. (2016), it is stated that the majority of pulmonary TB patients are between 18-35 years old. The majority of pulmonary TB patients are high school graduates (40%), this is in accordance with the Sari et al. (2016) which states

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.02

that the majority of pulmonary TB patients are high school graduates. However, this is different from Widayati et al. (2013) who found that the majority of TB sufferers' education was junior high school graduates. In this study, it was found that most of the pulmonary TB patients did not work (42.5%) which was different from Sari et al. (2016) who found pulmonary TB patients who worked slightly more than those who did not.

The attitude of pulmonary TB patients towards their disease is mostly positive (92.5%), this is in line with Sari et al. (2016) who found that most pulmonary TB patients had a positive attitude towards their disease, but it was different from Mientarini et al. (2018) which found that the attitude of TB sufferers towards their disease was sufficient. Differences in the attitude of pulmonary TB patients to their disease can be related to the knowledge they have, as well as the number of sources of information obtained by patients about pulmonary TB.

The adherence of pulmonary TB patients to anti-pulmonary TB treatment in this study was mostly compliant (95%). This is in accordance with the results from Sari et al. (2016) who found that most patients with pulmonary TB adhere to anti-tuberculosis drugs. Another study that is in line is Hidayat et al. (2020) who found that there was a relationship between behavior and medication adherence with p= 0.003. The results of this study are different from Nugroho (2011) who found that non-adherence to treatment was due to the length of treatment going through the intensive stage so that patients felt healed, and ignorance about disease complications. A contradictory study was conducted by Hassard (2017) which found that there were 26% of patients who did not adhere to anti-tuberculosis treatment. The perception that there is no need for treatment observers and the presence of TB patient refusal is the reason for non-adherence to treatment. This could be related to the patient's lack of knowledge and the factors behind the drop out, such as the length of treatment, not understanding about the stages of treatment and the absence of a medication supervisor.

The results of this study are supported by Sulaiman (2020) which found that there was a significant relationship between the attitudes of pulmonary TB patients and tuberculosis transmission. Also in accordance with Adane (2017) which found data that patients with less knowledge tend to have good attitudes but poor practice. However, the results of this study differ from those of Mientarini et al. (2018) who found that there was no relationship between the attitude of TB patients and adherence to taking antituberculosis drugs, with p= 0.825.

According to Notoatmodjo (2010) factors that influence attitudes include personal experience, the influence of other people who are considered important, cultural influences, mass media, educational institutions, and emotional factors. In this study, the patient's positive attitude tends to be influenced by information obtained from various mass media and the patient's desire to recover quickly from his illness. Adherence according to Sarafino & Smith (2012) shows the collaborative nature of treatment. Meanwhile,

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.02

non-compliance according to Vrijens et al. (2012) are not starting the prescribed treatment, sub-optimal implementation of the dosing regimen or premature discontinuation of treatment. Factors that can increase patient compliance in following therapy include understanding of instructions, quality of interaction between health workers and patients, family support, beliefs, attitudes and personality as well as the consequences of non-compliance in participating in a program. In this study, positive patient attitudes were associated with patient compliance in taking anti-tuberculosis drug therapy. The attitude of pulmonary TB patients who have passed the stages of receiving, responding, respecting and being responsible so that these attitudes contribute to the patient's god in taking antituberculosis drug therapy. There are various complex and dynamic phenomena with various factors that have an impact on treatment behavior. Patient adherence to treatment regimens is influenced by the interaction of a number of these factors.

There is a significant relationship between the attitudes of pulmonary TB patients towards adherence to taking anti-tuberculosis drugs. There is a strong relationship between attitudes and adherence to antituberculosis drug therapy, with a unidirectional relationship which means that the attitudes of pulmonary TB patients are mostly positive related to adherence to taking anti-tuberculosis drugs, meaning that the more positive the attitudes of pulmonary TB patients to their condition, the more positive the attitude of pulmonary TB patients to their condition, the more comply the patient to take anti-tuberculosis drugs.

AUTHOR CONTRIBUTION

Bringiwatty Batbual, searching for literature, designing research, collecting analyze interpreting data, writing manuscripts and improving according to reviewers' input. Wanti, Kusmiyati, Jefrin Sambara, searched literature, designed research designs, collected, analyzed, and interpreted data. Irfan, Florentianus Tat, Petrus Belarminus, Yohan Charles, searched the literature, collected and analyzed data.

ACKNOWLEDGMENT

Thanks are conveyed to the Director of Poltekkes Kupang, Head of the Center for Science and Technology Excellence, Head of the Kupang District Health Office, Head of Tarus, Naibonat and Camplong Health Centers as well as those in charge of TB and all subjects who contributed to this research.

FUNDING AND SPONSORSHIP

This research received funding from DIPA Poltekkes Ministry of Health Kupang.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Adane K, Spigt M, Johanna L, Noortje D, Abera SF, Dinant GJ (2017). Tuberculosis knowledge, attitudes, and practices among northern Ethiopian prisoners: Implications for TB control efforts. J Pone. 12(3). https://doi.org/10-.1371/journal.pone.0174692.

Fitria E, Ramadhan R, Rosdiana (2017). Karakateristik penderita Tuberculosis Paru di health center rujukan mikroskopis kabupaten Aceh Besar (Characteristics of patients with pulmonary tuberculosis at the Microscopic Referral Health Center, Aceh Besar District), Sel J. 4(1) 13-20. https://doi.org/10.22435/sel.-v4i1.1441.

Hassard S, Ronald A, Angela K. (2018). Patient attitudes toward community-based tuberculosis DOT and adherence to treatment in an urban setting; Kampala, Uganda, PAMJ. 27(1): 1-6. DOI: 10.11604/pamj.2017.27.1.11119

Hidayat J, Lee MC (2020). The Relationship between Knowledge and Medication Compliance Behavior among Patients with Tuberculosis, Seanr J. 2(2). 46-54. https:-//doi.org/10.26714/seanr.2.2.-2020.1-9.

Kemenkes RI (2011) Buletin jendela data dan informasi Kesehatan, Jakarta, Kementerian Kesehatan RI.

Kemenkes RI (2019). Profil Kesehatan Indonesia Tahun 2019 (Indonesia Health Profile 2019), Jakarta, Kementerian Kesehatan RI

Mientarini EI, Sudarmanto Y, Hasan M (2018). Hubungan pengetahuan dan sikap terhadap kepatuhan minum obat pasien tuberculosis paru fase lanjutan di Kecamatan Umbul Sari Jember (The relationship between knowledge and attitudes towards medication adherence in advanced pulmonary tuberculosis patients in Umbul Sari District, Jember). J Ikesma. 14(1): 11-18. https://doi-.org/10.19184/ikesma.v14i1.10-401.

Notoatmodjo S (2010). Ilmu Perilaku Kesehatan (Health Behavioral Science). Jakarta: Rineka Cipta.

Nugroho RA (2011). Studi kualitatif factor yang melatarbelakangi drop out pengobatan tuberculosis paru (Qualitative study of factors behind drop out of pulmonary tuberculosis treatment). J Kemas. 7(1): 83-90. DOI: 10.1-5294/kemas.

Perdhaki NTT (2021) Data TB Paru di Kabupaten Kupang, NTT (Pulmonary TB data in Kupang Regency, NTT)

Sarafino EP, Smith TW (2012). Health Psychology: Biopsychosocial Interaction. 7th edition. Amerika Serikat: John Wiley & Sons Inc.

Sari ID, Rofingatul M, Sudibyo S (2016). Hubungan pengetahuan dan sikap dengan kepatuhan berobat pada pasien TB Paru yang rawat jalan di Jakarta Tahun 2014 (The relationship between knowledge and attitudes with medication adherence in outpatient pulmonary TB patients in Jakarta in 2014), Media Litbangkes, 26(4): 243. DOI: 10.22435/mpk.v26i4.461-9.243-248.

Sulaiman Y (2020). Hubungan perilaku masyarakat dengan penularan penyakit TB Paru di kecamatan Sendana Kabupaten Majene, Ners Journal Awal Bros (Relationship between community behavior and transmission of pulmonary TB disease in Sendana sub-district, Majene district,

Ners Journal Awal Bros). 1(2): 18-22. https://doi.org/10.5299-9/nersjournal.v1i2.99.

Vrijens B, Geest SD, Hughes DA, Przemyslaw K, Demonceau J, Ruppar T, Dobbles F, et al. (2012). A new taxonomy for describing and defining adherence to medicateons, Br J Clin Pharmacol, 73 (5): 691-705. DOI: 10.1111/j.1365-2125.-2012.04167.x.

Widayati N, Ulfania N (2013). Studi deskriptif factor penyebab default pada penderita TB paru Program Directly Observed Treatment short Course (DOTS) di RSUD Batang tahun 2012 (Descriptive study of the factors causing default in patients with pulmonary TB Directly Observed Treatment Short Course (DOTS) Program at Batang Hospital in 2012), Skripsi PSIK Stikes Muhammadiyah Pekajangan.

World Health Organization, (2019). Global Tuberculosis report, WHO.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.02

HUMAN HEALTH RISK AND BENEFIT FROM FLUORIDE INTAKE: A SYSTEMATIC REVIEW

Shaharuddin Mohd Sham[1)], Noor Farhana Jalil[1)], Fatin Nor Athirah Yahaya[1)], Dalea Anuar[1)], Khairumi Kasim[1)], Zaenal Abidin[2)], Vera Yulyani[3)]

[1)]Department of Environmental and Occupational Health,
Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Selangor
[2)]Department of Public Health, STIKes Bhakti Husada Mulia, Madiun, East Java
[3)]Department of Public Health, Faculty of Public Health,
Universitas Malahayati, Bandar Lampung, Lampung

ABSTRACT

Background: Fluoride is an ionic form of fluorine by the ionization process occurring in the earth crust (Kapp, 2014). It is also high in natural water bodies such as the ocean, river, and lakes (World Health Organization, n.d.). The addition of fluoride into the main water supply system has been practiced since the 1930s; it helps prevent dental caries, especially among young children (Engineering Services Division, Ministry of Health, 2010). This study aimed to review the human health risk and benefit of fluoridation in drinking water.
Subjects and Method: This systematic review searched articles related to fluoride in drinking water from various sources of World Wide Web such as Google Scholar, Scopus, PubMed, Science Direct, and Mendeley. A total of 31 articles were included in this systematic review. The dependent variables were the risk and benefit. The independent variable was the fluoride in drinking water.
Result: A sufficient amount of fluoride intake is necessary to maintain and support the mineralization of bones and teeth in the human body based on previous scientific studies (Everett, 2010). However, if fluoride intake exceeds the safe limit (0.4-0.6 mg/L), it may lead to various kinds of health effects on teeth, skeletal, thyroid gland and may also influence insulin secretion and neural development (U.S. Public Health Service, 2015).
Conclusion: Fluoride intake from drinking water may lead to different health effects that may either benefit or harm the health of consumers.

Keywords: fluoride, dental health, skeletal fluorosis, thyroid gland, neural development.

Correspondence:
Shaharuddin Mohd Sham. Universiti Putra Malaysia. Department of Environmental and Occupational Health, Faculty of Medicine and Health Sciences, UPM, 43400 Serdang, Selangor, Malaysia. Email: shaha@upm.edu.my. Mobile: +60123387305.

BACKGROUND

Fluoride is a common inorganic anion of fluorine and is found in the natural environment (Thippeswamy et al., 2021). From a chemical point of view, fluoride is very reactive because of its small atomic radius (Kanduti et al., 2016). Also, fluoride is one of the halides that is highly present in granitic terrains most probably causing adverse health effects when consumed over a long time as water supply (Adimalla and Venkatayogi, 2017). Fluoride is highly soluble in water and can as well be found in air, soil, salts,

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.03

food and dental products in various amounts. The weathering of rocks containing fluoride which causes runoff, erosion and leaching of soils into groundwater leads to the occurrence of fluoride naturally (Tahir and Rasheed, 2013). On the other hand, the production of synthetic fluoride is also possible. Fluoride encounters many different chemical products for daily use including aerosol propellants, pipe linings and refrigerants. Fluoride is consistently present in human's lives despite its concentration difference.

Thippeswamy et al. (2021) suggested that fluoride content differs from one location to another. The combination of fluoride intake from a variety of sources raises concern about its harmful effect on human health over a long period of time. Excessive exposure to fluoride might pose a higher risk primarily to the vulnerable population. There are various sources of fluoride for people to consume but major sources for fluoride intake are from drinking water but others from food, tea, and toothpaste. Therefore, the fluoride in drinking water level has been lowered by the Wastewater Treatment Plant management since people nowadays can get fluoride easily from other sources and to prevent consumers from excess fluoride.

SUBJECTS AND METHOD

1. Study Design

This study uses cross sectional as study design since looking at data from a population at one specific point from July 2021 until October 2021 and the study location of various research papers and websites such as China, India, Iran, Canada, Mexico, Malaysia, Japan, Indonesia, Ukraine, Turkey, United States of America, and Tanzania.

2. Population and Sample

It comprises school children and adults as the source of population. Firstly, identification of research data from various websites such as SCOPUS, Sciencedirect, CDC, PubMed and Google Scholar with each of the researchers found 100 articles related to the general idea of this systematic review. Secondly, screening of data using keywords (human health risks; fluoride; dental health; skeletal fluorosis; thyroid gland; neural development). Thirdly, eligibility of data based on inclusion criteria (completed researches and recent related researches) and exclusion (outdated 10 years back). Lastly, research articles that are included in this systematic review are as many as 31 articles.

3. Study Variables

The dependent variables were the risk and benefit. The independent variable was the fluoride in drinking water.

4. Operational Definition of Variables

Fluoride in drinking water was according to the National Standard for Drinking Water Quality in Malaysia, the standard level for fluoride in drinking water is within 0.4-0.6 mg/L (Engineering Services Division, Ministry of Health, 2010). Fluoride in piped water can be measured via an instrument called HACH Spectrophotometer DR1900 by using SPADNS method (Shaharuddin et al., 2009).

The risk and benefit was benefits and adverse health effects can be

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.03

estimated and assessed by conducting health risk assessment. Health risk assessment is the tool to assess certain hazards such as chemicals that may cause harmful effects towards public health (Rachel et al., 2019)

5. Study Instruments

In order to conduct a systematic review, critical assessments regarding the literature are done. Using available online resources of the World Wide Web such as Google Scholar, Scopus, PubMed, ScienceDirect, CDC, and Mendeley.

6. Data analysis

In data analysis, it is essential for the direction, size, and homogeneity of effect to be evaluated among studies, and strength of evidence. After evaluating each of the criteria of effect, the data were reviewed qualitatively and quantitatively. In case the different research outcomes become unable to be combined, the results and characteristics of the individual studies are all portrayed in the form of a table or in a descriptive form and it is referred to as a qualitative review.

RESULTS

Fluoride is a salt compound of fluorine, which is typically white or it can also be colourless. Besides, Fluoride has a particularly bitter taste and does not have any odour emitted from the compound. Fluoride is an element that is naturally produced from the deep layers of the earth and it may be discovered in all-natural water bodies such as the ocean, and rivers. Water bodies that have a high concentration of Fluoride are significantly related with remains of marine origin in mountains areas and volcanic, granitic, and gneissic rocks (Nair et al., 1984 as cited in Kitalika et al., 2018). Also, fluoride is highly concentrated in drinking water of provinces that are placed in tropical regions in which the main source of water is the wells and ground waters (Saber et al., 2013).

The places which are rich in fluoride are highly associated with volcanic activity because these regions' fundamental base on crystalline igneous and metamorphic rocks as well as sedimentary basins in arid and semi-arid surroundings (Dey and Giri, 2016). The dissolution and precipitation of fluorine elements containing minerals and adsorption or desorption from metal hydroxides and clay minerals are the natural principal geochemical processes that affect the fluoride remaining in the environment (Dey and Giri, 2016).

Fluoride is one of the Earth's natural elements. It can be found naturally in rocks, soil, water bodies, and foods (Colgate, 2021). People can also be exposed to fluoride by taking food, by respiration and by consuming fluoride supplements (Kanduti et al., 2016). Fluoride is a compound that originated from fluorine ion, which has a negative charge. When negatively charged fluorine ions react with positively charged ions such as sodium ions, they will produce fluoride compounds (How Fluoride Fights Cavities American Dental Association, 2021). Fluorine is important for the preservation and solidification of our bones and the prevention of tooth disease. But, if fluorine is taken too excessively, it may have the opposite effect, which may

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.03

cause tooth decay, osteoporosis, and damage to the kidney, bone, nerve, and muscle (Dey and Giri, 2016).

In addition to this, fluoride is also naturally found in foods such as fish and tea drinks (IPCS, 2002, as cited in WHO, n. d.). However, the fluoride concentration in foods is at the very least level. Tea consumption among tea-drinking populations and several communities in China who have inhaled the fluoride element from coal that burned indoors containing significantly concentrated fluoride levels (IPCS, 2002, as cited in WHO, n. d.).

Researchers discovered that people who consumed fluoridated drinking water can lower the risks to get cavities-build up on their teeth, compared with the people who drank un-fluoridated drinking water in the 1930s. Further studies had been conducted by researchers and they proved that fluoride truly works for fighting tooth decay cases when the fluoride is added into the public drinking water system. Health organizations such as The American Dental Association, the World Health Organization and the American Medical Association, have publicly declared the application of fluoride into drinking water supplies for public usage due to its effectiveness in combating tooth fluorosis (Colgate, 2021). Since the late 1960s, the WHO, had officially announced the importance of fluoride usage for a better quality of public oral health as fluoride successfully reduces and prevents dental fluorosis (Paul et al., 2016).

Malaysia's local government also followed this health's recommendation in 1972, by adding fluoride into public drinking water systems because fluoride may assist in reducing tooth decay cases in this country (Oral Health Division Ministry of Health Malaysia, 2006). In 1957, Johor became the first state where fluoride was introduced into their drinking water supplies in Malaysia, followed by other towns in the same state. Furthermore, scientific research regarding fluoridation of drinking water was conducted in Johor from the year of 1964 until 1976, which had also proved that the addition of fluoride lowered the level of dental caries cases by 60 percent and it is best when the fluoride added within the recommended level (Oral Health Division Ministry of Health Malaysia, 2006).

The fluoride concentration ranging from 0.6 to 1.2 mg/L in drinking water is beneficial for the development of bones and teeth. Therefore, many researchers introduced fluoride as one of the best ways to prevent dental caries. As a micronutrient, fluoride plays a crucial role in the development of bones and teeth at a young age. Since the late 1960s, the WHO, had officially announced the importance of fluoride usage for a better quality of public oral health as fluoride successfully reduces and prevents dental fluorosis (Paul et al., 2016). Exposure to fluoride at optimal range is essential for teeth developing years, specifically young children to prevent dental caries (Dey and Giri, 2016). Besides, fluoride also acts as an antimicrobial as it may inhibit the growth of carbohydrate metabolism of oral streptococci and lactobacilli (Balzar Ekenbäck et al., 2001, as cited in, Dey

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.03

and Giri, 2016). Therefore, many researchers introduced fluoride as one of the best ways to prevent dental caries.

Fluoride intake in low doses daily is commonly linked with dental caries, an infectious and multifactorial disease affectting most people in industrialized and developing countries. According to Zheng et al. (2020), dental caries prevailed in China and Chongqing. Millions of people on earth are affected by fluorosis endemic which has manifested across all the continents. Lower fluoride levels in drinking water may affect dental health. This condition is known as dental fluorosis. However, the period of dental fluorosis development is limited to a child's age who are still going through a pre-eruptive systemic effect of their teeth. Zhuo et al. (2019) conducted a study to determine the association of low-to-moderate fluoride exposure with relative mtDNA levels in relation to dental fluorosis in children. They revealed that there was a positive association between the low-to-moderate water fluoride and urinary fluoride concentrations and the prevalence of dental fluorosis.

If a person ingested an excessive amount of fluoride which is mainly from drinking water, he or she may develop fluorosis on their teeth and bones. Dental fluorosis can generate much faster than skeletal fluorosis as skeletal fluorosis requires a large dose of fluoride for long-term fluoride exposure. Dental fluorosis can be identified clinically by the presence of discolouration and pitting of the teeth or it also can cause damage to the enamel layer for more severe cases. Iheozor et al. (2015) have identified an increase in dental fluorosis. Most of the affected populations that may develop a high risk of dental fluorosis are children aged 8 years and younger as they are still growing.

Moreover, elevated fluoride exposure exceeding the standard value may lead to skeletal fluorosis in the general population. Past studies showed that fluoride consumption of 1.5 ppm concentration hugely contributes to skeletal fluorosis. Higher doses of fluoride also may result in adverse changes in bone structure, for instance, when the fluoride-contaminated drinking water at 3 to 4 mg/L. When the level of fluoride in drinking water goes over 10 mg/L, there will be a development of a more severe disease known as crippling skeletal fluorosis. Symptoms include sporadic pains and stiffness of joints, headache, stomachache and muscle weakness and are also early signs of skeletal fluorosis (Roy, 2013).

Long-term exposure to an excessive amount of fluoride can cause skeletal fluorosis (WHO, 2018). The early signs of getting skeletal fluorosis are such as stiffness and pain in the joints. If the severity of the skeletal fluorosis is increased, the bone structure can alter and ligaments calcification which may cause complications to muscles. These symptoms may be developed when there is a continuous accumulation of fluoride in the skeletal tissues over many periods (WHO, 2018).

Other than that, a study in Iran reported that <0.5 mg/L dose of fluoride affects the human thyroid

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.03

hormone activity (Kheradpisheh et al., 2018). An excessive amount of fluoride intake (100-200 ppm) may disrupt the thyroid gland, histopathology of brain parts, acetylcholine esterase cycle and disturbance to cognitive functions and memorization in multi-generation rats (Basha et al., 2011, as cited in Dey and Giri, 2016). Fluoride has antagonistic effects on the iodine element in the thyroid gland. Fluoride may elevate the level of thyroid-stimulating hormone (TSH) and lower the concentration of T3 and T4 hormones, so it may cause hypothyroidism among the population (McLaren, 1976, as cited in, Dey and Giri, 2016). Triiodothyronine (T3) and Thyroxine (T4) are the hormones released by the thyroid gland, if humans lack these hormones, there must be complications in controlling weight, metabolic rate, muscle control, bone strength, and menstrual cycle (Hormone.org, 2018). Iodine modified the association between the fluoride concentration in urine and thyroid-stimulating hormone (TSH) level among adults that have moderate-to-severe iodine deficiencies. The TSH level increased by 0.35 mIU/L, as the urinary fluoride level increased by 1 mg/L. Hence, it showed that adults who are iodine deficient, have higher fluoride level in urine and higher TSH level (Malin et al., 2018). 18 percent of the study sample, which are the Canadian adults that had moderate-to-severe iodine deficiency have a higher level of fluoride in their urine and more likelihood to develop thyroid complications due to inactive thyroid gland activity (Malin et al., 2018).

Apart from that, fluoride might as well be a silent cause of the rise of diabetes cases among the world popularion. Although fluoride is a low-dose endocrine disturber, it may give significant effects on diabetic patients. People who are exposed to the high concentration of fluoride through drinking water is highly associated with people who have insulin resistance have been proved by various scientific researches (Ake et al., 2011; Vandenberg et al., 2012; Chiba et al., 2012; Stephen, 1994; Trivedi N et al., 1993, as cited in, Dey and Giri, 2016).

Furthermore, the blood glucose level will increase, resulting from glycolysis inhibition by excessive fluoride ions (Qin et al., 2006, as cited in Dey and Giri, 2016). Diabetic patients will have a much greater impact than a typical healthy human because they consume much more amount of fluoridated water and will accumulate more fluoride in their body.

Barberio et al. (2017) found no negative association with IQ or learning disorders from staying in areas with artificially fluoridated water. Meanwhile, a study conducted by Morteza et al. (2017) concluded that children residing in Mexico have a lower intelligence quotient (IQ) than the mothers who drank more fluoridated water during the period of pregnancy. In addition to this, excessive fluoride exposure specifically if fluoride is more than 1 mg/L will lead to toxicity to the neural system (Choi et al., 2012, as cited in, Dey and Giri, 2016). The fluoride will give greater effects on learning and memory skills to developing brains if compared with matured brains. In another study, it showed that a high exposure level of

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.03

fluoride will give negative impacts on children's learning development abilities (Shivaprakash et al., 2011, as cited in Dey and Giri, 2016). The higher the fluoride intake, the lower the intelligence level among children which means, fluoride concentration is highly associated with the level of intelligence among growing children (Duan et al., 2018). A strong association between exposure to fluoride and low IQ was found and it was also noted that children who live in fluorosis prevalent areas have higher chances of developping a low IQ than those who live in normal areas.

To summarise the result, a sufficient amount of fluoride intake is necessary to maintain and support the mineralization of bones and teeth in the human body based on previous scientific studies (Everett, 2010). However, if fluoride intake exceeds the safe limit (0.4-0.6 mg/L), it may lead to various kinds of health effects on teeth, skeletal, thyroid gland and may also influence insulin secretion and neural development (U.S. Public Health Service, 2015).

DISCUSSION

The results are dependent on human metabolites in their total daily fluoride intake, as children absorb more fluoride compared to adults, which makes them more susceptible to adverse effects of fluoride such as dental fluorosis and learning problems. Meanwhile, skeletal fluorosis, thyroid gland disruption and increased diabetes severity are mostly affected to adults who are exposed to the over-exposure of fluoride in their lifetime. Based on the data collected by researchers, fluoride is one of the most significant elements in our drinking water system and in other sources as it is proven to protect the tooth enamel layer from decaying. However, excessive intake of fluoride may cause deleterious health effects to humans such as dental and skeletal fluorosis, thyroid gland disrupttion, reduced memory, and learning abilities, and increased diabetes severity among diabetic patients. In addition, it is getting easier to obtain daily fluoride intake such as mainly from fluoridated drinking water, from food sources, and also from dental products. Hence, it is very crucial for the local government to monitor the fluoride level in the drinking water supply to protect and preserve the community's health status. This is a step to ensure that the exposure to fluoride is not excessive or is insufficient for public health.

AUTHOR CONTRIBUTION

Shaharuddin Mohd Sham conceived the design, and interpreted the findings. Noor Farhana Jalil, Fatin Nor Athirah Yahaya, Dalea Anuar, Khairumi Kasim, Zaenal Abidin, Vera Yulyani wrote the manuscript, select and assess quality of studies, extract data, interpret result, and review the manuscript. All authors read and approved the manuscript.

ACKNOWLEDGMENT

The authors would like to thank Universiti Putra Malaysia, Sekolah Tinggi Ilmu Kesehatan Bhakti Husada Mulia, Madiun, and Universitas Malahayati, Bandar Lampung for their help and technical assistance during the study.

FUNDING AND SPONSORSHIP

Not applicable.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

REFERENCES

Engineering Services Division, Ministry of Health Malaysia (2010). Drinking water quality standard [PDF]. Retrieved from: https://environment.com.my/wp-content/uploads/2016/05/Drinking-Water-MOH.pdf.

Colgate (2021). What is Fluoride? Colgate.com. Colgate. Retrieved from: https://www.colgate.com-/en-my/oral-health/fluoride/-what-is-fluoride

Saber AA, Morteza GM, Fatemeh PA, Mohammad NB, Mostafa M, Zahra J (2013). Fluoride concentration of drinking waters and prevalence of fluorosis in iran: a systematic review. Journal of Dental Research. 7(1): 1–7. https:-//doi.org/10.5681/joddd.2013.0-01.

Barberio AM, Quinonez C, Hosein FS, McLaren L (2017). Fluoride exposure and reported learning disability diagnosis among Canadian children: Implications for community water fluoridation. Can J. Public Health. 108(3): e229–e239. doi: 10.17269/CJPH.108.-5951.

Morteza B, Deena T, Howard H, Angeles EM, Brisa NS, Niladri B, Karen EP, et al. (2017). Prenatal fluoride exposure and cognitive outcomes in children at 4 and 6–12 years of age in Mexico. Environ Health Perspect. 125(9): 1–12. doi: 10.1289/EHP655.

Dey S, Giri B (2016). Fluoride fact on human health and health problems: A Review. Medical & Clinical Reviews. 02(01): 1-7. https:-//doi.org/10.21767/2471-299x.-100001.

Duan Q, Jiao J, Chen X, Wang X (2018). Association between water fluoride and the level of children's intelligence: a dose-response meta-analysis. Public Health. 154: 87–97. https://doi.-org/10.1016/j.puhe.2017.08.013.

Everett ET (2010). Fluoride's effects on the formation of teeth and bones, and the influence of genetics. Journal of Dental Research. 90(5): 552–560. https://doi.org/-10.1177/0022034510384626

Fluorosis. (2018). Who.int. Retrieved from: https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health/burden-of-disease/-other-diseases-and-risks/fluorosis

Hormone org (2018, December 31). Thyroid hormones. Retrieved from: https://www.hormone.org-/your-health-and-hormones/-glands-and-hormones-a-to--z/hormones/thyroid-hormones

How Fluoride Fights Cavities – American dental association. (2021). Mouthhealthy.org. Retrieved from: https://www.mouthhealthy.org/en/fluoride-superhero#-:~:text=When%20fluorine%2C-%20which%20is%20negatively,even%20reverse%20early%20tooth%20decay.

Iheozor-Ejipporah IE, Worthington HV, O'Malley L, Calrkson JE, Macey R, Alam R, Tugwell P, et al. (2015). Water fluoridation for the prevention of dental caries. Cochrane Database Syst Rev. 2015(6): CD010856. doi: 10.1002/14651858.CD010856.pub2.

Kanduti D, Sterbenk P, Artnik (2016). Fluoride: a review of use and effects on health. Mater Sociomed. 26(2): 133-137. https://doi.org/10.5455/msm.2016.28.133-137.

Kapp RW (2014). Fluorine. Encyclopedia of Toxicology, 611–615. https://doi.org/10.1016/b978-0-12-386454-3.00844-7.

Kheradpisheh Z, Mirzaei M, Mahvi AH, Mokhtari M, Azizi R, Fallahzadeh H, Ehrampoush MH (2018). Impact of drinking water fluoride on human thyroid hormones: A case-control study. Sci. Rep. 8(1): 1–7. https://doi.org/10.1038/s41598-018-20696-4.

Kitalika AJ, Machunda RL, Komakech HC, Njau KN (2018). Fluoride variations in rivers on the slopes of mount meru in Tanzania. J of Chemistry. 2018: 1–18. https://doi.org/10.1155/2018/7140902.

Malin AJ, Riddell J, McCague H, Till C (2018). Fluoride exposure and thyroid function among adults living in Canada: Effect modification by iodine status. Env. Int. 121: 667–674. https://doi.org/10.1016/j.envint.2018.09.026.

Human Health Risk Assessment | US EPA. (2014). US EPA. Retrieved from: https://www.epa.gov/risk/human-health-risk-assessment

Oral Health Division Ministry of Health, Malaysia (2006). Implementation of water fluoridation programme in Malaysia. Retrieved from: http://ohd.moh.gov.my/images/pdf/xtvtnsop/Implementation-of-Water-Fluoridation-Programme-in-Malaysia-2006.pdf

Rachel P, Thomas JH, Hilary K, Esther C (2019). A Quantitative Public Health Risk Assessment Tool for Planning for At-Risk Populations. American Journal of Public Health, 109(S4): S286–S289. https://doi.org/10.2105/ajph.2019.305181

Paul EP, Hiroshi O (2016). Prevention of dental caries through the use of fluoride - the WHO approach. Comm Dental H. 33: 66–68. https://doi.org/10.1922/CDH_Petersen03.

Roy S, Gurcharan D (2013). Fluoride contamination in drinking water- a review. 3: 53-58. https://doi.org/10.5923/j.re.20130303.02.

Shaharuddin MS, Kamil YM, Ismail YM, Firuz RM, Aizat IS, Yunos AM (2009). Fluoride concentration in Malaysian drinking water. American-Eurasian J Agric Environ Sci. 6 (4): 417-420.

Tahir MA, Rasheed H (2013). Fluoride in the drinking water of Pakistan and the possible risk of crippling fluorosis. Drink Water Eng. Sci. Discuss. 6(1): 17–23. DOI:10.5194/dwesd-5-495-2012.

Thippeswamy HM, Nanditha KM, Girish M, Prashanth, SN, Shanbhog R (2021). Linear regression approach for predicting fluoride concentrations in maternal

serum, urine and cord blood of pregnant women consuming fluoride containing drinking water. Clin Epidemiol Glob Health. 10: 100685. https://doi.org/10.1016/j.cegh.2020.100685

U.S. Public Health Service Recommendation for Fluoride Concentration in Drinking Water for the Prevention of Dental Caries. (2015). Public Health Reports. 130(4): 318–331. https://doi.org/10.1177-/003335491513000408.

WHO. Int. (2018). Fluorosis. Retrieved from: https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health/burden-of-disease-/other-diseases-and-risks/fluorosis#:~:text=In%20skeletal-%20fluorosis%2C%20fluoride%20accumulates,impairment%20of%20muscles%20and%20pain

WHO. (n.d.). Retrieved from: Fluoride in Drinking-water Background document for development of WHO Guidelines for Drinking-water Quality. Retrieved from: - https://www.who.-int/water_sanitation_health/dwq/chemicals/fluoride.pdf

Zheng D, Liu Y, Luo L, Shahid MZ, Hou D (2020). Spatial variation and health risk assessment of fluoride in drinking water in the Chongqing urban areas, China. Environ Geochem Health. 42(9): 2925–2941. doi: 10.1007/s10653-020-00532-3.

Zhou G, Yang L, Luo C, Liu H, Li P, Cui Y, Liu L, et al. (2019). Low-to-moderate fluoride exposure, relative mitochondrial DNA levels, and dental fluorosis in Chinese child-ren. Env. Int. 127: 70–77. https://doi.org/10.1016/j.envint.-2019.03.033.

WORK STRESS OF NURSES IN THE EMERGENCY DEPARTMENT OF THE GENERAL HOSPITAL DURING COVID-19 PANDEMIC

Putri Handayani, Chindy Aprilia Pratiwi

Department of Public Health, Faculty of Health Sciences,
Universitas Esa Unggul, Jakarta

ABSTRACT

Background: The COVID-19 pandemic has resulted in additional working hours, especially who work in the emergency unit. The increasing number of patients, the risk of contracting COVID-19 can cause work stress for nurses. This study aimed to analyze the relationship between workload and work stress of nurses in the emergency room of the general hospital during the COVID-19 pandemic

Subjects and Method: A cross-sectional study was carried out at the emergency department of the general hospital during the COVID-19 pandemic. A total of 44 nurses was selected by purposive sampling. The dependent variable was work stress. The independent variable were age, gender, and workload. The data were collected by The Health & Safety Executive Management Standards Indicator Tools (HSE-MS IT). The data were analyzed by odds ratio and chi-square

Results: As many as 97.7% of nurses experienced excessive workload. 50% of nurses experienced stress. Nurses age (OR= 0.83; 95% CI= 0.25 to 2.72; p= 1.000) and gender (OR= 1.59; 95% CI= 0.73 to 3.42; p= 0.332) has not affected to work stress and both were statistically not significant. Nurses workload was positively related to work stress, and it was statistically significant (OR= 2.08; 95% CI= 1.50 to 2.78; p= 0.050).

Conclusion: Nurses workload in the emergency department of the general hospital is positively related to work stress during COVID-19, and it is statistically significant.

Keywords: workload, work stress, COVID-19, emergency department, nurses

Correspondence:
Putri Handayani. Department of Public Health, Faculty of Health Sciences, Universitas Esa Unggul. Jl. Arjuna Utara No.9, RT.1/RW.2, Duri Kepa, Kb. Jeruk, West Jakarta. Email: putri.handayani@esaunggul.ac.id. Mobile: +628176567490.

BACKGROUND

Since the beginning of 2020, Indonesia and the world have been shocked by the emergence of the novel coronavirus (COVID-19) which first appeared in Wuhan, China. At the end of January 2020, WHO announced the COVID-19 outbreak that occurred in China as an international emergency that needs the attention of the whole world (Chen et al., 2020). In a short period of time, COVID-19 quickly spread to several countries and became a new disease that had an impact on global health (Muliantino et al., 2021). The number of COVID-19 cases in the world in January 2021 exceeded 90 million cases, with deaths reaching more than 1 million cases. Indonesia at the end of June 2021 recorded an increase in the number of COVID-19 cases, the number until the end of June 2021 reached more than 207 thousand active cases (SATGAS COVID, 2021a) and continued to increase until mid-July 2021 (SATGAS COVID, 2021b).

The health sector is one of the sectors with the highest stress levels

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.04

(ILO, 2016a). This condition is in line with the current situation where almost the entire world is experiencing a COVID-19 pandemic (Sunarti et al., 2021). The changes that occurred during the pandemic challenged the psychological response of nurses who served in health services, especially in the emergency department. At least 22.4% of nurses in Wuhan experienced moderate mental health problems in the early days of the COVID-19 pandemic (Kang et al., 2020). The results showed that nurses who worked in the emergency department experienced symptoms of severe anxiety (24.1%) compared to nurses who served in the COVID-19 isolation ward (Muliantino et al., 2021).

Previous research has shown that nurses on duty during a pandemic have a fear of contaminating their family and friends (Mailani et al., 2021). In addition, there is stigmatization that has an impact on the psychological well-being of nurses (Tan et al., 2020). From various surveys conducted in several countries such as Europe, America and Australia, it was found that two-thirds to half of the workers there experience work stress (ILO, 2016b). Meanwhile, the prevalence of stress in health workers has a prevalence of 45% (Salari et al., 2020), while in Indonesia the prevalence of stress levels is 55% (Nasrullah et al., 2021). In addition to the workload according to research the number of health workers experiencing mental health problems due to the COVID-19 pandemic can also be caused by fear of being infected with COVID-19, negative stigma of virus carriers and being away from family. Stress remains a major organizational challenge confronting many healthcare professionals due to its adverse effects on staff performance, job satisfaction, and patients outcomes. Stress has become an endemic problem in healthcare contributing to health-related challenges which decrease efficiency and productivity (Odonkor and Adams, 2021).

In connection with the heavy role of health workers, especially Emergency department nurses who are one of the frontline units in handling patients during the COVID-19 pandemic and providing services to emergency patients and patients false emergency department nurses must be able to perform triage. RSUD X is one of the health service units that operates 24 hours and is one of the COVID-19 referral hospitals that has experienced a high number of patients in the Bogor area. This condition also makes many nurses complain that they often feel tired every time they are working, this symptom is certainly one of the physical symptoms of work stress. The demands from patients and their families as well as pressure from superiors to be able to handle all existing patients quickly also make nurses often experience a loss of concentration when the patient is full, thus making it easier for nurses to experience stress that interferes with emotional, mindset, and also the nurse's physical condition. The situation like this will result in excessive stress and will adversely affect its performance in providing nursing care services.

This study aimed to describe the workload and work stress and to analyze the relationship between workload and work stress on emergency room nurses at RSUD X.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.04

SUBJECTS AND METHOD

1. Study Design

This was an observational study with a cross-sectional design, conducted at RSUD X from Mei to September 2021.

2. Population and Sample

The population studied was nurses who served in the emergency department during the COVID-19 pandemic. A sample of 44 nurses were selected by purposive sampling.

3. Study Variables

The dependent variable was work stress. The independent variables were age, gender, and workload.

4. Operational Definition of Variables

Work stress is a response which is owned by every individual in face work related.

Age is the age of the worker from birth until the research is carried out.

Gender is a difference in respondent identity by gender.

Workload is an amount of work that must be faced by every individual within a certain period of time

5. Instruments

Job stress was measured using a questionnaire for the HSE management standard indicator issued by the Health and Safety Executive. The NASA-TLX questionnaire with six dimensions was used to measure the workload variable.

6. Data Analysis

Univariate analysis was carried out to describe the frequency of sample. Bivariate analysis was performed using the chi-square test and the calculation of the odds ratio (OR) with a 95% confidence level to examine factors associated with work stress in emergency department nurses.

7. Research Ethics

Research ethic includes informed consent, anonymity, confidentially and ethical clearence. The ethical clearence was obtained from Universitas Esa Unggul, Jakarta (0290-21.290/DPKE-KEP/FINALEA/UEU/VIII/2021).

RESULTS

1. Univariate Analysis

Univariate analysis was conducted to see the frequency distribution of the variables of age, gender, workload and work stress of nurses in the emergency department.

Table 1. Frequency Of Characteristics Distribution on Nurses

Characteristic	Frequency (n)	Percentage (%)
Age (Years)		
≥30	21	47.7
<30	23	52.3
Gender		
Male	30	68.2
Female	14	31.8
Workload		
Light Workload	1	2,3
Heavy Workload	43	97.7
Work Stress		
Mild stress	22	50
Severe Stress	22	50

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.04

Table 1 shows highest proportion were nurses who were over 30 years old (52.3%), male nurses (68.2%), and the same proportion was for nurses who experienced mild stress and severe stress (50%).

2. Bivariate Analysis

Bivariate analysis was conducted to see the relationship between the variables of age, gender, workload and work stress of nurses in the emergency department.

Table 2. Risk Factor Analysis

Variable	Work Stress				Total		OR	95% CI	p
	Severe		Mild						
	n	%	n	%	n	%			
Age (Years)									
≥30	10	47.6	11	54.2	21	100	0.83	0.25 to 2.72	1.000
<30	12	52.2	11	47.8	23	100			
Gender									
Male	17	56.7	13	43.3	30	100	1.59	0.73 to 3.42	0.332
Female	5	35.7	9	64.3	14	100			
Workload									
Heavy	22	51.2	21	48.8	43	100	2.08	1.50 to 2.78	0.050
Light	0	0.0	1	100	1	100			

Table 2 shows that there is no relationship between age (OR= 0.83; 95% CI= 0.25 to 2.72; p= 1.000), gender (OR= 1.59; 95% CI= 0.73 to 3.42; p= 0.332) to work stress and both were statistically not significant. Nurses workload was positively related to work stress, and it was statistically significant (OR= 2.08; 95% CI= 1.50 to 2.78; p= 0.050).

DISCUSSION

The COVID-19 pandemic has had an impact on changing work patterns, especially for health workers who work on the front lines. This study tried to explore the psychological condition of nurses who served in the emergency department during the COVID-19 pandemic. The results showed that 50% of nurses in the emergency department experienced symptoms of severe stress during the COVID-19 pandemic. This can be seen based on several perceived complaints such as not being able to decide when to rest (45.4%), unable to rest enough (84.1%), unable to complete work based on the allotted time (70.4%), feel they have to work intensively (95.4%), feel they have to work very quickly (75%), and feel unrealistic work time pressure (77.2%). Based on the results of observations, these complaints arise due to several things such as demands from patients and their families, pressure from superiors to be able to handle all existing patients quickly. This makes nurses often experience loss of concentration, especially when the patient's condition is full. This condition causes nurses to more easily experience stress that interferes with their emotional, mindset, and physical condition. If left unchecked, this condition can lead to excessive stress and impact on the performance of nurses in providing nursing care services.

The results of a related study stated that most of the nurses almost every day experienced mild levels of anxiety, stress, and depression. Previous studies reported high prevalence rates of anxiety, depresssion, and obsessive-compulsive

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.04

symptoms among nurses during the COVID-19 pandemic (Zhang et al., 2020). Nurses also exhibit excitability, irritability, reluctance to rest, and signs of psychological distress (Chen et al., 2020).

The results showed that there was an increase in the workload borne by nurses in the emergency unit. The workload shows a significant relationship with work stress (p= 0.050). This indicates that the work stress experienced by nurses in the emergency department may be influenced by the workload in this study. In addition, based on the results of the analysis, it is known that the importance of role of colleagues and superiors in carrying out tasks during a pandemic is a very big role in reducing the risk of stress on nurses. Communication between co-workers and managers has become more difficult during the pandemic. In addition, there is a change in rhythm and work procedures which in a short time causes nurses to feel depressed and stressed. Leaders and managers in the health sector play an integral role in ensuring that the environment is favorable and thus ensuring that nurses remain satisfied with their work (Akpabio et al., 2015). In addition, it is also mentioned that the leadership style could have a positive or negative influence on the work environment, which in turn affects the job satisfaction of nurses (Balsanelli and Cunha, 2014).

Health organizations with effective leadership styles influence the performance of nurses, resulting in low turnover, minimal conflict, and good relationships between nurses and other health care providers (Alrobai, 2020). The work environment is one of the important factors in determining the quality of care provided to patients. A bad work environment for nurses can lead to problems such as fatigue and job dissatisfaction. There is also a clear relationship between work-related stress and the work environment in nursing, where the better the work environment, the lower the probability of nurses experiencing work-related stress. However, if the work environment is poor, the nurses are more likely to experience work-related stress that leads to burnout (Alrobai, 2020).

AUTHOR CONTRIBUTION

Putri Handayani, Chindy Aprilia Pratiwi contributed to the concept, design, analysis, and discussion of data.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGMENT

Our gratitude goes to Department of Public Health, Faculty of Health Sciences, Universitas Esa Unggul for their support in this research.

REFERENCES

Akpabio II, John ME, Akpan, MI, Akpabio FF, Uyanah DA (2015). Work-related conflict and nurses' role performance in a tertiary hospital in South-south Nigeria. Journal of Nursing Education and Practice, 6(2): 106–114. https://-doi.org/10.5430/-jnep.v6n2p106

Alrobai T (2020). The impact of nurse leaders/managers leadership style on job satisfaction and burnout among qualified nurses: A systematic review. Journal of Nursing and Health Science. 9(1): 17–41. https://doi.org/10.9790/1959-09-

010-81741.

Balsanelli P, Cunha, ICKO (2014). The work environment and leadership in nursing: An integrative review. Revista Da Escola de Enfermagem, 48(5): 934–940. https://-doi.org-/10.1590/S0080623420140000500022.

Chen Q, Liang MLY, Guo J, Fei D, Wang L, He L, Sheng C et al. (2020). Mental health care for medical staff in China during the COVID-19 outbreak. Lancet Psychiatry, 7(4): e15–e16. https://doi.org/10.1016/S2215036 6(20)30078-X

ILO (2016a). Menuju Lingkungan kerja yang Bebas Stres. https://www.-ilo.org/jakarta/info/public/pr/-WCMS_495521/lang--en/index.-htm.

ILO (2016b). Workplace Stress: A Collective Challenge. https://www.-ilo.org/wcmsp5/groups/publiced_protect/protrav/safework/documents/publication/wcms_466547.pdf

Kang L, Ma S, Chen M, Yang J, Wang Y, Li R, Yao L et al. (2020). Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: A cross-sectional study. Brain Behav Immun, 87: 11–17. DOI: 10.1016/j.bbi.2020.03.028.

Mailani F, Huriani E, Muthia R, Sarfika R (2021). Nurses' intention to work during the covid-19 outbreak in west sumatra, indonesia. Nurse Media Journal of Nursing, 11(1): 50–60. https://doi.org/10.14710/-NMJN.V11I1.34093.

Muliantino MR, Huriani E, Krisdianto BF, Sarfika R, Yesni M, Sulistyowati E, Wahyuningtyas K et al. (2021). Psychological Responses Among Indonesian Nurses In The Outbreak Of Covid-19 Pandemic. Journal of Nursing Care, 4(2). https://doi.org/10.24198/jnc.v4i2-.31195.

Nasrullah, D, Natsir M, Twistiandayani R, Rohayani L, Siswanto, Sumartyawati NM, Hasanah U, et al. (2021). Psychological impact among health workers in effort to facing the covid-19 in indonesia. International Journal of Public Health Science, 10(1): 181–188. https://doi.org/10.11591/ijphs.-v10i1.20524

Odonkor ST Adams S (2021). Predictors of stress and associated factors among healthcare workers in Western Ghana. Heliyon. 7(6): e07223. https://doi.org/10.1016/j.-heliyon.2021.e07223.

Salari N, Khazaie H, Hosseinian FA, Khaledi PB, Kazeminia M, Mohammadi M, Shohaimi S et al. (2020). The prevalence of stress, anxiety and depression within front-line healthcare workers caring for COVID-19 patients: a systematic review and meta-regression. Human Resources for Health, 18(1): 1–14. https://doi.org/-10.11-86/s12960-020-00544-1.

Satuan Tugas Penanggulangan Covid. (2021a). Analisis Data Covid-19 Indonesia.

Satuan Tugas Penanggulangan COVID. (2021b). Peta Sebaran COVID 19. https://-covid19.go.id/peta-sebaran-covid19.

Sunarti E, Supriyati, Junaidi (2021). Hubungan antara beban kerja dengan stres kerja pada perawat pelaksana ruang rawat inap. Jurnal Psikologi Malahayati, 3(1), 20–27. DOI: 10.33024/jpm.v3i1.3448.

Tan BYQ, Chew NWS, Lee GKH, Jing M,

Goh Y, Yeo LLL, Zhang K, et al. (2020). Psychological Impact of the COVID-19 Pandemic on Health Care Workers in Singapore. Annals of Internal Medicine, 173(4): 317–320. https://doi.org/DOI:10.73-26/M20-1083.

Zhang W, Wang K, Yin L, Zhao W, Xue Q, Peng M, Min B, et al. (2020). Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. Psychother Psychosom, 89(4): 242–250. https://doi.org/-10.1159/000507639.

THE ASSOCIATIONS OF PASSIVE SMOKING, MOSQUITO REPELLENT COIL, PROXIMITY TO INDUSTRIAL AREA, AND FAMILY INCOME WITH LOW BIRTH WEIGHT IN SOUTH SUMATERA

Dwi Septiawati[1)], Bambang Wispriyono[2)]

[1)]Doctoral Program of Public Health Sciences, Faculty of Public Health, Universitas Indonesia, Indonesia
[2)]Department of Environmental Health, Faculty of Public Health, Universitas Indonesia, Indonesia

ABSTRACT

Background: Low birth weight (LBW) remains a major issue of global public health concern with a disproportionate burden on low-and middle-income countries. LBW contributes significantly to morbidity, mortality and disability in neonatal, infancy, and childhood periods. It also has long term effects on health outcomes in adult life. This study aimed to examine the associations of passive smoking, mosquito repellent coil, proximity to industrial area, and family income with low birth weight.
Subjects and Method: This was a case control study conducted in Palembang, Ogan Ilir, Ogan Komering Ilir, Muara Enim, and Banyuasin, in South Sumatra. A sample of 300 newborns were selected for this study consisting of 100 newborns with low birth weight (cases) and 200 newborns with normal birth weight (controls). The dependent variable was low birth weight. The independent variables were passive smoking, use of mosquito repellent coil, proximity to industrial area, and family income. The data were collected by questionnaires, and analyzed by multiple logistic regression.
Results: Passive smoking (aOR= 4.73; 95% CI= 2.02 to 10.54; p= 0.034), use of mosquito repellent coil (aOR= 2.55; 95% CI= 2.36 to 6.54; p= 0.023), proximity to industrial area (aOR= 2.44; 95% CI= 2.15 to 8.75; p= 0.002), low family income (2.79; 95% CI= 1.02 to 4.29; p= 0.046) were associated with increased risk of low birth weight, and all of these predictors were statistically significant.
Conclusion: Passive smoking, use of mosquito repellent coil, proximity to industrial area, and low family income, are significantly associated with increased risk of low birth weight.

Keywords: cigarette smoke, air pollution, family income, low birth weight.

Correspondence: Dwi Septiawati. Doctoral Program of Public Health Sciences, Faculty of Public Health, Universitas Indonesia. Jl. Margonda Raya, Pondok Cina, Beji, Depok 16424, West Java. Email: dwiseptiawati@unsri.ac.id. Mobile: +6285273315600.

BACKGROUND

Indoor air pollution, especially homes, is very dangerous for human health, because in general people spend more time DOIng activities inside the house so that the house becomes very important as a micro environment related to the risk of air pollution (Ritchie & Roser, 2019). WHO reports that in 2012 around 7 million people died as a result of exposure to air pollution2. Every day, animals, humidity, household products and other environmental factors such as smoking contribute to indoor air pollution in public buildings and private homes (WHO, 2013).

Exposure to cigarette smoke, smoke from cooking fuel, use of mosquito repellent, the renovation process are some examples of activities that can

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.05

emit harmful pollutants into the indoor air (Rana, 2018). The increase in air pollutants is in line with the increase in acute and chronic diseases. Based on the 10 causes of death in the world in 2011, diseases due to exposure to air pollution are some of them, such as lower respiratory tract infections (3.2 million cases), COPD/COPD (3 million cases), Trachea broncus & lung cancer (1.5 million cases), and premature birth (1.2 million cases) (WHO, 2013).

In addition to the diseases mentioned above, chronic bronchitis, chronic obstructive pulmonary disease (COPD), lung cancer, low birth weight (LBW) mortality, infant mortality less than one week old, otitis media and ARI, tuberculosis are often found in environments with poor air quality. in a bad room (Ritchie & Roser, 2019). In 2013 UNICEF reported that 2.9 million babies in the world died in the first month of life. One of the causes is a history of low birth weight that does not immediately get serious treatment. Low Birth Weight (LBW) is a baby born weighing less than 2500 grams regardless of gestational age (WHO, 2019). The mortality rate for babies with low birth weight is 35 times higher than babies with birth weights more than 2500 grams (WHO, 2014). More than 80% of deaths in newborns occur in infants with low birth weight (LBW) either caused by prematurity, small for gestational age (SGA) or a combination of both (WHO, 2019). The prevalence of LBW in the world is around 20.6 million (15.5%) in 2011 and 15.2% in 2012. Of the total LBW cases, 95.6% of the cases are in developing countries (WHO, 2014).

In Indonesia, according to the results of Riskesdas, the prevalence of infants with low birth weight (LBW) decreased from 11.5% in 2007 to 11.1% in 2010 and to 10.2% in 2013 (Kemenkes, 2018). The prevalence of LBW in South Sumatra Province is 9.3%9. Palembang City, based on reports from the children's program, the number of infant deaths in 2012 was 97 infant deaths from 29,451 live births with causes of death including asphyxia, low birth weight, congenital abnormalities, pneumonia, and other causes (Profile of the Basic Health Services Section (2013) in the Department of Health Palembang City Health) (Palembang, 2018). From 29,235 live births, there were 319 (1.13%) LBW cases (Septiawati et al., 2017).

A number of studies have found evidence to support the hypothesis that exposure to air pollution in pregnant women may increase the risk of impaired fetal growth (Hannam et al., 2014; Khan et al., 2017; Poirier et al., 2015; Shriyan et al., 2020; Stieb et al., 2012).

This study aimed to examine the associations of passive smoking, mosquito repellent coil, proximity to industrial area, and family income with low birth weight.

SUBJECTS AND METHOD

1. Study Design

This was a case control study conducted in Palembang, Ogan Ilir, Ogan Komering Ilir, Muara Enim, and Banyuasin, in South Sumatra

2. Population and Sample

In this study, the samples were grouped based on the condition of infants with low birth weight, namely <2500gram

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.05

(LBW) as cases and infants weighing 2500gram (not LBW) as controls. Then samples from the two groups were observed for past conditions to compare the history of exposure to air pollution in the environment during pregnancy in the two groups.

The study population in this study was the total number of live-born babies at 5 stunting loci, South Sumatra who were born throughout 2020. The sample of this study was part of the under-five children represented by the under-five household as a population unit with adult household members (age 17 years) as research subjects. Because this study collects primary data regarding the characteristics, history of air pollution exposure variables, and risk factors for LBW, it is necessary to first know the large proportion of LBW status variables from the results of previous studies and then calculate the minimum sample size.

With a case: control ratio of 1:2, the sample required is 100 households with low birth weight (LBW) and 200 households with normal baby weight. The baby households that will be sampled are selected using a multistage sampling method with cluster sampling technique to determine the study location after the selection process was carried out based on inclusion criteria. Determination of the number of sample units in each cluster will be selected by proportional sampling and the selection of sample units to be visited for information is selected by justified sampling.

3. Study variables

The dependent variable was low birth weight. The independent variables were passive smoking, use of mosquito repellent coil, proximity to industrial area, and family income.

4. Operational Definition of Variable

Age at pregnancy was length of life (in years) calculated from the first time being declared pregnant in the pregnancy that is the focus of the study.

Nutritional Status at pregnancy was health status resulting from a balance between nutrient needs and input which can be measured through the upper arm circumference (MUAC) of the mother when she is pregnant and or has been declared malnourished by health workers.

ANC (Ante Natal Care) was visits of pregnant women to helath services to check their pregnancy untuil the third trimester.

Low birth weight was infants born weighing less than 2500 grams regardless of gestational age, whether due to premature or small for gestational age (SGA) or a combination of both.

Comorbidities was mother with concomitant diseases during pregnancy such as hypertension, infectious disease (toxoplasma, rubella, cytomegalovirus, genital herpes), malaria, typhoid, heaptitis, urinary tract infections, reproductive tract infections, sexually transmitted diseases.

Sosio-Eco was a condition or position socially regulated and establishes a person in a certain position in the structure of society.

Sex was biological characteristics seen from the outward appearance.

Distance to industry was measure (in meters) of the proximity of the subject's house to the nearest industry that produces air pollution.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.05

House-Highway was size (in meters) the distance between the subject's house and the side of the highway.

Green Space (30%) was an elongated area/lane and/or clusters whose use is more open, where plants grow, both those that grow naturally or that are intentionally planted with an area of more than 30% of the outside area of the subject's house.

Buffer was buildings or plants that are near the subject's house that can reduce the risk of exposure to air pollution.

Passive smoking was history of exposure to cigarette smoke during pregnancy both at home and outside the home as measured by questions about the presence of people who smoke at home or at work (for working mothers), frequency of exposure to cigarette smoke from people around pregnant women, history of exposure to cigarette smoke other than in home and work (not regularly visited).

Use of mosquito repellent coil wasthe behavior of pregnant women in the use of mosquito coils during pregnancy.

Solid fuel was solid fuel which is the main fuel used for cooking household dishes.

5. Study Instrument

The data were collected by questionnaires.

6. Data Analysis

The statistical test used in this study was chi-square with a significance level of 95% (α=0.05). In this study, stratification analysis was carried out to see whether or not there was an interaction between the variable history of exposure to air pollution during pregnancy and the incidence of LBW with other variables and to analyze the type of interaction that occurred. Variables that have no interaction will then be tested for confounding by stratification. This study also performed a multivariate analysis using multiple logistic regression test for risk factor models.

RESULTS

1. Prevalence of LBW

It is known that in this study, the city of Palembang had the largest percentage of births for babies with low birth weight, namely 58%. The smallest percentage is in Ogan Komering Ilir Regency, which is 2% (Table 1).

It is known that the average newborn weight of the subjects in this study was 2670.51 grams with a standard deviation of 699.742 grams. This can still be said to be good because the weight of the newborn is still above 2500 grams and is not included in the Low Birth Weight (LBW) category. In this study, the lowest weight at birth was 1100 grams and the highest was 4800 grams (Table 2).

Table 1. Frequency Distribution of Newborn Weights in 2020 in Case and Control Groups in Research Locations

City	LBW		Normal		Total	
	n	%	N	%	N	%
Palembang	58	58	116	58	174	58
Ogan Ilir	6	6	12	6	18	6
OKI	2	2	4	2	6	2
Muara Enim	11	11	22	11	33	11
Banyuasin	23	23	46	23	69	23

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.05

Table 2. Frequency Distribution of Newborn Weight

Variables	Mean	SD	Minimum	Maximum
Birth weight (g)	2,670.51	699.74	1,100	4,800

2. Risk Factors of LBW

The risk factors for the incidence of LBW in this study were divided into population variables and environmental variables that influenced the maternal history of air pollution exposure during pregnancy. Based on Table 3, it is known that the incidence of LBW is more common in mothers with pregnancy conditions at an age that is included in the high risk category, namely <20 years or > 35 years (77%), nutritional status at risk (65%), incomplete ANC (69 %), and high-risk socioeconomic conditions (72%). The incidence of LBW is not too different in the percentage of occurrence, especially in mothers with comorbid conditions or the sex of the babies born.

Meanwhile, based on Table 4, it is known that the proportion of LBW incidence is higher in pregnant women with environmental conditions around their residences that are close to industry (68%), the distance from their residence to the road is < 100 m (67%), and does not have green open space or green space. RTH is less than 30% of the house area (93%).

In Table 5, it is known that a higher proportion of LBW occurs in pregnant women with environmental conditions in their homes that have high exposure to cigarette smoke (73%) and are exposed to smoke from cooking fuels (98%).

Table 3. Frequency Distribution of Subject Population Variables During Pregnancy in Case and Control Groups

Categori	LBW (100)		Normal (200)		Total (300)	
	n	%	n	%	n	%
Age at pregnancy						
High Risk	77	77	57	28.5	134	44.6
Low Risk	23	23	143	71.5	166	55.3
Nutrisional Status at pregnancy						
Have a risk	65	65	91	45.4	156	52
No Risk	35	35	109	54.5	144	48
ANC						
Incomplete	69	69	96	48	165	55
Complete & standard	31	31	109	52	135	45
Comorbidities						
Have	56	56	126	63	182	60.7
None	44	44	74	37	118	39.3
Sosio-Eco						
Hihg Risk	72	72	89	44.5	161	53.7
Low Risk	28	28	111	55.5	139	46.3
Sex						
Male	59	59	98	49	157	52.3
Female	41	41	102	51	143	47.7

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.05

Table 4. Frequency Distribution of Environmental Observations Around Subjects' Residence in Case and Control Groups

Categori	LBW (100)		Normal (200)		Total (300)	
	n	%	n	%	n	%
Distance to industry						
≤ 2600 m	68	68	59	29.5	127	42.3
> 2600 m	32	32	141	70.5	173	57.7
House-Highway						
<100 meter	67	67	26	13	93	31
≥100 meter	33	33	174	87	207	69
Green Space (30%)						
None	93	93	132	66	225	75
Have	7	7	68	34	75	25
Buffer						
None	56	56	113	56.6	169	56.3
Have	44	44	87	43.4	131	43.7

Table 5. Frequency Distribution of Indoor Environmental Observations in Subjects' Residence in Case and Control Groups

Categori	LBW (100)		Normal (200)		Total (300)	
	n	%	n	%	n	%
Passive Smoke						
High Risk	73	73	154	77	227	757
Low Risk	27	27	46	23	73	24.3
Mosquito repellen coil	47	47	178	89	225	75
Yes						
No	53	53	22	11	75	25
Solid fuel						
Yes	98	98	195	97.5	293	97.7
No	2	2	5	2,5	7	2.3

3. Relationship between air pollution exposure history and the incidence of LBW

Based on Table 6 it is known that the variables that have a relationship with the incidence of LBW are the age of the mother during pregnancy (OR= 3.29; 95% CI= 1.21 to 9.02; p= 0.032); history of ANC (OR= 4.13; 95% CI= 1.69 to 10.05; p= 0.003); socioeconomic conditions (OR= 4.01; 95% CI= 1.67 to 9.66; p= 0.003); industrial distance (OR= 2.31; 95% CI= 1.57 to 3.00; p= 0.02); distance from house to road (OR= 3.43; 95% CI= 2.62 to 5.28; p= 0.010), green open space ownership (OR= 2.1; 95% CI= 1.44 to 2.29; p= 0.040); cigarette smoke exposure (OR= 4.53; 95% CI= 1.85 to 11.08); smoke exposure from mosquito coils (OR= 2.74; 95% CI = 1.16 to 6.45; p= 0.034).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.05

Table 6. Bivariate analysis of environment factors associated with LBW

Category	LBW (100)	Normal (200)	Total (300)	OR (95% CI)	p
Age at pregnancy					
High Risk	77 (77%)	57 (28.5%)	134 (44.6%)	3.29 (1.21-9.02)	0.032
Low Risk	23 (23%)	143 (71.5%)	166 (55.3%)		
Nutrisional Status at pregnancy					
Have a risk	65 (65%)	91 (45.4%)	156 (52%)	1.19 (0.52-2.73)	0.833
No Risk	35 (35%)	109 (54.5%)	144 (48%)		
ANC					
Incomplete	69 (69%)	96 (48%)	165 (55%)	4.13 (1.69-10.05)	0.003
Complete & standard	31 (31%)	104 (52%)	135 (45%)		
Comorbidities					
Have	56 (56%)	126 (63%)	182 (60.7%)	188 (0.76-4.66)	0.255
None	44 (44%)	74 (37%)	118 (39.3%)		
Sosio-Eco:					
Hihg Risk	72 (72%)	89 (44,5%)	161 (53.7%)	4.01 (1.67-9.66)	0.003
Low Risk	28 (28%)	111 (55,5%)	139 (46.3%)		
Sex					
Boy	59 (59%)	98 (49%)	157 (52.3%)	0.33 (0.08-1.34)	0.198
Girl	41 (41%)	102 (51%)	143 (47.7%)		
Distance to industry					
≤ 2600 m	68 (68%)	59 (29,5%)	127 (42.3%)	2.31 (157-3.00)	0.020
> 2600 m	32 (32%)	141 (70.5%)	173 (57.7%)		
House-Highway					
<100 meter	67 (67%)	26 (13%)	93 (31%)	3.43 (2.62-5.28)	0.010
≥100 meter	33 (33%)	174 (87%)	207 (69%)		
Green Space (30%)					
None	93 (93%)	132 (66%)	225 (75%)	2.10 (1.44-2.29)	0.040
Have	77 (77%)	68 (34%)	75 (25%)		
Buffer					
None	56 (56%)	113 (56,6%)	169 (56.3%)	1.71 (0.72-4.059)	0.310
Have	44 (44%)	87 (43,4%)	131 (43.7%)		
Passive Smoke					
High Risk	73 (73%)	154 (77%)	227 (75.7%)	4.53 (1.85-11.08)	0.001
Low Risk	27 (27%)	46 (23%)	73 (24.3%)		
Mosquito repellen coil					
Yes	47 (47%)	178 (89%)	225 (75%)	2.74 (1.16-6.45)	0.034
No	53 (53%)	22 (11%)	75 (25%)		
Solid fuel					
Yes	98 (98%)	195 (97.5%)	293 (97.7%)	3.08 (0.29-7.36)	0.090
No	22 (22%)	5 (2.5%)	6 (2.3%)		

4. The Dominant Variable Affecting LBW

Passive smoking (aOR= 4.73; 95% CI= 2.02 to 10.54; p= 0.034), use of mosquito repellent coil (aOR= 2.55; 95% CI= 2.36 to 6.54; p= 0.023), proximity to industrial area (aOR= 2.44; 95% CI= 2.15 to 8.75; p= 0.002), low family income (2.79; 95% CI= 1.02 to 4.29; p= 0.046) were associated with increased risk of low birth weight, and all of these predictors were statistically significant (Table 8).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.05

Table 8. Multiple logistics regression of relationship between environmental factors and LBW

Independent Variables	OR	95% CI		p
		Lower limit	Upper limit	
Socio-eco	2.79	1.01	4.29	0.046
Distance of Industry	4.51	2.15	8.75	0.002
Passive Smoking	4.73	2.02	10.54	0.034
Mosquito repellen coil	2.56	2.36	6.54	0.023
N observation= 300				
-2 Log likelihood = 207.58				
Negelkerke R^2 = 49.1%				

DISCUSSION

Basically, birth outcomes depend on the ability of the fetus to develop and generally this ability or developmental process is influenced by the complexity of factors such as genetic, social and environmental. Based on this, in this study the researchers also included other variables besides environmental variables in relation to the incidence of LBW. This is intended to be able to estimate more validly the relationship between indoor air exposure during pregnancy and the incidence of LBW after being controlled by other variables.

Smoking and faulty heating systems can introduce harmful gases into the indoor air. Tobacco smoke contains more than 4,000 chemicals, including 43 types that are known to cause cancer in humans and animals. Smokers and non-smokers inhale these chemicals when people smoke indoors. Carbon monoxide a colorless and odorless gas that interferes with the absorption of oxygen in the blood. Materials such as the use of energy that is not environmentally friendly, the use of energy sources such as coal and biomass (wood, dried animal manure, agricultural residues), smoking behavior in the house, the use of pesticides, the use of cleaning chemicals can emit pollutants that can persist in the space. for quite a long period of time (Huang et al., 2017).

Pregnant women who are exposed to second-hand tobacco smoke have the same risk as pregnant women who smoke. Based on research, there are 3 toxic compounds that are carcinogens and can poison the mother and baby, namely benzo(a)pyrene, 4-aminobhipelin and akylonitrile. Cigarette smoke contains 400 chemicals and 200 of them are toxic. Carbon monoxide (CO) is one of the toxic substances that can cause blood vessels to cramp so that blood pressure rises, blood vessel walls can tear. Co gas can also cause hemoglobin desaturation, reducing direct oxygen circulation to tissues throughout the body, causing myocardium, and CO can replace O2 where it binds to hemoglobin (Huang et al., 2017; Witt et al., 2018).

Inhaled cigarette smoke can penetrate to the alveoli and will also flow with the blood and distributed in the body and can be stored in various organs or tissues. If these pollutants are able to reach the placenta, it will cause inflammation of the placenta which can

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.05

interfere with the transplacental exchange of nutrients which in turn can inhibit fetal growth. Inflammation can also increase the mother's susceptibility to infection which is strongly associated with the incidence of prematurity (25-45% of preterm births due to maternal susceptibility to infection).

A number of studies suggest that exposure to cigarette smoke (especially NO2, CO, and PM10) is associated with hematological effects such as changes in viscosity, blood coagulability, and vasoconstriction of the arteries that have an impact on heart health. When this effect occurs in pregnant women, it is likely to result in reduced blood flow to the placenta, preventing the transfer of sufficient oxygen to the placenta and lowering the weight of other lipophilic molecules. This results in stunted fetal growth and SGA. This is a possible mechanism of effect by which cigarette smoke may limit growth but not necessarily increase the risk of spontaneous preterm birth.

Exposure to cigarette smoke can also cause hemodynamic responses in the body such as changes in blood pressure, heart rate and rhythm, and heart autonomic beats which have an impact on increasing systolic and diastolic blood pressure. Hemodynamic changes are risk factors for hypertension and other cardiovascular diseases. Hypertension and cardiovascular disease are risk factors for the occurrence of LBW.

The variable most related to the incidence of LBW is exposure to cigarette smoke during pregnancy after being controlled by the variable anti-mosquito smoke, industrial distance and socioeconomic conditions of pregnant women. Recommendations to reduce the risk of developing LBW include avoiding or minimizing exposure to cigarette smoke during pregnancy by consuming foods and beverages that have antioxidant benefits such as fruits and products containing high levels of vitamin C (oranges, pineapples, lemons, red grapes), berries, nuts. Nuts high in vitamin E (walnuts, hazelnuts, soybeans, sunflower seeds), dates, raisins, carbohydrate sources (corn and potatoes), vegetables (cabbage, spinach, beets, carrots, broccoli), green tea drinks, and milk low fat and wear a mask when outside the house or around an environment with air pollution

AUTHOR CONTRIBUTION

Dwi Septiawati as first author has made substantial contribution to conception and design, or acquisition of data, or analysis and interpretation of data. Bambang Wispriyono as second author has been involved in drafting the manuscript or revising it critically for important intellectual content.

FUNDING AND SPONSORSHIP

None

ACKNOWLEDGEMENT

Greatest appreciation goes to Mr Bambang Wispriyono as his advisor and his advice, supervision, and crucial contribution in the improvement of the result of this research.

CONFLICT OF INTEREST

None.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.05

REFFERENCES

Hannam K, McNamee R, Baker P, Sibley C, Agius R (2014). Air pollution exposure and adverse pregnancy outcomes in a large UK birth cohort: use of a novel spatio-temporal modelling technique. Scand J Work Environ Health. 40(5): 518-30. DOI: 10.-5271/sjweh.3423.

Huang S, Weng K, Huang SM, Liou H, Wang C, Ou S, Lin C, et al. (2017). The effects of maternal smoking exposure during pregnancy on postnatal outcomes: a cross sectional study. J Chin Med Assoc. 80(12): 796-802. DOI: 10.10-16/j.jcma.2017.01.007.

Kemenkes KKRI (2018). Laporan Nasional Riskesdas 2018. Jakarta: Badan Penelitian dan Pengembangan Kesehatan.

Khan MN, Islam MM, Islam MR, Rahman MM (2017). Household air pollution from cooking and risk of adverse health and birth outcomes in Bangladesh: a nationwide population-based study. Environ Health 16. 57 (2017). https://DOI.org/10.1186/s12940-017-0272-y.

Palembang D (2018). Profil Kesehatan Kota Palembang 2018. Palembang: Dinas Kesehatan Kota Palembang.

Poirier A, Dodds L, Dummer T, Rainham D, Maguire B, Johnson M (2015). Maternal exposure to air pollution and adverse birth outcomes in Halifax, Nova Scotia. J Occup Environ. 57(12): 1291-1298. https://www.jstor.org/stable/48500910.

Rana S (2018). Incense sticks: a potential source of indoor air pollution. Int. J. Environ. Eng. Manage. 9(1): 1-6. Retrieved from: https:/-/www.ripublication.com/ijeem18/ijeemv9n1_01.pdf

Septiawati D, Fitria L, Wulandari RA, Zahra Z, Listianti AN (2017). Pengaruh pajanan nitrogen dioksida (N02) terhadap berat badan lahir rendah (BBLR), di Kota Palembang, Provinsi Sumatera Selatan. Indonesian Journal of Health Ecology. 16(1). 36-45.

Shriyan P, Babu GR, Ravi D, Ana Y, Schayck V, Onno CP, Thankachan P, et al. (2020). Ambient and indoor air pollution in pregnancy and the risk of low birth weight and ensuing effects in infants (APPLE): A cohort study in Bangalore, South India. Wellcome Open Research. 3. 133: DOI: 10.12688/wellcomeopenres.14830.1

Stieb DM, Chen L, Eshoul M, Judek S (2012). Ambient air pollution, birth weight and preterm birth: a systematic review and meta-analysis. Environ Res. 117:100-11. DOI: 10.1016/j.envres.2012.05.0-07.

WHO (2013). The top 10 causes of death: the 10 leading causes of death in the world, 2000 and 2011. Retrieved from: https://-www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death

WHO (2014). Global nutrition targets 2025: Low birth weight policy brief. Retrieved from: https://apps.eho.int/iris/bitstream/handle/

10665/149020/WHO_?sequence=2

WHO (2019). UNICEF-WHO low birthweight estimates: levels and trends 2000-2015. Retrieved from: https://apps.who.int/iris/-bitstrea m/handle/10665/32478-3/WHO-NMH-NHD-19.21-eng.pdf

Witt SH, Frank J, Gilles M, Lang M, Treutlein J, Streit F, Wolf IA, et al. (2018). Impact on birth weight of maternal smoking throughout pregnancy mediated by DNA methylation. BMC Genomics 19(1): 290. DOI: 10.1186/s12864-018-4652-7.

THE RELATIONSHIP BETWEEN ENVIROMENTAL SANITATION AND THE RISK OF DENGUE HEMORRHAGIC FEVER IN BATAM, RIAU ISLAND

Herdianti[1)], Yayat Nurhayati[2)], M. Kafit[2)], Dewi Susanna[3)]

[1)]Doctoral Program of Public Health Sciences, Faculty of Public Health, Universitas Indonesia
[2)]Environmental Health Program, Faculty of Health Sciences, Universitas Ibnu Sina, Indonesia
[3)]Environmental Health Program, Faculty of Public Health, Universitas Indonesia

ABSTRACT

Background: Dengue haemorrhagic fever cases in Indonesia in 2019 amounted to 65,602 cases, with a death toll of 467 people. In 2020, dengue cases in Indonesia reached 71,633 cases. The number of DHF cases at Sei Pancur Community Health Center reached 53 cases in 2019. There was an increased incidence in 2020 as many as 116 cases. This study aimed to determine the relationship between environmental sanitation and the risk of dengue haemorrhagic fever.
Subjects and Method: This was a cross-sectional study conducted at Sei Pancur Community Health Center, Batam, Riau, Indonesia, from December 2020 to March 2021. A sample of 104 out of 140 people visiting the Community Health Center was selected at random. The dependent variable was dengue haemorrhagic fever. The independent variable was the environmental sanitation, including the presence of used goods, lighting, and the presence of larvae. The data were collected using questionnaires. The data were analyzed by odds ratio and chi-square.
Results: The risk of dengue haemorrhagic fever increased with poor environmental sanitation, including the presence of used goods around the house (OR= 5.25; 95% CI= 2.08 to 13.24; p= 0.001), poor house lighting (OR= 6.32; 95% CI= 2.31 to 17.30; p< 0.001), and the presence of larvae (OR= 2.85; 95% CI= 1.11 to 7.29; p= 0.045).
Conclusion: The risk of dengue haemorrhagic fever increases with poor environmental sanitation, including the presence of used goods around the house, poor house lighting, and the presence of larvae.

Keywords: house environment, dengue haemorrhagic fever

Correspondence:
Herdianti. Universitas Indonesia. Email: herdiantinyup@gmail.com. Mobile: 085395925901.

BACKGROUND

Dengue haemorrhagic fever cases in Indonesia in 2019 amounted to 65,602 cases, with a death toll of 467 people. In 2020, dengue cases in Indonesia reached 71,633 cases (Kementrian Kesehatan RI, 2020). Dengue Hemorrhagic Fever (DHF) is caused by the Dengue virus which is transmitted from one person to another through the bite of the Aedes Aegypti mosquito which is the main vector, but other species such as Aedes albopictus can also be a vector of transmission (Kemenkes RI, 2017). In recent times, this infection has increasingly serious clinical symptoms and occurs

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.06

repeatedly with a very wide area of impact. Indonesia is a country with a dense population of 261 million people. However, dengue fever is mostly found in metropolitan areas, even spreading to areas far from urban areas, namely in remote villages (Pratiwi, 2018).

Sanitation is closely related to the relationship between the maintenance and development of mosquitoes, poor natural environmental hygiene can cause disease, one of which is Dengue Hemorrhagic Fever (DHF) which is caused by the dengue virus (Kemenkes RI, 2017). The transmission of DHF occurs because there are patients who are infected with the dengue virus (Muller, Depelsenaire and Young, 2017). In addition, the occurrence of DHF can be influenced by causative factors such as a poorly managed environment, science, financial condition, and information (Sintorini *et al*, 2020). Furthermore, climate plays an important role in circulating the existence of vector life forms of ecologically based infections. In addition to the condition of the house also affects the spread of dengue hemorrhagic fever (Fidayanto *et al*., 2013).

Conditions that affect the house such as ventilation, humidity and lighting. This is corroborated by study that has been carried out in the Kalasan Health Center, showing that there is a relationship between ventilation (OR= 0.07; 95% CI= 0.01 to 0.85; p= 0.039), stickiness (OR= 0.35; 95% CI= 0.04 to 3.37; p= 0.642) and lighting (OR = 0.072; 95% CI= 0.01 to 0.85; p= 0.039) with the incidence of dengue hemorrhagic fever in the Kalasan Health Center, Sleman (Wijirahayu and Sukesi, 2019).

Based on data from the Indonesian Health Profile in 2019, there were 138,127 cases of dengue fever, this number increased compared to 2018 of 69,602 cases. Deaths due to DHF in 2019 also increased compared to 2018 from 467 to 919 deaths. Illness and death can be described using the Incident Rate (IR) indicators per 100,000 population and case fatality rate (CFR). The incidence rate of DHF in 2019 was 51.48 per 100,000 population, while CFR showed a slight decrease from the previous year, from 0.71% in 2018 to 0.67% in 2019 (*Profil Kesehatan Indonesia Tahun 2019*, 2020).

DHF cases in the Riau Islands Province in 2019 amounted to 1,873 cases, with the number of deaths as many as 11 people. The highest number of DHF cases by regency/city was in Batam City at 729 cases and the lowest in Anambas Regency at 39 cases. The morbidity rate of DHF in Riau Islands is 83.6 per 100,000 population, has not reached the target of < 49 per 100,000 population, while CFR of 0.6% has reached the national target of <1% (*Profil Kesehatan Provinsi Kepulauan Riau Tahun 2019*, 2020).

Data from the Batam City Health Office of DHF in 2019 was 729 cases with a death rate of 2 people and increased in 2020, namely 763 cases with a death rate of 4 people, while the latest data until early March 2021 were 104 cases, while for Sungai Beduk District which is located from twelve sub-districts in the Batam City Region and is the work area of the Sei Pancur

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.06

Puseksmas UPT there are 53 cases in 2019 and an increase in cases in 2020 as many as 116 cases while the data from 2021 to early March were 44 cases (Data P2P Dinas Kesehatan Kota Batam, 2021).

Based on that background above, the factors for the occurrence of DHF at Sei Pancur health center which experienced fluctuating events were due to a lack of awareness and participation from the community about the importance of creating a healthy environment and taking steps to prevent dengue disease by increasing PSN (Eradication of Mosquito Nests). If people do not have awareness about the importance of creating a healthy environment, what will happen will make it easier for environmental-based diseases to breed, one of which is dengue hemorrhagic fever (Profil Puskesmas Sei Pancur).

The purpose of this study was to determine the relationship between environmental sanitation, namely the presence of used goods, lighting, and the presence of larvae with the incidence of dengue hemorrhagic fever at Sei Pancur health center.

SUBJECTS AND METHOD

1. Study Design

This was a cross-sectional study carried out at the Sei Pancur Health Center, from March to June 2021.

2. Population and Sample

The study population was adult. A sample of 140 study subjects was selected by simple random sampling.

3. Operational Definition of Variables

Dengue hemorrhagic fever was defined as an infectious disease caused by the dengue virus through the bite of the Aedes aegypti mosquito by taking secondary data from examination results from the medical records of the Sei Pancur community health center. The existence of used goods around the house is the existence of goods that are not used (used) and can accommodate rainwater outside the house so that it becomes a breeding ground for Aedes which was observed directly by researchers. Home lighting is sufficient light to illuminate the room in the house, which is a health need measured by using a lux meter with a cut off point of 60 lux. The presence of larvae is defined as the presence of larvae inside and outside the house that affects the incidence of DHF which is also directly observed by the researcher.

4. Study Variables

This study looks at the relationship between the dependent variable, namely the incidence of dengue fever, and the independent variable, namely the home environment, including the presence of used goods, lighting, and the presence of larvae.

5. Study Instruments

The measurement tools for some variables (presence of goodss and presence of larvae) are used checklist with observation and direct measurement for lighting. For dependent variable, the incidence of dengue fever, using secondary data form Sei Beduk Health Centre.

6. Data Analysis

The data obtained were analyzed by univariate and bivariate with chi-square analysis.

7. Research Ethics

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.06

This study considers which research ethics by giving informed consent to the respondents. If they are not willing to sign, they are removed from the sample or replaced with another sample.

RESULTS

Based on the analysis of the characteristics of the respondents seen from the variables of age, sex, education level and occupation. From table 1, it can be seen that most of the respondents were 41-60 years old, namely 55 people (52.8%). A total of 71 respondents (68.3%) were female. 81 people have completed senior high school (77.9%) and as many as 45 (43.2%) were unemployed.

Table 1. Sample characteristics (categorical data)

Characteristics	Category	Frequency	Percentage
Age	20-40 years old	46	44.2%
	41-60 years old	55	52.8%
	>60 years old	3	3.0%
Sex	Male	33	31.7%
	Female	71	68.3%
Education Level	Elementary School	2	1.9%
	Junior High School	9	8.7%
	Senior High School	81	77.9%
	Bachelor	12	11.5%
Occupation	Entrepreneur	29	27.9%
	Private employees	29	27.9%
	Government employees	1	1.0%
	Does not work	45	43.2%

Table 2. The Risk of House Environment on Dengue Hemorrhagic Fever

Independent Variables	DHF				OR	p
	Yes		No			
	N	%	N	%		
The Presence of Used						
Not eligible	42	60.9	27	39.1	5.25	0.001
Eligible	8	22.9	27	77.1		
Home Lighting						
Not eligible	44	60.3	29	39.7	6.32	0.000
Eligible	6	19.4	25	80.6		
The presence of larvae						
Not eligible	42	54.5	35	45,5	2.85	0.045
Eligible	8	29.6	19	70.4		

Based on the table above, it is known that the frequency of DHF incidence is more in the category of the group with DHF than in the non-DHF group. Where the existence of used goods around the house with criteria that do not meet the requirements as many as 42 (60.9%) in patients with DHF. From the results of statistical tests that there is a significant relationship between the presence of used goods and the incidence of DHF in the Work Area of the UPT Puskesmas Sei Pancur.

From table 2 above, the incidence of dengue hemorrhagic fever is

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.06

more in the group of DHF patients than in the non-DHF patient group with the results of lighting measurements not meeting the requirements in the group of patients as many as 44 (60.3%) and 29 (39.7%) in the group of patients with dengue hemorrhagic fever. the non-DHF patient group. The results of statistical tests using chi square is a significant relationship between house lighting and the incidence of dengue hemorrhagic fever in the UPT work area Sei Pancur Health Center.

Based on table above, it is known that the number of larvae that do not meet the requirements in the group of DHF patients is more, namely 42 (54.5%) compared to the group of non-DHF sufferers with a total of 35 (45.5%). Where the results of statistical tests is a significant relationship between the presence of larvae and the incidence of dengue hemorrhagic fever in the working area of UPT Puskesmas Sei Pancur.

DISCUSSION

1. The relationship between the existence of used goods and the incidence of dengue hemorrhagic fever

Considering that this bivariate analysis used the Chi-Square test to determine the relationship between the presence of used goods around the house and the incidence of dengue hemorrhagic fever, the p= 0.001, means that there is a significant relationship between the presence of used goods around the house and the incidence of dengue hemorrhagic fever at Sei Pancur health center.

Based on the theory, places that become breeding grounds for Aedes aegypti mosquitoes are water reservoirs (TPA) for daily needs both inside and outside the home, including buckets, drums, jars, bathtubs, and others. Daily needs, including bird drinking places, water media flower vases, used goods, gutters, and so on. Natural landfills, such as tree holes, banana leaf midribs, coconut shells, flowers and so on (Kementerian Kesehatan RI, 2013).

This is in line with Winarsih (2012) with the results that there was a relationship between the presence of ornamental plants (p= 0.349), the presence of used goods (OR= 4.55; p= 0.005), house ventilation area (OR= 4.26; p= 0.020), house humidity (p= 0.005), draining the landfill (OR= 3.87; p= 0.004), closing the landfill (p= 0.070), burying used goods (OR= 4.75; p= 0.004) and sow abate (OR= 6.23; p= 0.001) (Winarsih, 2012)

Based on the above discussion, it is expected that the participation of the community in carrying out mosquito nest eradication with draining water reservoirs, closing water reservoirs, recycling used goods, monitoring once a week, planting mosquito repellent plants and keeping larvae-eating fish in home and environment.

2. The relationship between house lighting and dengue hemorrhagic fever

The results of a bivariate study using chi square to determine the relationship between house lighting and the incidence of dengue hemorrhagic fever, with p< 0.001. It explains that there is a significant relationship between house lighting and the

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.06

incidence of dengue hemorrhagic fever at Sei Pancur Health Center.

In addition, mosquito activity in biting humans is also influenced by the density of residents who occupy the house, so it can be estimated that the Aedes aegypti mosquito in homes with dense residents, bites humans more often than in houses that are not densely populated (Poinsignon *et al.*, 2019). Respondents' houses whose lighting did not meet the requirements in the group of non-DHF sufferers were 29 (39.7%) but had never experienced a DHF incident due to respondents who have a habit of opening windows with the aim of getting air circulation and getting maximum lighting. So that it will reduce the risk of mosquitoes to perch in a house with less lighting.

In accordance with the theory shown by Sukidjo (2011) a healthy house requires sufficient light, in the morning all rooms are expected to get enough sunlight (Notoatmodjo, 2011). Because the lack of light becomes a very good condition for mosquitoes, where the intensity of light is a very big factor in influencing the flying activity of mosquitoes. Mosquitoes fly at light intensities below 60 lux. Low light and high humidity are favorable conditions for mosquitoes to perch (Sapti, 2019).

This study showed that there was a relationship between ventilation (OR= 0.07; 95% CI= 0.01 to 0.85; p= 0.039), humidity (OR= 0.35; 95% CI= 0.04 to 3.37; p= 0.642) and lighting (OR= 0.07; 95% CI= 0.01 to 0.85; p= 0.039) with the frequency of dengue hemorrhagic fever in the working area of Kalasan Public Health Center, Sleman Regency (Wijirahayu & Sukesi, 2019).

Thus, it is appealed to the public for homes that do not have lighting that does not meet the requirements in order to increase the habit of opening windows with the aim of helping maximize the entry of light into the house where houses with less light intensity are the most preferred places for mosquitoes to perch.

3. Relationship between the presence of larvae and the incidence of dengue hemorrhagic fever

Based on the bivariate test using chi square to determine the relationship between the presence of larvae and the incidence of dengue hemorrhagic fever, with p= 0.045, showed that there was a significant relationship between the presence of larvae and the incidence of dengue hemorrhagic fever at Sei Pancur Public Health Center.

In accordance with the theory that the breeding place of the aedes aegypti mosquito greatly affects the density or density of larvae, the larval density has a very large influence on the incidence of dengue hemorrhagic fever cases (Carrington and Simmons, 2014). The main breeding places in the house are water reservoirs: bathtubs, jars, placemats for storing water dispensers, etc. (Kementerian Kesehatan RI, 2013).

A study by Anggraini (2018), reported that there is a relationship between the presence of larvae and the incidence of DHF (p< 0.001) in the Kedukus Village (Anggraini, 2018). To reduce the risk of transmission of dengue disease, it is hoped that all levels of society will take an active role

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.06

in prevention efforts, namely by doing the program 1 House 1 Jumantik (G1R1J1) at home and in their respective environments. For its implementation, the role of jumantik cadres is very influential in this case as evidenced by the implementation of the home visit/ larva check method that is carried out so that it can provide motivation to the community to make efforts to prevent dengue disease through 3Mplus actions at their respective homes and the surrounding environment (Aji, 2018).

The conclusion of the research is that there is a relationship between environmental sanitation, namely the presence of used goods around the house, house lighting and the presence of larvae with the incidence of dengue hemorrhagic fever in the Work Area of Sei Pancur Public Health Center. As one of the efforts to prevent dengue, the community is expected to: Get used to the maintenance and reuse of used goods around the house, Get used to opening windows during the day to maximize the entry of light into the house and do the 3Mplus program, namely draining, closing and recycling used goods and the pluses monitoring once a week, keeping larvae-eating fish, planting mosquito repellent plants, and others at home and the surrounding environment.

AUTHOR CONTRIBUTION

All authors have contributed to this research. The first author as well as the correspondent author as the main idea compiler of the research and the author of the final research report. The second author took on the role of data collector. The third author as data analysis and making attachments. The fourth author as a quality control of the research instrument.

ACKNOWLEDGMENT

Sincere thanks to LPDP (Lembaga Pengelola Dana Pendidikan), Indonesian Ministry of Finance that became the main funder for this publication. Authors also thank the University of Indonesia, Ibnu Sina University, and the Ibnu Sina Education Foundation Batam, Indonesia that kindly supported during the experiment.

FUNDING AND SPONSORSHIP

There is no financial support and sponsorship for this study but for publication authors get sponshorship from LPDP (Lembaga Pengelola Dana Pendidikan), Indonesian Ministry of Finance.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Aji R (2018). Konsistensi Kinerja Kader Jumantik Terhadap Prevalensi DBD di Kabupaten Rejang Lebong Tahun 2014. Jurnal Media Kesehatan. 2(1); 1–2.doi: 10.33088/jmk.v8i1.263.

Anggraini S (2018). The Existance of Larvae and Dengue Fever Incidence in Kedurus Sub-District in Surabaya. Jurnal Kesehatan Lingkungan. 10(3); 252. doi:10.-20473/jkl.v10i3.2018.252-258.

Carrington LB, Simmons CP (2014). Human to mosquito transmission of dengue viruses. Frontiers in Immunology, 17(3);65–67.

doi: 10.3389/fimmu.2014.00290.

Data P2P Dinas Kesehatan Kota Batam (2021).

Fidayanto R, Susanto H, Yohanan A, Yudhastuti R (2013). Control Model of Dengue Hemorrhagic Fever. Jurnal Kesehatan Masyarakat Nasional. 10(1);5–14. http://dx.doi.org/10.21109/kesmas.v7i11.366

Kemenkes RI (2017). Pedoman Demam Berdarah Dengue Indonesia.

Kementerian Kesehatan RI (2013). Buku saku pengendalian demam berdarah dengue untuk pengelola program DBD Puskesmas. Kementrian Kesehatan Republik Indonesia.

Kementrian Kesehatan RI (2020). Hingga Juli, Kasus DBD di Indonesia Capai 71 Ribu, Kementrian Kesehatan RI. (2020). Hingga Juli, Kasus DBD di Indonesia Capai 71 Ribu.

Muller DA, Depelsenaire ACI, Young, PR (2017). Clinical and laboratory diagnosis of dengue virus infection. Journal of Infectious Diseases. doi: 10.1093/infdis/jiw649.

Notoatmodjo S (2011). Kesehatan Masyarakat Ilmu & Seni. Jakarta: Rineka Cipta. 57–65.

Poinsignon, A, Boulanger D, Binetruy F, Elguero E, Darriet F, Gallian P, Lambellerie DX, Charrel RN, Remoue F (2019). Risk factors of exposure to Aedes albopictus bites in mainland France using an immunological biomarker. Epidemiol Infect. 147(e238); 1–7. doi: 10.1017/S0950268819001286.

Pratiwi AS, Mutiara H, Fakhruddin H (2018). Perbedaan Peningkatan Pengetahuan tentang Demam Berdarah Dengue antara Metode Ceramah dan Video Animasi Pada Murid Kelas V dan VI SD Negeri 12 Metro Pusat. Majority. 7(3); 41–48.

Profil Kesehatan Indonesia Tahun 2019 (2020). Kementrian Kesehatan. doi:10.5005/jp/books/112575.

Profil Kesehatan Provinsi Kepulauan Riau Tahun 2019 (2020).

Purnama SG (2016). Buku Ajar Penyakit Berbasis Lingkungan. Ministry of Health of the Republic of Indonesia.

Sapti M (2019). Populasi nyamuk dan dampak dari serangannya. Kemampuan Koneksi Matematis (Tinjauan Terhadap Pendekatan Pembelajaran Savi). 53(9); 1689–1699.

Sintorini MM, Aliyyah N, Sinaga, ERK (2020). Environment drivers of DHF disease in Jakarta 2017 – 2018. International Journal of Scientific and Technology Research. 7(2); 7–12.

Wijirahayu S, Sukesi TW (2019). Hubungan kondisi lingkungan fisik dengan kejadian demam berdarah dengue di wilayah kerja puskesmas Kalasan Kabupaten Sleman. Jurnal Kesehatan Lingkungan Indonesia. 18 (1): 19 doi: 10.14710/jkli.18.1.19-24.

RELIABILITY OF THE GENERAL ANXIETY DISORDER -7 QUESTIONNAIRE FOR NON-HEALTHCARE WORKERS

Sri Idaiani[1)], Maria Holly Herawati[1)], Rofingatul Mubasyiroh[2)], Lely Indrawati[2)], Indri Yunita[2)], Nikson Sitorus[2)], Siti Isfandari[3)]

[1)]Center for Research and Development of Health Resources and Services, Jakarta
[2)]Center for Research and Development of Public Health Efforts, Jakarta
[3)]Center for Research and Development of Humaniora and Health Management, Jakarta

ABSTRACT

Background: To conduct a population study, there is a need to first assess the validity and reliability of the measuring instrument such as a questionnaire. This study aimed to examine the reliability of the GAD-7 questionnaire in the non-healthcare workers' population.
Subjects and Method: This was a cross-sectional study conducted in April 2020. A sample of 1,020 subjects was selected for this study. The data were collected using the General Anxiety Disorder questionnaire 7 (GAD-7). The inter-item correlation and Cronbach alpha were calculated to assess the instrument reliability using STATA 15.
Results: The inter-item correlation as well as the item-rest correlation of the 7 items GAD-7 questionnaire ranged from 0.57 to 0.83 with $p< 0.050$. The Cronbach alpha = 0.88.
Conclusion: The reliability of GAD-7 questionnaire is high so it can be used to measure anxiety in the non-healthcare workers' population.

Keywords: reliability, GAD-7, non-healthcare workers

Correspondence:
Sri Idaiani. Center for Research and Development of Health Resources and Services. Jl Percetakan Negara No. 29, Central Jakarta. Email: sriidaiani@gmail.com. Mobile: +62 8121177658.

BACKGROUND

The COVID-19 pandemic in Indonesia started in March 2020 after it was first discovered in Wuhan, China (Giorgi et al., 2020; Xiang et al., 2020). All sectors were affected, especially health workers at the forefront in healthcare facilities. At the end of March, wide-scale restrictions were introduced in Indonesia, while several studies were subsequently carried out in the health sector, especially among health workers with various aspects, including exposure, psychological problems, stigma, and other impacts.

However, not only health workers are at risk of being affected by this pandemic, as non-health workers and even families including children also feel the impact. Psychologically, there are several anxiety disorders associated with the pandemic such as depression, sleep disorders, and others (Alshekaili et al., 2020; Traunmüller et al., 2020; Trumello et al., 2020; Wang et al., 2020). Furthermore, the questionnaire widely used to assess one of the psychological disorders namely anxiety, is General Anxiety Disorder (GAD), which consists of seven questions (Spitzer et al., 2006). Several studies have been carried out on the health sector, but only a few assessed the non-healthcare workers' mental

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.07

condition. Therefore, the study is needed on populations of non-health workers. Before conducting the study, a questionnaire was prepared as a standard. Therefore, the items, forming factors, and reliability were analyzed to ensure that the results obtained are based on a questionnaire that has been tested on the population.

The characteristics of a good questionnaire include having a good variable relationship with the total score, consist of strong forming factors, and having good reliability (Norman and Cairney, 2015). This is evidenced by testing on the same population as previously assessed. Therefore, this study aims to test the items, factors, and reliability of the GAD-7 questionnaire on the population of non-healthcare workers.

SUBJECTS AND METHOD

1.Study Design

This was a cross-sectional study, which was carried out online, involving the employees of the head office of Ministry of Health (Kemenkes). In this study it was conducted validation test of GAD-7 instrument.

2. Population and Samples

The target population is workers who are not working at health service facility. The source population is workers who are working at head office of Ministry of Health. Purposive sampling technique was applied and the minimum sample size using the formula of sample size $n= z^2 1-\alpha/\delta\ p(1-p)/d^2$ with p= 0.45 and d= 0.05 was obtained 420 respondents (Lwanga et al., 1991). The respondents filled in the questionnaire using a link of google form. Data collection was carried out in earlier of April 2020.

3. Study Variables

The main variable is anxiety. Characteristics of respondent such as age, gender, education, marital status and employee status were described as well.

4. Operational Definition of the Variables

The anxiety was assessed according the study instrument criteria. Age group was devided into ≤ 29, 30-39, 40-49, 50-59 and ≥ 60 years old. Male and female as gender variable, and education was devided into three groups namely senior high school and postgraduate then magister or doctoral degree. There are three marital groups namely married, divorce/ widowed and single (unmarried).

5. Study Instruments

The GAD-7 questionnaire consisted of 7 questions, each of which could be answered with the choice of “not at all,” “several days,” “more than half the days", and “nearly every day", with respective scores of 0, 1, 2 and 3. The questions and answers were about things that happened during the last 2 weeks. Therefore, the total score ranged from 0 to 21. Based on the total score, the following groups were determined: 0-4 = not anxiety, 5-9 = mild anxiety, 10-14 = moderate anxiety, >14= severe anxiety (Spitzer et al., 2006). This anxiety questionnaire used was the General Anxiety Disorder questionnaire 7 (GAD-7), which was originally developed by Pfizer and has been tested for validity and reliability. In Indonesia, the GAD 7 has been translated and validated for epilepsy patients (Budikayanti et al., 2019).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.07

Due to time constraints, the translation that was carried out in Indonesia was used. Besides questions about anxiety, questions concerning the characteristics of subjects were asked. Several variables were determined through questions, including gender, age, highest educational level, employment status (permanent or non-permanent), and marital status.

6. Data Analysis

The data used were transferred from a Google Excel sheet to STATA15 version (Stata Corp LLC) and then analyzed by frequency, items correlation, factor analysis with principal component analysis and Alpha Cronbach reliability (Bland and Altman, 1997, Norman and Cairney, 2015).

7. Research Ethics

The research protocol was reviewed by Scientific Committee of National Institute of Health Research and Development (NIHRD). Ethical approval was obtained by the Research Ethics Commission of the NIHRD of the Ministry of Health, number LB 02.01/2/-KE.256/2020. All respondents read a brief informed consent describing the general objective of the study, voluntariness, and confidentiality of participation.

RESULTS

There were 1070 respondents participated, but in data cleaning, 58 respondents was dropped therefore the number of subjects assessed was 1020. By 1020 respondents, most of them living in Jakarta and 169 respondents (16.2%) living in other cities. Table 1 shows the characteristics of the subjects with a total number of 1020. The majority were females and aged between 30-39 years with mean=37.8, SD= 11.4. The educational level was mostly magister or doctoral degree with the marital status of married, and the majority were also state civil servants (ASN) or interpreted as permanent workers.

1. Characteristics of study subjects

Characteristics	Category	Frequency	Percentage
Age (year)	≤ 29	113	11.1%
	30-39	437	42.8%
	40-49	313	30.7%
	50-59	147	14.4%
	≥60	10	1.0%
Gender	Male	354	34.7%
	Female	666	65.3%
Education	Magister and Doctoral	452	44.3%
	High School and Postgraduate	568	55.7%
Marital Status	Married	826	81.0%
	Widowed/Divorce	154	15.1%
	Single	40	3.9%
Employee Status	Permanent (ASN)	895	87.7%
	Non-Permanent (Non ASN)	125	12.2%

The reliability was calculated through the correlation between each question item with the total score, while the validity was calculated through the forming factors of the GAD-7

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.07

questionnaire with the results as shown in Table 2.

Table 2. Correlation of question items with total scores and loading factors forming constructs

Description of items		Item-total correlation	Factor	Cronbach Alpha.
1	Feeling nervous, anxious, or on edge	0.828*	0.818	
2	Not being able to stop or control worrying	0.815*	0.822	
3	Worrying too much about different things	0.827*	0.833	
4	Trouble relaxing	0.811*	0.818	
5	Being so restless that it is hard to sit still	0.701*	0.725	
6	Becoming easily annoyed or irritable	0.574*	0.548	
7	Feeling afraid as if something awful might happen	0.761*	0.752	
	Item 1-7			0.878

*p=0.001

Table 3 Distribution of items and Anxiety proportion

Items	Description	Not at all	Several days	>12 hours/ days	Nearly everyday
1	Feeling nervous, anxious, or on edge	39.2%	48.6%	7.0%	5.2%
2	Not being able to stop or control worrying	58.0%	35.8%	3.5%	2.7%
3	Worrying too much about different things	53.3%	40.8%	3.4%	2.2%
4	Trouble relaxing	57.2%	37.0%	3.7%	2.2%
5	Being so restless that it is hard to sit still	82.8%	14.7%	1.7%	0.8%
6	Becoming easily annoyed or irritable	60.8%	35.2%	3.0%	1.0%
7	Feeling afraid as if something awful might happen	48.7%	44.5%	3.6%	3.1%
	Anxiety (%)	n	%		
	Not anxiety	693	67.0		
	Mild	272	26.7		
	Moderate	47	4.6		
	Severe	18	1.7		

Reliability of GAD-7

All questions have a good correlation which was all above the r table (r count > r table). Moreover, the correlation coefficients between the 7 items of the GAD-7 and the total score ranged from 0.57 to 0.83 with p=0.01, while the Cronbach Alpha assessment was

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.07

carried out and obtained a value of 0.878.

Validity of GAD-7

The validity was assessed based on the forming factors as shown in table 3 where the column on the right shows the loading factors forming the questionnaire. However, in the analysis, only one forming factor was obtained with a loading factor ranging from 0.55 to 0.83.

DISCUSSION

The GAD-7 questionnaire shows high overall reliability of internal consistency and consists of a one-factor structure among the subjects with Cronbach's alpha coefficient of 0.878. These results are similar to studies related to the validity and reliability of GAD-7 in various populations. The general population in Germany obtained item correlation with a total score which ranged from 0.57 to 0.83, factor loading ranged 0.55 to 0.83, while Cronbach alpha = 0.89 (Löwe et al., 2008). A study on a population of pregnant women in China also found similar results, item correlation with a total score of 0.64-0.77, and Cronbach alpha= 0.84 (Gong et al., 2021). Meanwhile, the pregnant women population in Peru had one forming factor, Cronbach alpha= 0.89, item correlation of 0.61 to 0.73, and a loading factor ranging from 0.64-0.80 (Zhong et al., 2015). The adolescent population in Finland also had almost similar results, with a good internal consistency as indicated by Cronbach's alpha= 0.91, and the instrument's unidimensional factor structure was supported. Moreover, the associations between GAD-7 total scores with self-reporting measures of depression and social anxiety support construct validity (Tiirikainen et al., 2019).

GAD-7 validation studies were also carried out on Filipino and Portuguese ethnicities with good results (Garabiles et al., 2020; Sousa et al., 2015). The study on Filipinos not only assessed reliability but also the criteria's validity in the form of sensitivity and specificity values compared to other measuring instruments such as Patient Health Questionnaire-9 (PHQ-9). Meanwhile, the Portuguese population did not assess sensitivity and reliability, but it was associated with the Hospital Anxiety and Depression Scale (HADS), the State-Trait Anxiety Inventory (STAI), and Euro Quality of Life five dimensions (EQ5D) (Sousa et al., 2015).

In a drug addict population, the GAD-7 and GAD-2 questionnaires were also assessed, the results showed a GAD-7 score ≥ 9 with a sensitivity of 80% and a specificity of 86% for any anxiety disorder and displayed adequate temporal stability at repeated measurements (intra-class correlation = 0.85) and high internal consistency indicated by Cronbach's alpha= 0.91. Meanwhile, the GAD-2 score with ≥2 had 94% sensitivity and 53% specificity, as well as adequate internal consistency of 0.82. Therefore, GAD-7 with version 7 questions, has better quality compared to GAD-2 (Delgadillo et al., 2012).

The population of workers that were not anxious was 66.96% (95% CI, 64.01-69.81), while those that were anxious comprised 33% of the study population. This was similar to the proportions obtained in other studies

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.07

among health workers and the general population. (Pappa et al., 2020, Salari et al., 2020).

The limitation of this study is that it did not assess the validity of the criteria by comparing with other anxiety measures. This is because GAD-7 has been commonly used in various anxiety-related studies, hence, the validity and reliability assessment carried out in this study was mainly aimed at testing the population to be assessed namely non-healthcare workers as a general procedure. However, previous studies assessed the sensitivity and specificity of GAD by comparing with the other assessment carried out by clinicians including Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) guidelines, Mini International Neuropsychiatric Interview (MINI), Revised clinical interview schedule (CIS-R), as well as Composite International Diagnostic Interview (CIDI) or Patient Health Questionnaire-9 (PHQ-9) (Delgadillo et al., 2012; Spitzer et al., 2006; Zhong et al., 2015; Garabiles et al., 2020; Gong et al., 2021). Based on the correlation of the questions with the total score and supported by one forming factor as in previous studies, the GAD-7 questionnaire has good validity and reliability. Moreover, internal consistency assessment with Cronbach's alpha method also proves good results. Therefore, GAD-7 is applicable as an assessment tool in future studies on the population of non-healthcare workers.

AUTHOR CONTRIBUTION

SId drafted the manuscript, MH ,RM,LI,IY,NS contributed in protocol study and questionnaire developing, SIf contributed in finalization of the manuscript. All authors read the manuscript.

FUNDING AND SPONSORSHIP

This study was funded by Indonesian government (APBN).

ACKNOWLEDGMENT

The author would like to thank the Director of Center for Health Research and Development of Health Resources and Services of Ministry of Health who gave a quick response at the beginning of the COVID-19 pandemic to conduct a study among health workers.

CONFLICT OF INTEREST

No conflict of interest

REFERENCES

Alshkaili M, Hassan W, Al Said N, Al Sulaimani F, Jayapal SK, Al-Mawali A, Chan MF, et al. (2020). Factors associated with mental health outcomes across healthcare settings in Oman during COVID-19: frontline versus non-frontline healthcare workers. BMJ Open, 10(10). https://doi.org/10.1136/bmjopen-2020-042030e042030.

Bland JM, Altman DG (1997). Cronbach's alpha. Br Med J. 314 (7080): 572. https://doi.org/10.1136/bmj.314.7080.572.

Budikayanti A, Larasari A, Malik K, Syeban Z, Indrawati LA, Octaviana F (2019). Screening of Generalized Anxiety Disorder in Patients with Epilepsy: Using a Valid and Reliable Indonesian Version of Generalized Anxiety

Disorder-7 (GAD-7). Neurol Res Int. 5902610. https://doi.org/-10.1155/2019/5902610.

Delgadillo J, Payne S, Gilbody S, Godfrey C, Gore S, Jessop D, Dale V (2012). Brief case finding tools for anxiety disorders: validation of GAD-7 and GAD-2 in addictions treatment. Drug Alcohol Depend, 125(1-2): 37-42. https://doi.org/10.1016/j.drugalcdep.2012.03.011.

Garabiles MR, Lao CK, Yip P, Chan EWW, Mordeno I, Hall BJ (2020). Psychometric Validation of PHQ-9 and GAD-7 in Filipino Migrant Domestic Workers in Macao (SAR), China. J Pers Assess, 102(6):833-844. https:-//doi.org/10.1080/00223891.2019.1644343

Giorgi G, Lecca LI, Alessio F, Finstad G L, Bondanini G, Lulli LG, Arcangeli G, et al. (2020). COVID-19-Related Mental Health Effects in the Workplace: A Narrative Review. Int J Environ Res Public Health, 17 (21):7857. https://-doi.org/10.3390/ijerph17217857

Gong Y, Zhou H, Zhang Y, Zhu, X, Wang X, Shen B, Xian J, et al. (2021). Validation of the 7-item Generalized Anxiety Disorder scale (GAD-7) as a screening tool for anxiety among pregnant Chinese women. J Affect Disord, 282:98-103. https://doi.org/10.-1016/j.jad.2020.12.129.

Lwanga, Kaggwa S, Lemeshow, Stanley, WHO.(1991). Sample size determination in health studies : a practical manual / S. K. Lwanga and S. Lemeshow. World Health Organization. https://apps.who-.int/iris/handle/10665/40062.

Löwe B, Decker O, Müller S, Brähler E, Schellberg D, Herzog W, Herzberg PY (2008). Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. Med Care. 46(3): 266-74. https://doi.org/10.1097/mlr.0-b013e318160d093

Norman G. & Cairney J. (2015). Health Measurement Scales: A Practical Guide To Their Development and Use. 5 th edition. Oxford: Oxford University Press.

Pappa, S, Ntella V, Giannakas T, Giannakoulis VG, Papoutsi E, Katsaounou P (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. Brain Behav Immun, 88: 901-907. https://doi.org/-10.1016/j.bbi.2020.05.026.

Salari N, Hosseinian-Far A, Jalali R, Vaisi-Raygani A, Rasoulpoor S, Mohammadi M, Rasoulpoor S, et al. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. Global Health. 16(1):57. https:-//doi.org/10.1186/s12992-020-00589-w.

Sousa TV, Viveiros V, Chai MV, Vicente FL, Jesus G, Carnot MJ, Gordo A C, et al. (2015). Reliability and validity of the Portuguese version of the Generalized Anxiety Disorder (GAD-7) scale. Health Qual Life Outcomes, 13:50.

https://doi.org/10.1186/s12955-015-0244-2.

Spitzer RL, Kroenke K, Williams JB, Löwe B (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med, 166(10): 1092-7. https://-doi.org/10.1001/archinte.166.10.1092.

Tiirikainen K, Haravuori H, Ranta K, Kaltiala-Heino R, Marttunen M (2019.) Psychometric properties of the 7-item Generalized Anxiety Disorder Scale (GAD-7) in a large representative sample of Finnish adolescents. Psychiatry Res, 272: 30-35. https://doi.-org/10.1016/j.psychres.2018.-12.004.

Traunmüller C, Stefitz R, Gaisbachgrabner K, Schwerdtfeger A (2020). Psychological correlates of COVID-19 pandemic in the Austrian population. BMC Public Health, 20(1). 1395. https://doi.-org/10.1186/s12889-020-0948-9-5.

Trumello C, Bramanti S M, Ballarotto G, Candelori C, Cerniglia L, Cimino S, Crudele M, et al. (2020). Psychological adjustment of healthcare workers in Italy during the COVID-19 Pandemic: Differences in stress, anxiety, depression, burnout, secondary trauma, and compassion satisfaction between frontline and non-frontline professionals. Int J Environ Res Public Health, 17 (22):8358. https://doi.org/10.-3390/ijerph17228358.

Wang W, Song W, Xia Z, He Y, Tang L, Hou J, Lei S (2020). Sleep Disturbance and Psychological Profiles of Medical Staff and Non-Medical Staff During the Early Outbreak of COVID-19 in Hubei Province, China. Front Psychiatry. 11: 733. https://doi. /10.33-89/fpsyt.2020.00733.

Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, Ng CH (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry, 7(3): 228-229. https://doi.org/10.10-16/s22150366(20)30046-8.

Zhong Q, Gelaye B, Zaslavsky AM, Fann JR, Rondon M B, Sánchez SE, Williams MA (2015). Diagnostic Validity of the Generalized Anxiety Disorder - 7 (GAD-7) among Pregnant Women. PLoS One, 10(4). https://doi.org/10.-1371/journal.pone.0125096.

THE RELATIONSHIP BETWEEN PLAYING ONLINE GAMES AND BURNOUT AMONG STUDENTS IN YOGYAKARTA

Jerry Putra Afendi Lay, Theresia Puspitawati, Rodiyah

Study Program of Public Health, Universitas Respati Yogyakarta

ABSTRACT

Background: Gaming burnout or gaming fatigue is used to describe anyone who has become overworked or overplayed, and under-rested, along with other associated physical, social, and emotional factors. There are many factors that play into gaming fatigue or gaming burnout, but they all appear to be related to increased levels of physical and emotional stress and limited rest. In the gaming community, it appears much of this stress is fueled by pressure to do more to stream more hours per day and more days per week, to grind the game until the individual get the chance at the professional level, and so on. The hypothesis was that adolescents who engage in online gaming have higher probability of experiencing gaming fatigue. This study aimed to the relationship between playing online games and burnout among students.
Subjects and Method: This was a cross-sectional study conducted at the Universitas Respati Yogyakarta, Yogyakarta, Central Java. A total of 70 students were selected in this study. The dependent variable was burnout. The independent variable was the intensity of playing online games. The data was analyzed by chi-square test.
Results: The intensity of online games was associated with an increased risk of gaming burnout in students ($p < 0.001$).
Conclusion: The intensity of online games is associated with an increased risk of gaming burnout in students.

Keywords: online games, intensity, burnout, students.

Corsubjekce:
Theresia Puspitawati. Public Health, Universitas Respati Yogyakarta. Jl. Laksda Adisucipto KM. 6.3. Ambarukmo, Caturtunggal, Depok, Sleman, Yogyakarta 55281. Email: thpuspitawati@gmail.com. Mobile: +628122719110.

BACKGROUND

The development of the era of globalization at this time has a very large influence on human life. Through the era of globalization, the internet has made a major contribution to the development of students. Students spend a lot of time surfing the internet in various forms, starting from doing college assignments, browsing, googling, social networking, chatting and online games. Every student is required to always be ready and have quality in order to be able to compete with other individuals, besides that lecture activities also take time and energy. Ideally, students have a healthy and good physique, but in reality, students feel lazy because they can't stand their condition to complete tasks that must be completed, thus making students look for entertainment. One of the entertainments of today's modern era is online games. Online games are games that are operated using an internet connection. Online game fans themselves are not limited by age and gender (Kurniawan, 2017).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.08

Online games with facilities via the internet offer more facilities such as connecting us with various players outside our area, compared to ordinary games (such as video games) because these players can communicate with other players in various parts of the world through chat. Students who do not have online game facilities in their homes can easily access them at internet cafes (warnet) that provide online games facilities. This condition makes it easier for students to play online games anywhere and anytime without knowing the time, this eventually causes students who initially only look for entertainment to become dependent (Syahran, 2015).

Online games are one of the five potential dangers hidden in the use of the internet because they often feature violent scenes. Some of the other dangers of the internet are cyber bullying, cyber fraud, pornography, and cyber stalking (Pranitika et al., 2014). Internet penetration in Indonesia until 2016 reached thirty-four percent of the total population of 259.1 million people. This means that the number of active internet users in Indonesia has reached 88.1 million people. Of this number, as many as 79 million people are active users of various social media. the composition of internet users by gender, consisting of women as much as 48.57%, and men as much as 51.43%. For the composition based on age, the largest number is shown by people aged nineteen to 34 years, which is 49.52%. However, the largest penetration is at the age of 13-18, which is 75.50%. The second largest internet users based on economic level, which are in the lower middle class, 74.62%, and the upper middle class, 16.02% (KOMINFO, 2018).

SUBJECTS AND METHOD

1. Study Design

This was a cross-sectional study conducted at the Faculty of Health Sciences, Universitas Respati Yogyakarta, Sleman, Yogyakarta, from March 2020 to February 2021.

2. Population and Sample

This research was conducted online. The population in this study were 70 students who met the criteria as online game players.

3. Study Variable

The dependent variable is fatigue. The independent variable is the intensity of playing online games.

4. Operational Definition Study

Fatigue is a condition of student body resistance that begins to decline due to activities playing online games 3 hours a day.

The intensity of playing online games is the length of time spent playing online games.

5. Study Instrument

The instrument used is a questionnaire conducted through an online google form.

6. Data Analysis

The data were analyzed by univariate and bivariate analysis using the odds ratio (OR).

7. Research Ethic

This research has obtained an Ethical Eligibility Letter with the number 232.3/FIKES/PL/X/2020.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.08

RESULTS

1. Sample Characteristics

The majority of students who play online games are women as many as 58 people (82.56%). Most of them came from the nutrition sciences undergraduate program as many as 35 people (50%). The majority of students play online games every day as many as 54 people (77.14%), with a maximum duration of 3 hours as many as 53 people (75.71%), and almost all playing online games this month as many as 65 people (92.86%), and the majority experience fatigue as many as 39 people (55.71%) (Table 1).

Table 1. Sample Characteristics

Characteristics	n	%
Gender		
Male	12	17.14
Female	58	82.56
Study Program		
Diploma Program Physiotherapy	3	4.28
Midwifery Diploma Program	6	8.57
Undergraduate Nutrition Sciences	35	50.00
Nursing Science Undergraduate Program and Nurse Profession	10	14.29
Public Health Undergraduate Program	14	20.00
Midwife Professional Education	2	2.86
Time		
Everyday	54	77.14%
Not everyday	16	22.86%
Duration		
≥ 3 hours	53	75.71%
< 3 hours	17	24.29%
The last time playing online game		
This month (10th of February 2021)	65	92.86%
Last month (11th of January 2021)	5	7.14%
Fatigue		
Not tired	8	11.43
Tired	39	55.71
Exhausted	23	32.86

2. Bivariate Analysis

The intensity of online gaming was associated with an increased risk of game fatigue in students (OR= 2.37; p < 0.001) (Table 2).

Table 2 The relationship between the intensity of playing online games with fatigue

Intensity of Playing Online Games	Fatigue						p
	Not tired		Tired		Exhausted		
	n	%	n	%	n	%	
≥ 3 hours	0	0	30	42.85	23	43.3	<0.001
<3 hours	8	11.43	9	12.85	0	0	

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.08

DISCUSSION

The results of this study showed that of the 70 students who played online games, most of them were 58 students (82.56%) in the female gender group and 12 students (17.14%) in the male gender group. Several previous studies have shown that the majority of online game users are male, for example a study at SMA Negeri 1 Deli showed male online game users as many as 80 subjects (83.30%) (Arizona et al., 2020).

Research conducted among computer user online gamers at the internet cafe M2g Supernova Malalayang also showed that the gender of online game users was male with 41 subjects (95.30%) and female with two subjects (4.70%)8. The gender of this study was mostly female because the research conducted at the Faculty of Health Sciences, Universitas Respati Yogyakarta, the majority of students were women. Online games besides having a negative side, actually also has a positive side. Empirical research shows that online games can improve the cognitive abilities of girls who play online games during childhood and adolescence (Laconi et al., 2017; Lopez-Fernandez et al., 2019).

The intensity of playing online games shows that most 75.71% (53 people) are intensely playing online games. Subjects spend most of their time in a day playing online games. The intensity of playing online games is how often or the frequency of individuals playing online games. Intensity is a person's behavior, the intensity of online games has a huge impact on health, mental disorders, inhibits the process of self-maturation, affects learning achievement, waste, and has difficulty socializing with other people (Maulidar et al., 2019). The intensity of playing online games provides various kinds of impacts or influences both physically and psychologically for players. The physical impact can be in the form of fatigue in the limbs due to playing games for too long which causes the body's health to decline so it is easy to get sick. While the psychological impact caused is that players become irritable, unable to control emotions caused by defeat in playing games (Kurniawan, 2017).

Fatigue with a level of tiredness reached (55.71%) or 39 of 70 students experienced fatigue or more subjects experienced more fatigue, only a small percentage (11.43%) of subjects did not experience fatigue. These results are in line with previous study on the relationship between the level of online game addiction and the incidence of asthenopia in Medan City High School students which showed that there was a significant relationship or correlation between online game addiction and asthenopia. This causes symptoms such as headaches, blurred vision, discomfort in the eyes, and often squinting when looking at distant objects (Anggraeni, 2017).

Study on students of Islamic junior high school Al-Qudwah Grade 8 also shows that most students (85.70%) experience fatigue due to playing with mobile phones, which is indicated by symptoms of complaints such as drowsiness, yawning, lack of concentration, dizziness, sore eyes, etc. when participating in learning activities. in the classroom. Continous fatigue that occurs every day will

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.08

result in chronic fatigue (Anggraeni, 2017).

The results showed that the intensity of playing online games was related to fatigue. This study is in line with the results of research by Arizona et al. (2017) which states that a long duration of playing games has a greater risk of increasing eye fatigue. Eye fatigue caused by playing online games for a long time or Asthenopia (Computer Vision Syndrome) will appear after four hours or more, and will have health effects such as very tired eyes, heavy and sore head, blurred vision, dryness in the eyes. eyes, eyesight becomes sensitive to light, double vision, pain in the neck and back and complaints of dizziness (Arizona et al., 2017).

Previous research on the relationship between online game addiction and sleep quality in online gamers computer users at the m2g Supernova Malalayang internet cafe, which resulted in a relationship between online game addiction and sleep quality, gamers could not resist playing online games and unable to manage online game play time. The results showed that the subject had poor sleep quality because the subject was too engrossed in playing online games and could not manage the time to play so that the subject lacked sleep and difficulty falling asleep and experiencing sleep deprivation (Manuputty et al., 2020).

The results of this study are in accordance with previous research, there is a relationship between the intensity of playing online games on the occurrence of stress, and there is a relationship between the intensity of playing online games on the occurrence of depression. There is a relationship between the intensity of playing online games on the occurrence of sleep disturbances. Subjects with medium and high intensity of playing online games experienced the most severe stress, subjects with low, medium, or high intensity of playing online games had minimal depression, subjects with low intensity of playing online games mostly had good sleep quality, but in Subjects with moderate intensity of playing online games and high intensity of playing mostly had poor sleep quality. This shows that most students who have an excessive intensity of playing online games can have a bad impact on their health.

AUTHOR CONTRIBUTION

Jerry Putra Afendi Lay took data in the field and input the data into the SPSS program. Theresia Puspitawati analyzed the data and wrote the discussion. Rodiyah improves writing and report writing.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGMENT

We would like to thank Respati Yogyakarta University and the subjects who have been involved in this research.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.08

Anggraeni R (2017). Hubungan tingkat kecanduan game online terhadap kejadian astenopia pada pelajar SMA Kota Medan (The relationship between the level of online game addiction and the incidence of asthenopia in Medan High School students). Jurnal Ilmiah Farmasi. 1(1): 7-10.

Arizona M, Purba BB, Gultom PL (2020). Hubungan lamanya bermain game online dengan keluhan kelelahan mata pada siswa SMA Negeri 1 Deli Tua Kabupaten Deli Serdang (The relationship between the duration of playing online games with complaints of eye fatigue in students of SMA Negeri 1 Deli Tua, Deli Serdang Regency). Jurnal Penelitian Kesmas. 3(1): 43-50. DOI: 10.36656/jpksy.v3i-1.366.

KOMINFO (2018). Jumlah pengguna internet 2017 meningkat, kominfo akan terus lakukan percepatan pembangunan broadband (The number of internet users in 2017 increases, the Ministry of Communication and Information will continue to accelerate broadband development). Retrieved from: https://-Www.Kominfo.Go.Id/Content/-Detail/12640/Siaran-Pers-No-53hmkominfo022018.

Haekal M (2017). Hubungan intensitas bermain game online terhadap terjadinya stres, epresi, social phobia, gangguan tidur serta perilaku agresif (The relationship between the intensity of playing online games on the occurrence of stress, depression, social phobia, sleep disturbances and aggressive behavior). Skripsi. Fakultas Kedokteran. Universitas Sumatera Utara.

Kurniawan DE (2017). Pengaruh intensitas bermain game online terhadap perilaku prokastinasi akademik mahasiswa bimbingan dan konseling Universitas PGRI Yogyakarta (The effect of intensity of playing online games on the behavior of academic procrastination of guidance and counseling students at PGRI Yogyakarta University). Jurnal Konseling Gusjigang. 3(1): 91-103. https://doi.org/10.24176/-jkg.v3i1.1120.

Kuswandi K (2018). Pengaruh lamanya penggunaan HP, dan kebiasaan sarapan pagi terhadap kelelahan fisik yang dialami oleh siswa (The effect of long use of cellphones, and breakfast habits on physical fatigue experienced by students). Jurnal Medikes. 5(2): 132-155. https://doi.org/-10.36743/medikes.v5i2.55.

Laconi S, Pirès S, Chabrol H (2017). Internet gaming disorder, motives, game genres and psychopathology. Computer in Human Behavior. 75:652–9. doi: 10.1016/j.chb.2017.06.012

Lopez-Fernandez O, Williams AJ, Kuss DJ (2019). Measuring female gaming: gamer profile, predictors, prevalence, and characteristics from psychological and gender perspectives. Front Psychol 10: 898. doi: 10.3389/fpsyg.2019.00-898.

Manuputty JC, Sekeon SA, Kandou G D (2019). Hubungan antara kecanduan bermain game online dengan kualitas tidur pada gamer online pengguna komputer di warung internet M2g supernova malalayang (The relationship between addiction to playing online games with sleep quality on online gamers computer users at the M2g supernova internet cafe in Malalayang). Jurnal Kesehatan Masyarakat. 8(7): 61-66.

Maulidar, Hambali, Aklima FN (2019). Hubungan intensitas bermain game online dengan prestasi belajar siswa di SD Negeri 2 Banda Aceh (The relationship between the intensity of playing online games with student achievement at SD Negeri 2 Banda Aceh). Jurnal Tunas Bangsa. 6(2): 302-309.

Pranitika M, Hendriyani R, Mabruri MI (2014). Hubungan emotion focused coping dengan game online addicition pada remaja di game Centre Bagian Semarang Barat dan Selatan (Relationship between emotional focused coping and online game addiction in teenagers at Game Centers in West and South Semarang). Jurnal Unnes. 6(1): 24-27. DOI: 10.15294/intuisi.v6i1.11911

Syahran R (2015). Ketergantungan online game dan penanganannya (Online game addiction and treatment). Psikologi Pendidikan & Konseling.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.08

VACCINATION AND HOUSEHOLD TRANSMISSION OF COVID-19 IN BALI, INDONESIA

Anton Suryatma, Tities Puspita, Raras Anasi, Ely H Fikriyah, Pandji Wibawa Dhewantara

Center for Research and Development of Public Health Efforts,
National Institute of Health Research and Development, Jakarta

ABSTRACT

Background: Although vaccination effectively prevents severe outcomes due to COVID-19, its role in preventing household transmission remains unclear. This study aimed to investigate the association between vaccination and household transmission of COVID-19 in Bali, Indonesia.
Subjects and Method: A cross-sectional study was conducted in Bali, Indonesia, in September 2021 as part of the vaccine evaluation program. Total of 1,000 individuals with COVID-19 who resided in high (Denpasar city) and low transmission areas (Karangasem, Gianyar, and Klungkung) for COVID-19 were randomly chosen from the COVID-19 notifications for the period of January to June 2021. The interview was carried out to collect demographic characteristics, vaccination status, index cases, number of household contacts, and number of secondary cases. The secondary attack rate in the household was calculated. Logistic regression was performed to examine the association between COVID-19 transmission rate and vaccination status.
Results: Total of 121 (12.1%) index cases were identified among 1000 selected individuals. The secondary attack rate was slightly higher in high transmission areas (1.82) compared to low transmission areas (1.33). While it is not statistically significant, compared to unvaccinated individuals, the probability of being index cases among those who had been vaccinated were lower both in high transmission area (OR= 0.86; 95% CI=0.52 to 1.43; p= 0.562) and low transmission area (OR= 0.79; 95% CI= 0.40 to 1.57; p= 0.497), respectively. Furthermore, index cases with COVID-19 vaccination in high incidence areas are more likely to be low transmitting COVID19 state (OR=0.65; 95% CI=0.25 to 1.69; p=0.373). While in the Low Incidence Area, index cases with COVID-19 vaccination are more likely to be high transmitting COVID19 state (OR= 3.06; 95% CI=0.75 to 12.56; p= 0.125).
Conclusion: Vaccination may reduce the risk of SARS-CoV-2 transmission within the household.

Keywords: vaccination, COVID-19, the index case, household transmission

Correspondence:
Anton Suryatma. Center for Research and Development of Public Health, National Institute of Health Research and Development, Jakarta. Jl. Percetakan Negara 29 Jakarta. Email: drantonsuryatma@gmail.com. Mobile: +62 8561489348.

BACKGROUND

The World Health Organization (WHO) has declared COVID-19 as a pandemic since March 2020 (WHO, 2020). As of October 9, 2021, confirmed cases of COVID-19 have reached more than 236 million cases, with 4.8 million deaths worldwide (WHO, 2021). On March 2, 2020, the first positive case of COVID-19 was reported in West Java, Indonesia. Through the

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.09

Decree of the Minister of Health, the Government of Indonesia states that Novel Coronavirus (2019 n-CoV) infection is a disease that can cause outbreaks (Ministry of Health of the Republic of Indonesia, 2020a).

Indonesian data as of 9 October 2021 recorded 4.2 million confirmed cases of COVID-19 and 142,000 deaths. COVID-19 has spread to all provinces in Indonesia (Covid-19 Handling Task Force, 2021).

To establish community immunity (herd immunity) against COVID-19, the government has made a national vaccination regulation through a Minister of Health Regulation since December 2020 (Ministry of Health of the Republic of Indonesia, 2020b). And on January 13, 2021, the vaccination program will begin. Vaccination is believed to be the best and most efficient way to control disease (Remy et al., 2014). The national vaccination program targets health workers, the elderly, public officials, and the general public.

The SARS-CoV-2 virus is highly contagious, with an estimated basic reproductive number (R0) of 2.2 to 2.5 initially discovered in Wuhan (Majumder and Mandl 2020). Variants of concern (VOC) that emerged after the Wuhan strain were known to be easier and faster to transmit (Davies et al., 2021). One of them is the delta variant. This variant is highly contagious, with an estimated transmission rate of 2x that of the previous variant (CDC, 2021a, b).

An environment in a narrow space, such as at home, supports the transmission of COVID-19. The secondary attack rate of SARS-CoV-2 in households is estimated to be higher than that of SARS-CoV and MERS-CoV (Fung et al., 2021). Transmission may occur during self-isolation at home even though household members have been vaccinated. Information regarding the transmission rate of the SARS-CoV-2 virus in post-vaccination households is not widely known, especially in Indonesia.

This study aims to determine the relationship between vaccination status and the incidence of COVID-19 and the relationship between vaccination status and household transmission rates in high and low incidence areas, especially in Bali.

SUBJECTS AND METHOD

1. Study Design

This study used a cross-sectional study design with primary data collection methods for the community. Data collection was carried out in Bali Province in September 2021.

2. Population and Sample

The population is all positive COVID-19 respondents in Bali. The source population is the COVID-19 PCR confirmation case respondent from January to June 2021 obtained from the integrated COVID-19 recording system managed by the Bali Provincial Health Office as of 30 June 2021 (N=56,000). Based on the population data above, selected cases (n= 1000 cases) originating from areas with the highest incidence rate (per 100,000 population), namely: Denpasar City 2,945 per 100,000 population (n= 500 cases) and the lowest, namely: the agglomeration areas of Karangasem, Gianyar, and Klungkung with an average incidence of 1,240 per

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.09

100,000 population) (n=500 cases). Sampling was carried out at simple randomness until it reached the set quota.

3. Study Variables

The dependent variable is the transmission of COVID-19 transmission in the household. The independent variable was vaccination status.

4. Operational Definition of Variables

Determination of Index Cases and Secondary Cases

Interviews were conducted to obtain information on individual characteristics; date confirmed positive for COVID-19, date of vaccination, number of household members in the household, number of households positive for COVID-19, and vaccination status. ART is determined according to the Central Bureau of Statistics definition. Namely, people are still present and have lived in the house for at least six months.

The index case was determined based on the most minor or earliest case in each household among all dates of positive confirmation of COVID-19 on ART. Secondary cases are cases of COVID-19 that occurred after the index case in the household happened within a span of fewer than 14 days from the index case. In one home, only one index case is determined.

Interviews were also aimed at knowing the vaccination status of each index case and secondary case. To validate the vaccination status of the respondents, the data on vaccination records obtained from the Ministry of Health of the Republic of Indonesia was used.

Vaccination status was seen from the date of vaccination of the first dose of ART, considering that at least ART had been vaccinated. If the date of vaccination is less than the date of positive confirmation, it is determined that ART is confirmed positive with the status of being vaccinated (vaccination breakthrough).

Transmission Rate

The secondary attack rate is defined as the number of secondary cases caused by the index case. In contrast, the transmission rate is defined as low if the index case only infects one household member and high if it infects more than one household member.

5. Instruments Study

A structured questionnaire was used for the study instrument, which included the date of positive confirmation from household members and vaccination status in each household.

6. Data analysis

Simple logistic regression analysis was performed to see the relationship between the sample's vaccination status (independent variable) and the COVID-19 infection status (infectious and non-infectious) with high and low incidence areas stratification. Only index cases were analysed for the transmission rate, cases were analysed with the dependent variable transmission rate (low and high). The independent variable was the vaccination status of index cases with high and low incidence area stratification.

7. Research Ethics

Research ethics were obtained from the Ethics Committee of the Health Research and Development Agency of the Ministry of Health of the Republic

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.09

of Indonesia number LB: 02.01/2/-KE.533/2021 dated 27 August 2021 because it used human subjects as data sources.

RESULTS

1. Vaccination and Transmission Status

In low incidence areas, a total of 49 samples out of 500 people were defined as index cases because they infected at least one of the other household members. When viewed from the number, the number of groups that have been vaccinated is less than those who are not vaccinated, but when viewed as a proportion, the group that has been vaccinated in the index case is 25% infectious, while in the opposite group 29%. So that statistically, looks not significant (p> 0.050) the relationship between vaccination status and the infectivity of the respondents.

Table 1. Vaccination status and transmission of COVID-19 in low incidence areas

Vaccination Status	Not Infectious		Infectious		OR	95% CI	p
	N	%	N	%			
No	320	70.95	37	75.51			
Yes	131	29.05	12	24.49	0.79	0.40 to 1.57	0.497

In high incidence areas, a total of 72 samples out of 500 people were defined as index cases because they infected at least one of the other household members. In proportion, it is almost similar between the positive infectious group (index cases) and the non-infecting case group. The group that had been vaccinated in the index case infected 39%, while in the other group, it was 43%.

Statistically, there was no significant (p>0.050) relationship between vaccination status and the infectivity of the respondents.

2. Index Case and Characteristics

Table 2. Vaccination status and transmission of COVID-19 in high incidence areas

Vaccination Status	Not Infectious		Infectious		OR	95% CI	p
	N	%	N	%			
No	246	57.48	44	61.11			
Yes	182	42.52	28	38.89	0.86	0.52 to 1.43	0.562

When compared between low incidence and high incidence, it can be seen that there is a slight difference in the proportion of people who have been vaccinated and infected, in areas of high incidence more than the proportion of people who have been vaccinated and infected, in areas of low incidence.

Furthermore, when viewed from the number of infected household members, it also appears that transmission only occurred in 15% in areas of high incidence and 10% in areas of low incidence. Seventy-two index cases were found in high incidence areas with a total of 131 other

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.09

household members who were infected so that the secondary attack rate in high incidence areas was 1.82, and 49 index cases in low incidence areas with 65 other household members infected so that the transmission rate in low incidence areas is 1.33 (table 3).

Table 3. Number of infected household members by area of incidence and number of infected household members

Number of infected households	High incidence				Low Incidence			
	Index case		Infected household		Index case		Infected household	
	N	%	N	%	N	%	N	%
0	428	85.6	0	0	451	90.2	0	0
1	39	7.8	39	29.8	37	7.4	37	56.9
>1	33	6.6	92	70.2	12	2.4	28	43.1

Index cases are respondents who can infect other household members. One hundred twenty-one index cases infect other household members from 1000 samples (12.1%) or another language. One in ten people who are positive for COVID-19 infects other household members in the house.

Table 4. Characteristics of index cases by area of incidence

Characteristics	High incidence		Low Incidence	
	N	%	N	%
Sex				
Male	44	61.11	32	65.31
Female	28	38.89	17	34.69
Age				
18-30	11	15.28	7	14.29
31-40	13	18.06	8	16.33
41-50	12	16.67	3	6.12
51-60	16	22.22	9	18.37
61-70	16	22.22	15	30.61
>70	4	5.56	7	14.29
Job				
Civil servants	14	19.44	10	20.41
Entrepreneur/ Trader	34	47.22	19	38.78
Farmers/Fishermen		0.00	7	14.29
Housewife	5	6.94	5	10.20
Not Working	19	26.39	8	16.33
Transmission Rate				
Low (infected one person)	39	54.17	37	75.51
High (infected >1 person)	33	45.83	12	24.49

If we look at the characteristics of the index cases, we will get results like table 4, wherein in both high and low incidence areas, the male sex is more infectious than the female sex. Regarding vaccination status, both regions have the same number of index cases that have not been vaccinated.

3. Index Case Vaccination Status and Transmission Rate

In terms of transmission, in the index case group that had been vaccinated in a low incidence area, seven people only infected one household, and five people infected more than 1, from the index case group who had not been

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.09

vaccinated the most. Thirty people can infect one person, and seven people can infect more than one household (Table 5). However, when viewed from the statistics, there was no relationship between the vaccination status of the index cases and the rate of transmission (p>0.050).

Table 5. Vaccination status and index case transmission rate by low incidence area

Vaccination Status	Low transmision rate		High transmision rate		OR	95%CI	p
	N	%	N	%			
No	30	81.08	7	58.33			
Yes	7	18.92	5	41.67	3.06	0.75 to 12.56	0.125

In the index case group vaccinated in the high incidence area, 17 people infected 1 other household, and 11 people infected more than 1 household. From the unvaccinated index case group in the high incidence area, 22 index cases infected 1 household, and 22 other people infected more than 1 household. However, as in low-incidence areas, statistically, there was no correlation between the vaccination status of the index cases and the rate of transmission (p > 0.050).

Table 6. Vaccination status and transmission rate of index cases by high incidence area

Vaccination Status	Low Transmission Rate		High Transmission Rate		OR	95%CI	p
	N	%	N	%			
No	22	57.69	22	24.14			
Yes	17	42.31	11	75.86	0.65	0.25 to 1.69	0.373

DISCUSSION

We found that the secondary transmission rate was still below 2%, this is different from Li et al. (2020), which reported a household secondary transmission rate of 16.3%. This rate is also lower than the household rate of the 2009 influenza A (H1N1) pandemic, which was stated at 13% (Chauchemez, 2009). This is possible because the ability to trace close contacts or contact tracing for COVID-19 cases in Indonesia is still below standard. The standard is to look for 30 close contacts in the past week (Thomas, 2021). In addition, further research is needed on the factors that can explain why the second transmission rate in Bali is low.

Vaccine breakthrough is defined as the infection of a person who has been vaccinated (CDC, 2021). With the infection of people who have been vaccinated, the possibility of infecting still exists. However, based on the results of this study, the number of index cases that have been vaccinated and infected is lower than the number of index cases that have not been vaccinated. This means vaccination does not prevent confirmed positive people for COVID-19 from transmitting COVID-19.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.09

This study also shows no relationship between index cases that have been vaccinated and those that have not been vaccinated with high and low incidence areas. This means that wherever people with a positive COVID-19 status are located (with the status of being vaccinated or those who have not been vaccinated, they can still transmit COVID-19).

COVID-19 patients who have been vaccinated may still infect others. As long as there is a pandemic/ endemic, health protocols such as wearing masks, maintaining distance, washing hands with soap, avoiding crowds and reducing mobility, still need to be implemented. In addition, vaccinations must still run so that healthy people are not easily infected. (effectiveness of vaccines).

The secondary attack rate in the high incidence area was 1.82 and in the low incidence area 1.33. The index case vaccination status was not associated with transmission in high and low incidence areas. There is a relationship between people who have not been vaccinated in low and high incidence areas and the number of infected people.

AUTHOR CONTRIBUTION

AS, PWD and TP served as the main contributors. EA and EHF as member contributors. AS and PWD as drafters. RA and EHF as data curation and analysis. PWD Methodology. AS TP writing drafting. AS PWD TP writing review.

ACKNOWLEDGMENT

Thank you to the Health Research and Development Agency of the Indonesian Ministry of Health, the Bali Provincial Health Office, the Denpasar City Health Office, the Karangasem District Health Office, the Gianyar Regency Health Office and the Klungkung District Health Office.

FUNDING AND SPONSORSHIP

This research was funded by the Health Research and Development Agency based on the Decree of the Head of the Health Research and Development Agency No HK.02.02/I/-3971/2021

CONFLICT OF INTEREST

None.

REFERENCES

Cauchemez S, Donelly CA, Reed C, Ghani AC (2009). Household transmission of 2009 pandemic influenza A (H1N1) virus in the United States. N Engl J Med. 361: 2619-2627. doi: 10.1056/-NEJMoa0905498.

CDC (2021a). Delta Variant. Retrieved from: https://www.cdc.gov/coronavirus/2019-ncov/variants /delta-variant.html. Accessed on October 9, 2021.

CDC (2021b). COVID-19 Vaccine Breakthrough Case Investigation and Reporting. Retrieved from https://www.cdc.gov/vaccines/ COVID-19/health-departments/ breakthrough-cases.html. Accessed on October 10, 2021).

Davies NG, Abbott S, Barnard RC, Jarvis CI, Kucharski AJ, Munday JD, Pearson CAB, et al. (2020). Estimated transmissibility and impact of SARS-CoV-2 lineage B.1.1.7 in England. Science.

9:372(6538): eabg3055. doi: 10.-1126/science.abg3055.
Fung HF, Martinez L, Alarid-Escudero F, Salomon JA, Studdert DM, Andrews JR, Goldhaber-Fiebert JD (2020). The household secondary attack rate of SARS-CoV-2: A rapid review. Clin Infect Dis. 73(2): S138-S145. doi: 10.1093/cid/ciaa1558.
Kementerian Kesehatan RI. (2020a). Decree of the Minister of Health No. HK.01.07/MENKES/104/-2020 concerning the Determination of Novel Coronavirus Infection (2019-Ncov Infection) as a Disease That Can Cause Outbreaks and Efforts to Overcome It. Retrieved from (http://-hukor.kemkes.go.id/uploads /produk_hukum/KMK_No__HK_01_07-MENKES-104-2020-_ttg_Penetapan_Infeksi_Novel_Coronavirus_Penyakit_Yang_Dapat_Menimbulkan_Wabah.pdf). Accessed on July, 2021).
Kementerian Kesehatan RI (2020b). Regulation of the Minister of Health Number 84 of 2020 concerning the Implementation of Vaccination in the Context of Combating the 2019 Corona Virus Disease Pandemic (COVID-19). Retrieved from https://-COVID19.go.id/storage/app/media/Regulasi/2020/Desember/PMK%20No.%2084%20Th%202020%20ttg%20Pelaksanaan%20Vaksinasi%20Dalam%20Rangka%20Penanggulangan%20COVID-19.pdf) Accessed Juli 2021).
Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, Ren R, et al. (2020). Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. N Engl J Med 382(13): 1199-1207. doi: 10.1056/NEJMoa2001316.
Majumder MS, Mandl KD (2020). Early Transmissibility Assessment of a Novel Coronavirus in Wuhan, China. SSRN. 24:3524-675. doi: 10.2139/ssrn.3524675
Remy V, Largeron N, Quilici S, Carroll S (2015). The Economic Value of Vaccination: Why Prevention Is Wealth. Value in Health. J Mark Access Health Policy. 3(1):1-3. doi: 10.3402/mahp.v3.29284.
Satuan Tugas Penanganan COVID-19, (2021). Peta Sebaran COVID-19. Retrieved from https://COVID-19.go.id/peta-sebaran-COVID19 Accessed on october 9, 2021).
Thomas VF (2021). Minister of Health: Indonesia's Corona Contact Tracing Ability is Below Standard. Retrieved from https://tirto.id/-menkes-kemampuan-contact-tracing-corona-indonesia-di-bawah-standar-f89T. Accessed on October, 2021).
WHO (2020). Timeline: WHO's COVID-19 response. Retrieved from https://www.who.int/-emergencies /diseases/ novel-coronavirus-2019/interactive-timeline#event-72. Accessed July, 2021).
WHO (2021). WHO Coronavirus (COVID-19) Dashboard. Retrieved from https://COVID19.who.-int Accessed on october 9, 2021).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.09

CHARACTERISTICS AND LIFESTYLE IN DIABETES MELLITUS PATIENTS

Mila Triana Sari[1)], Haflin[2)]

[1)]Study Program of Professional Nursing, School of Health Sciences Baiturrahim
[2)]Department Pharmacy, Health Polytechnics, Ministry of Health Jambi

ABSTRACT

Background: Diabetes mellitus is a chronic metabolic disorder caused by malfunctioning pancreatic beta cells and insulin resistance. This study aimed to describe the characteristics and lifestyles of diabetes mellitus patients.
Subjects and Method: A descriptive study was conducted at Putri Ayu health center. A sample of 81 patients with diabetes mellitus were selected by purposive sampling. The data were collected by questionnaire and described in frequency (n) and percent (%).
Results: Most of the patients' age were ranged from 55 to 65 years (40.7%), female (72.8%), had secondary education (67.9%), worked (59.3%), and suffered from DM >1 year, and as many as 59.3% had a good lifestyle.
Conclusion: Half of the study subjects have a good lifestyle in patients with Diabetes Mellitus.

Keywords: characteristics, lifestyle, diabetes mellitus

Correspondence:
Mila Triana Sari. Study Program of Professional Nursing, School of Health Sciences Baiturrahim. Jl. Prof. M. Yamin 30, Jambi, Indonesia. Email: milatrianasari73@-gmail.com. Mobile: 081314022355.

BACKGROUND

Diabetes mellitus is a global health threat, with the number of sufferers skyrocketing every year. The WHO (World Health Organization) data predicts an increase in people with DM in Indonesia from 8.4 million in 2000 to around 21.3 million in 2030 (Perkeni, 2019). The International Diabetes Federation (IDF) estimates that Indonesia is ranked 6th with the number of people with diabetes mellitus of 10.3 million sufferers (International of Diabetic Federation, 2017).

The results of the Basic Health Research (Riskesdas) in 2018 showed an increase in the prevalence of DM in Indonesia from 1.5% in 2013 to 2.0% in 2018, of the total population of Indonesia, while Jambi province was ranked 26th out of 34 provinces with prevalence DM is 1.5% of the total population (Infodatin diabetes, 2018).

If the prevalence of DM is not handled correctly, DM disease will continue to increase (Decroli, 2019), and this DM disease can cause serious health problems, including eye damage (retinopathy), kidney damage (diabetic nephropathy), and skin damage (dermopathy), all of these complications make the patient unproductive, decreased quality of life, disability, and become a burden to the family and premature death (Ningsih, 2016; John, 2019),

One way to overcome the increasing prevalence of DM is to change the patient's lifestyle, such as maintaining a balanced diet, exercising regularly, and maintaining an

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.10

ideal body weight (Rudianti, 2013). According to the Health Promotion Glossary (WHO 1998), Lifestyle is a way of living based on identifiable patterns of behavior determined by the interplay between an individual's characteristics, social interactions, and socioeconomic and environmental-mental living conditions (World Health Organization in Detroit, 2019).

Rumaharbo (2015) also states that lifestyle is a person's pattern of living in the world, expressed in his activities, interests, and opinions. Lifestyle describes the whole person interacting with his environment. Changing your lifestyle by not smoking, avoiding alcohol, getting enough sleep, losing excess weight, adjusting your diet, and exercising regularly to burn excess fat and calories is a healthy lifestyle that people with diabetes mellitus must live. This study aimed to describe the characteristics and lifestyle of people with Diabetes Mellitus (DM).

SUBJECTS AND METHOD

1. Study Design

This study uses an analytical descriptive research design, which was carried out in the working area of the Putri Ayu Public Health Center, Jambi City, from July to August 2021.

2. Population and Sample

The study population was DM patients at Putri Ayu Health Center, Jambi, which amounted to 426 people. A sample of 81 people with DM were selected by purposive sampling.

3. Study Variables

The dependent variable in this study is the lifestyle of DM patients. The independent variable is the characteristics of DM patients.

4. Operational Definition of Variables

a. DM patients

Definition: patients who are declared to suffer from DM based on the doctor's diagnosis as recorded in the medical record who is domiciled in the working area of Putri Ayu Health Center.

b. Age

Definition: the age of DM patients whose age groups categorize:

1. 35 years old
2. >40 years old

c. Gender

Definition: the gender of people with DM, which is grouped into:

1. Male
2. Female

d. Education

Definition: was the last formal education of DM sufferers, as evidenced by a diploma grouped into:

1. Basic
2. Medium (Junior High School, Senior High School)
3. High (Diploma, Bachelor)

e. Work

Definition: was an activity carried out by DM sufferers to meet the needs of family life, grouped into:

1. Work
2. Not Working

f. The duration of suffering from DM

Definition: the length of time a DM patient has suffered from DM since it was first diagnosed, grouped into:

1. ≤ 1 year
2. > 1 year

g. The lifestyle of DM sufferers

Definition: a lifestyle that is owned by DM sufferers at Putri Ayu Health Center, Jambi, which includes physical activity and diet.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.10

5. Study Instruments

Data collection in this study used a questionnaire for DM patients aged 35-65 years who live in the working area of Putri Ayu Health Center. The questionnaire was divided into 2, namely, demographic characteristics, including age, gender, education, occupation, and length of suffering from DM. In contrast, the lifestyle questionnaire for DM patients consisted of 15 positive and negative statements, including eating habits, drinking, exercise, smoking habits, control weight, control blood sugar, and stress.

The inclusion criteria in this study are:

a. Living at the area of Putri Ayu Health Center, Jambi
b. Can read and write and can communicate well.
c. Diagnosed with DM
d. Willing to be a respondent.
e. At the time, the research was at the research site

6. Data analysis

Data analysis in this study used descriptive analysis to describe and analyze DM patients' characteristics and lifestyles, which were presented textually and tabularly from the appearance of the frequency distribution of DM patients according to the variables studied. This study was conducted to determine the frequency distribution of characteristics of DM sufferers, which include: age, education, occupation, how long they have been diagnosed with DM, and the lifestyle of DM sufferers.

7. Research Ethics

This study applies research ethics, namely:

a. Respect for human dignity
b. Respect for privacy and confidentiality
c. Justice and Inclusiveness
d. Balancing Harms and Benefits

RESULTS

Based on table 1.1 shows that most DM sufferers are in the age range of 55-65 years as many as 33 (40.7%), female 50 (72.8%). Two third of the DM patients had secondary education (67.9%). Most of them had >1 year suffering from DM (71.6%).

1. Characteristics of DM Patients

Table 1. Frequency distribution of the characteristics of people with DM

Variable	Category	Frequency	Percentage
Age	36-45 years old	4	4.9
	46-55 years old	30	37.0
	55 -65-years-old	33	40.7
	> 65 years old	14	17.4
Gender	Male	22	27.2
	Female	59	72.8
Education	Elementary school	9	11.2
	Junior High School, Senior High School	55	67.9
	Graduate school	17	20.9
Job	Unemployed	33	40.7
	Employed	48	59.3
Duration	≤1 Year	23	28.4
	> 1 Year	58	71.6

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.10

2. Lifestyle of DM Patients

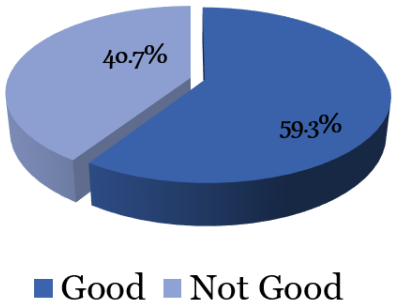


Figure 1. The lifestyle of DM sufferers at Putri Ayu health center, Jambi

DISCUSSION

This study shows that most of the age categories of people with Diabetes Mellitus are 55-65 years (40.7%). The results of this study are in line with Hasanah's research (2018) which also revealed that DM was more common in the age range of 55-75 years or the early and late elderly, as well as the results of Wati's research in (2018) which concluded that DM was more common at the age of 45-65 years. This result is by Riskesdas (2018), which found that in the age category, the most prominent DM sufferers were in the age range of 55-64 years and 65-74 years.

The American Diabetes Association (ADA) (2017) states that age is a risk factor that causes DM. The susceptible age for DM is 45 years old. This is caused by the body starting to enter a degenerative period, which decreases the body's function to metabolize glucose. In addition, DM is associated with risk factors that cannot be changed, including a family history of DM (first-degree relative).

Furthermore, this study found that the majority of DM sufferers were women (72.8%); this is by Riskesdas data in 2018, which revealed that there are more women with DM in Indonesia (1.8%) than men (1.2%) (Riskesdas, 2018). This study aligns with Wati's research (2018) which concluded that women are more affected by DM than men.

According to Imelda (2019), women tend to be more at risk of developing diabetes mellitus because the increase in fat levels in women is higher than in men, so the incidence of diabetes mellitus in women is 3-7 times higher than in men. Men are 2-3 times.

This study found that the education level of DM sufferers was seconddary, primary education (67.9%). Wati (2018) concluded that DM was more common in patients with low levels of education. This result is not by Riskesdas (2018), the highest DM sufferers are education graduates at the D1/D2/D3/PT level, which is the category of the highest education level.

According to Ukat et al. (2013), the level of education does not cause a person to be affected by DM. Education can affect how a person can receive the information provided.

The same result was also obtained by Cruz and Deep (2012). They concluded that the education factor is

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.10

one of the variables that have a significant relationship with the knowledge of diabetes clients in managing their disease.

This study also found that most people with DM had jobs. According to Grant et al. (2009), people who work with high incomes are more susceptible to developing Diabetes Mellitus. This is because socio-economic changes and appetite will result in changes in people's eating patterns that tend to consume fast food, junk food, and high carbohydrates, which are inversely proportional to the concept of healthy and balanced food. It hurts health and nutrition (Suiraoka, 2012).

Furthermore, in this study, the duration of being diagnosed with DM was more than one year. DM is a chronic disease that cannot be cured; blood sugar levels can only be controlled to remain normal; for more than one year, it is hoped that DM sufferers will be able to adapt to their condition.

According to diagram 1, the results of this study show that the majority of people with DM have an excellent lifestyle (59.3%). Lifestyle also affects the emergence of diabetes mellitus. Changes in the traditional lifestyle to a more modern lifestyle, fast food, overeating, and lack of exercise can increase diabetes mellitus in Indonesia (Purwanti, 2016). Unhealthy habits such as an unbalanced diet with high cholesterol levels, smoking and alcohol, excessive sugar intake, lack of exercise, and a portion of rest to stress can affect Diabetes Mellitus.

Factors related to the lifestyle of people with diabetes mellitus include gender and knowledge. The results showed that DM was more experienced by female respondents and had a good lifestyle; Yusra's research (2011) suggests that women tend to comply in undergoing treatment and care. The therapy they undergo will work well. This impacts health behavior and lifestyle related to DM disease is also good. Meanwhile, men tend to have higher self-confidence and can overcome various problems independently by using their abilities, including when experiencing diabetes mellitus.

Anticipating a lifestyle to prevent DM and complications in DM sufferers that have an impact on death, the community, especially DM sufferers, needs to be SMART, namely by doing: Regular health checks to control body weight to keep it ideal and not at risk of getting sick quickly, check blood pressure, blood sugar and cholesterol regularly. Avoid secondhand smoke and don't smoke. Diligently do physical activity for at least 30 minutes a day, such as exercising, walking, cleaning the house. It is hoped that this SMART behavior will be implemented by DM patients properly, correctly, regularly, and measurably. Information diabetes explained that the management of DM is a balanced diet by consuming healthy food and balanced nutrition, consuming at least five portions of fruit and vegetables per day, reducing sugar consumption to a maximum of 4 tablespoons or 50 grams per day avoiding food/drinks. Sweet or carbonated. Enough rest. Manage stress correctly and adequately (Infodatin diabetes, 2018).

According to Suyono (2018), humans need changes to a better lifestyle

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.10

to avoid all diseases and reduce the risk of more chronic diseases. It is proven that lifestyle changes make a person better than the previous condition; in this case, it is a change in the lifestyle of DM sufferers to behave smartly.

Based on the results of this study, it is necessary for the role of health workers to carry out promotive and preventive efforts to DM patients by conducting health education about DM so that DM patients can learn skills in managing DM disease independently at home so that there are no complications and maximizing the Integrated Guidance Post (Posbindu). to facilitate public access to diabetes early detection and DM control.

AUTHOR CONTRIBUTION

Authors contributed to the concept, design, analysis, and discussion of data.

ACKNOWLEDGMENT

We would like to show our gratitude to Institute of Health Science Baiturrahim Jambi and community health center Putri Ayu for their support in this research.

FUNDING AND SPONSORSHIP

This study was self-funded.

CONFLICT OF INTEREST

There was no conflict of interest in this study.

REFERENCES

American Diabetic Association (2017). Standards Of Medical Care In Diabetes 2017. J. appl. res. educ.40 (1).

Decroli E (2019). Diabetes mellitus type 2. Universitas andalas publishing. Padang.

Grant JF, Hicks N, Taylor AW, Chittleborough CR, Phillips PJ (2009). Gender-Specific Epidemiology of Diabetes:a Representative Cross Sectional Study. Int J Equity Health. 8 (6). 1-12. doi: 10.1186/1475-9276-8-6.

Hasanah DN, Purwanti OK (2018). The Relationship between Knowledge Level and Lifestyle of People with Type 2 Diabetes Mellitus in the Work Area of the Purwosari Public Health Center, Surakarta City. Medical Journal. 1-21.

John. 2019. Guide to Medications for the Treatment of Diabetes Mellitus 1st Edition. American Diabetes Association. England.

Imelda S (2019). Factors Affecting the Occurrence of Diabetes Mellitus at the Harapan Raya Health Center in 2018. Scientia Journal. 8 (1). doi: 10.35141/scj.v8i1.406.

IDF (2017). IDF Diabetes Atlas Eight Edition 2017. International Of Diabetic Federation. France.

Kementrian Kesehatan RI (2018). Main Results of Riskesdas 2018. Kemenkes RI. Jakarta.

Ningsih A (2016). Diabetes Mellitus Management Guidelines for Health Students. PT. Gramedia Utama. Jakarta.

Community Health Center Putri Ayu Tahun (2021). Monthly Report on Work Area Pain Data community health center Putri

Ayu 2021. Community health center Putri Ayu. Jambi.
PERKENI (2019). Management and Prevention of Type 2 Diabetes Mellitus in Indonesia. PERKENI: Jakarta.
Data and Information Center of the Indonesian Ministry of Health (Infodatin) Diabetes (2018). Kemenkes RI: Jakarta.
Riskesdas (2018). Indonesian Ministry of Health Research and Development Agency in 2018. Retrieved from https://kesmas.kemkes.go.id/assets/upload-/dir_519d41d8cd98f00/files/Hasil-riskesdas 2018_1274.pdf).
Rudianti FB (2013). Conquering Hypertension and Diabetes: Detecting, Preventing and Treating with Medical and Herbal Ways. Sakkahusma: Bandung.
Rumaharbo H (2015). Book Preventing Diabetes Mellitus with Lifestyle Changes. In Media: Yogyakarta.
Suyono S, Bahar K, Cipta S (2018). Integrated Diabetes Mellitus Management: A Guide to Diabetes Mellitus Management for Doctors and Educators. Publishing Hall FKUI: Jakarta.
Suiraoka IP (2012). Degenerative disease. Yogyakarta: Nuha Medika.
Notoatmodjo S (2014). Health Promotion and Health Behavior. Jakarta: Rineka Cipta.
Notoatmodjo, Soekidjo, 2018. Health Research Methodology. Jakarta: Rineka Cipta.
Yusra A (2011). The relationship between family support and the quality of life of patients with type 2 diabetes mellitus in the internal medicine clinic at Fatmawati General Hospital Jakarta. (Online). Retrieved from: http://lontar.-ui.ac.id. Diakses pada 22 juli 2021.
Ukat MYZ, Yuliwar R, Dewi N (2018). The relationship between the level of knowledge and lifestyle in patients with diabetes mellitus in the Kendalsari Public Health Center Work Area, Tulusrejo Village, Lowokwaru District, Malang. Jurnalpsik.Unitri. 644-654.
Wati FA (2018). The relationship between the level of knowledge about diabetes mellitus and the lifestyle behavior of patients with type II diabetes mellitus at the Prambanan Community Health Center, Klaten. Jurnal Universitas Aisyah. 1-17.
WHO (2016). Global Reports on Diabetes. WHO Library Cataloguing. France

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.10

THE RELATIONSHIP BETWEEN INTESTINAL WORM INFECTION AND STUNTING IN ELEMENTARY SCHOOL CHILDREN IN SOUTH CENTRAL TIMOR REGENCY, EAST NUSA TENGGARA

Rafael Paun[1)], Michael Badi Bia[1)], Indhira Shagti[1)], Yosephina E.S.Gunawan[1)], Emma Krisyudhanti[1)], Yuliana Dafroyati[1)], Fridolina Mau[2)]

[1)]School of Health Polytechnics, Ministry, Kupang
[2)]Waikebubak Health Research and Development Center

ABSTRACT

Background: Intestinal worm infection is one of the causes of stunting in school-age children. Helminthiasis or worm infection caused by worm parasites endanger the child's age health. This study aimed to analyze the relationship between intestinal worm infection and the incidence of stunting in elementary school children in South Central Timor Regency, East Nusa Tenggara.
Subjects and Method: This was a cross-sectional study conducted in West Amanuban District, South Central Timor Regency, East Nusa Tenggara, from May to October 2021. A total of 160 elementary school children was selected at random. The dependent variable was stunting. The independent variable was intestinal worm infection. The data were collected using anthropometric measurement for height and fecal examination in the laboratory. The data were analyzed using simple logistic regression.
Results: Intestinal worm infection increased the risk of stunting in elementary school children (OR= 7.14; 95% CI= 3.33 to 16.67; p< 0.001).
Conclusion: Intestinal worm infection increases the risk of stunting in elementary school children.
Keywords: infection, worm, stunting

Correspondence:
Rafael Paun. School of Health Polytechnics, Ministry, Kupang. Jl. Piet A. Tallo-Liliba, Kupang, East Nusa Tenggara. Email: rafpun012@gmail.com. Mobile:081339334949.

BACKGROUND

Nutritional problems in elementary school children are problems that can affect their learning achievement and development. Nutritional problems in school children include low nutritional status, poor nutrition, obesity, and stunting. Stunting or shortness is a condition of failure to thrive in infants (0-11 months) and children under five (12-59 months) due to chronic malnutrition, especially in the first 1,000 days of life, so children are too short for their age. Malnutrition occurs since the baby is in the womb and the early days after the baby is born, but the stunting condition only appears after the child is two years old. (Ramayulis et al., 2018).

Data on stunting in Indonesia based on the results of Riskesdas shows around 37% (9 million) children, and in the Province of East Nusa Tenggara, there are 319,100 children experiencing stunting (Kemenkes., 2013). Based on Riskesdas 2018, although the prevalence of stunting in East Nusa Tenggara (Kemenkes, 2018) shows a reduction of 30.8%, the Province of NTT has a high percentage of stunting under five, namely 42.6%. The prevalence of stunting in infants

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.11

under five years of age (toddlers) in East Nusa Tenggara reaches 40.3%, the highest compared to other provinces in Indonesia. This figure is above the national stunting prevalence of 29.6%. The prevalence of stunting in NTT consists of infants with concise 18.0% and 22.3% short categories. Stunting is caused by multidimensional factors, including poor nutritional parenting practices, including the lack of knowledge of mothers about health and nutrition before and during pregnancy and after the mother gives birth (Ramayulis et al., 2018).

Soil-transmitted helminths (STH) infection is an intestinal worm infection that can significantly impact health, causing direct or indirect losses. STH can directly affect the intake, absorption, and metabolism of food into the body. Cumulatively, STH can cause failures in the form of decreased calories and protein, and blood loss. In addition to losses in nutritional deficiencies, STH can inhibit physical development, intelligence, and work productivity and reduce resistance and immunity so that they are susceptible to other diseases and infections (Kemenkes, Dikjen PP&PL RI, 2012). Worms are found in areas with high humidity, especially in groups of people with poor personal hygiene and environmental sanitation. The most important types of worms are roundworms (Ascaris lumbricoides), hookworms (Ancylostoma duodenale and Necutor americanus), and whipworms (Dina and Mardiana, 2014).

The study results in Southwest Sumba Regency showed an effect of STH worm infection on anemia in elementary school children, where the positive STH stool examination results were 42 (40.0%) and 63 (60.0) negative. Types of STH worms are known as Ascaris lumbricoides (31.0%), Trichuris trichiura 9 (21.4%), Hookworm Ancylostoma duodenale 1 (2.4%), Hookworm Necator America-nus 3 (7.1%), mix AL and TT 16 (38.1%). The results showed that the incidence of anemia in elementary school children in Southwest Sumba Regency was 57.1%. There is an effect of STH infection on the incidence of anemia in elementary school children with an OR of 27.3 (Paun et al., 2019). Meanwhile, Mau Fridolina's research (2017) in West Sumba and Central Sumba districts showed that 568 (91.0%) elementary school children were infected with worms. The highest prevalence was a Lumbricoides infection 28.5%, followed by T. Trichiura infection 5.9%, and mixed infection 65.6% in West Sumba Regency. The highest prevalence was A. Lumbricoides infection 30.0%, followed by T. Trichiura infection 17.1% and mixed infection 46.8% in Central Sumba Regency.

SUBJECTS AND METHOD

1. Study Design

This study used a cross-sectional design. The research was conducted in elementary schools in West Amanuban District, South Central Timor Regency, from May to October 2021.

2. Population and Sample

The research sample consisted of 160 elementary school children in West Amanuban District, South Central Timor Regency. Sampling with a simple random technique.

3. Study Variables

The dependent variable is stunting.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.11

The independent variable is an intestinal worm infection

4. Operational Definition of Variable

Stunting

Definition: The result of measuring height using Flip-chart Stunting.
Measurement scale: Nominal.

Intestinal worm infection

Definition: The presence or absence of worm eggs/larvae in the feces based on the results of laboratory examinations.
Measurement scale: Nominal.

5. Instruments Study

Data were collected using anthropometric measurements for height and stool examination in the laboratory.

6. Data analysis

Data analysis used simple logistic regression.

7. Research Ethics

The research was carried out by seeking approval from schools and parents, and elementary school children, maintaining confidentiality, without names, and followed by a request for approval from the ethics committee of the Health Polytechnic of the Kupang Ministry of Health.

RESULTS

This research was conducted at 3 (three) elementary schools in Amanuban Barat District, Timor Tengah Selatan Regency, namely the Nulle Inpres Elementary School located in Tublopo Village, Neonmat Inpres Elementary School located in Nulle village, and GMIT Elementary School in Nulle village.

1. Univariate Analysis

Tabel 1. Characteristics Sample

Characteristics	Frequency	Percentage
Type of Worm		
Ascariasis lumbricoides	14	30.4
Hookworm	30	65.2
Ascariasis lumbricoides dan Hookworm	2	4.30
Primary School		
SD Inpres Nulle	31	19.37
SD Inpres Neonmat	71	44.37
SD GMIT Nulle	58	36.26
Laboratory Result		
Positive	46	29.00
Negatif	114	71.00
Measurement Result		
Stunting	84	52.5
Normal	76	47.5

Tabel 2. The Incidence of Intestinal Worm Infection Based on Nutritional Problems (Chi Square)

Intestinal Worm Infection	Stunting				OR	p
	Yes		No			
	N	%	N	%		
Positive	38	82.6	8	17.4	7.02	<0.001
Negatif	46	40.4	68	59.6		

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.11

Table 2 above shows that most elementary school children with intestinal worm infections (82.6%) were stunted, and 40.4% were negative with stunting. In comparison, 17.4% of children were positive with no stunting/normal and 59.6% negative norm/not stunting.

Tabel 3. The Relationship between Intestinal Worm Infections with Nutritional Problems (Stunting) in Elementary School Children

Variable	OR	95% CI		p
		Lower limit	Upper limit	
Intestinal Worm Infection	7.14	3.33	16.67	<0.001

Table 3 above shows the results of the Simple Logistics Regression statistical test p<0.001. Then there is a significant relationship between intestinal worm infection and the incidence of stunting in elementary school children; with OR= 7.14, then intestinal worm infection is at risk of increasing stunting in elementary school children.

DISCUSSION

One of the intestinal helminth infections is Soil-Transmitted Helminths (STH). (STH) is an intestinal nematode that requires soil media in its life cycle. Worms belonging to STH are Ascaris lumbricoides, Trichuris trichiura, hookworm, or hookworms (Ancylostoma duodenale and Necator americanus), and Strongyloides stercoralis (Supali et al., 2008). Soil-transmitted helminths (STH) are a group of parasitic nematodes that cause infection in humans through contact with parasitic eggs or larvae that develop in warm and moist soil in tropical and subtropical countries the world (Bethony et al., 2006).

The study results in West Amanuban District, South Central Timor Regency, showed that the laboratory examination results of 160 elementary school children were 46 (29.0%) positive for intestinal worm infections. The most common types of worms (65%) were HW and Ascariasis L 30.4% and Mix HW and AL 4.3%. The results of this study differ from the results of research in Southwest Sumba Regency, where the incidence of STH worm infection is 40%, and the most common type of worm is Ascaris lumbricoides (31.0%), Trichuris trichiura 9 (21.4%), Hookworm Ancylostoma duodenale 1 (2.4%), Hookworm Necator americanus 3 (7.1%), mix AL and TT 16 (38.1%). (Paun et al., 2019). Another thing is Mau's research (2017) in West Sumba and Central Sumba, which showed that 568 elementary school children (91.0%) were infected with worms. The highest prevalence was A. Lumbricoides infection 28.5%, followed by T. Trichiura infection 5.9% and mixed infection 65.6% in West Sumba Regency, and the highest prevalence was A. Lumbricoides infection 30.0%, followed by T. Trichiura infection 17.1% and mixed infection 46.8% in Central Sumba Regency (Mau, 2017). In contrast to the Olin et al. (2020) in Kupang Regency, where the incidence of intestinal worm infection in children under five with nutritional problems (malnutrition and malnutrition) is 42%, mostly

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.11

(79.4%) are Ascariasis Lumbricoides worms. Another study in Palembang by Annisa et al. (2018) showed that of the 107 subjects examined, 27.1% were infected with STH.

This worm can infect humans if the infective larvae are ingested or penetrate the skin, usually on the skin of the feet. If the filariform larvae enter through the skin and migrate through the skin or what is known as cutaneous larva migrans, they finally find a way out in the form of veins and enter the blood circulation. This can occur due to the habit of school children playing on the ground and rarely using footwear when out of the house.

The relationship between intestinal worm infection and the incidence of stunting in elementary schools in Timor Tengah Selatan district is p <0.001, so there is a significant relationship between intestinal worm infection and the incidence of nutritional problems (stunting) in elementary school children. The study results are the same as those of Paun et al. (2019), which showed that STH infection had a significant effect on the incidence of anemia in schoolchildren with p=0.001. The results of other studies have a relationship between STH infection and nutritional status of children under five; the results of statistical tests using Chi-square obtained p= 0.037 (Annisa et al., 2018).

STH worm infection can affect food intake, absorption, and metabolism into the body. Cumulatively, STH can cause decreased calories and protein and blood loss. In addition to losses in nutritional deficiencies, STH can inhibit physical development, intelligence, and work productivity and reduce resistance and immunity to be susceptible to other diseases and infections (Kemenkes RI, 2012).

The incidence of intestinal worm infection in elementary school children is (29.0%) positive for intestinal worm infection. The most common types of worms (65%) were Hookworm (HW) and Ascaris L 31% and Mix (HW and AL) 4%. The incidence of nutritional problems (stunting) in elementary school children is 52%, and 48% are normal/not stunting. There is a positive relationship between intestinal worm infection and nutritional problems (stunting) in elementary school children.

The program manager at the Community health center should provide regular anti-helminth drug services every six months to elementary school children—socialization and health promotion about nutritious food to elementary school children in every school and the community.

ACKNOWLEDGMENT

The researcher would like to thank the Regent of South Central Timor, the Principals of Elementary Schools in the West Amanuban District, for their permission and support for implementing this research.

AUTHOR CONTRIBUTION

Carry out data collection, data processing, and data analysis, as well as compiling research reports and publications

FUNDING AND SPONSORSHIP

This research is sponsored by the Center for Excellence in Higher Education

and funded by the DIPA of the Health Polytechnic of the Kupang Ministry of Health for the 2021 Fiscal Year.

CONFLICT OF INTEREST

This research was conducted with the approval of the authorities and parents, and elementary school children, so there is no conflict of interest.

REFERENCES

Annisa S, Dalilah, Anwar C (2018). Relationship between Soil Transmitted Helminths (STH) Worm Infection and Nutritional Status in 200 State Elementary School Students, Kemasrindo Subdistrict, Kertapati District, Palembang City. Sriwijaya Medical Magazine. 50 (2): 92-104. DOI: 10.-36706/mks.v50i2.8553.

Bethony J, Brooker S, Albonico M, Geiger SM, Loukas A, Diemert D, Hotez PJ (2006). Soil-Transmitted Helminth: Ascariasis, Trichuriasis, and Hookworm. Lancet. 367 (9521): 1521-1532. DOI: 10.1016/S0140-6736(06)68653-4.

Dina B, Mardiana (2014). Kasus Worms in Elementary School Students in Mentewe District, Tanah Bumbu Regency, South Kalimantan in 2010.

Fridolina M (2017). Prevalence and Intensity of Soil-Transmitted Helminth Infections Among Elementary School Students in West Sumba and Central Sumba Districts East Nusa Tenggara, Indonesia. JMSCR 05(10): 28988-28994. DOI: 10.18535/jmscr/v-5i10.88.

Kemenkes RI (2018). Basic Health Research.

Kemenkes RI (2012). Health Profile. Dikjen PP & PL RI.

Kemenkes RI (2013). Basic Health Research.

Olin W, Paun R, Vinsensia MF, Niron DPK (2020). Incidence Model of Intestinal Helminthiasis Infections in Toddler with Nutritional Problems in Central Kupang District, Kupang Regency. 13 (4): DOI: 10.5539/gjhs.v13n4p62.

Paun R, Wilhelmus O, Zacharias T (2019). The Impact of Soil-Transmitted Helminth (Sth) Towards Anemia Case in Elementary School Student in the District of Northwest Sumba. 11(5): 117-122. DOI: 10.5539/gjhs.v11-n5p117.

Ramayulis R, Kresnawan T, Iwaningsih S, Rohchani NS (2018). Stop Nutritional Problems With Nutrition Counseling. Jakarta: Penebar Plus' (Penebar Swadaya).

Soedarmo (2012). Textbook of Children's Health: Infections & Tropical Diseases. Edition II. 338-345. IDAI: Jakarta.

EFFECTIVENESS OF POSITIVE AFFIRMATION IN REDUCING ANXIETY IN PRE-OPERATING PATIENTS AT KUDUS GENERAL HOSPITAL

Rizka Himawan, Edi Wibowo Suwandi

Faculty of Health Sciences, Universitas Muhammadiyah Kudus

ABSTRACT

Background: Successful surgery is dependent on preoperative preparation. An intervention that may help patients to be mentally prepared for the surgery is providing positive affirmation. This study aimed to determine effectiveness of positive affirmation in reducing anxiety in pre-operating patients at Kudus General Hospital.
Subjects and Method: This was a quasi-experiment with one group pre-test and post-test design, conducted at Kudus General Hospital, Kudus, Central Java. A total of 47 preoperative patients were selected for this study. The dependent variable was anxiety. The independent variable was positive affirmation. The mean difference of anxiety before and after affirmation was tested by paired t-test.
Results: The differences in anxiety before (Mean= 23.32; SD= 2.82) and after (Mean= 23.13; SD= 3.13) positive affirmation was statistically non-significant (p= 0.659).
Conclusion: Positive affirmation is not effective to lessen anxiety in preoperative patients.

Keywords: anxiety, positive affirmation, preoperative patient.

Correspondence:
Edi Wibowo Suwandi. Faculty of public Health. Universitas Muhammadiyah Kudus, Jl. Ganesha Raya No. 1, Purwosari, Kudus 59316, Central Java. Email: ediwibowo@-umkudus.ac.id. Mobile: +6281326197275.

BACKGROUND

In certain individuals, anxiety is something that is considered normal, because it may be used to the situation and experienced in various life response ranges. However, in some individuals who experience a decline in health, the presence of anxiety will actually worsen their situation, especially during surgery and anesthesia. In this regard, there are special challenges for nurses as professionals in the management of individuals who experience anxiety and prevent situations that make their situation worse (Hilman, 2008).

Regarding the stressor during surgery with anesthesia, it is very important to make the body always in a relaxed state by providing positive emotional stimuli to the brain. Various therapies have been known to provide a positive stimulus to the brain, such as meditation, yoga, music therapy and positive affirmations. it is necessary to take an action to strengthen pre-operative patients so that they are able to face surgery, namely through positive affirmations. Affirmation relaxation is a combination of deep breath relaxation and positive statements (affirmations) (Cholifah et al., 2017).

Affirmations are self-reinforcement through short positive sentences that include something we want. The purpose of these positive affirmations

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.12

is to program our subconscious mind (Kristiana, 2012), as well as influence the subconscious mind so that patients can do what they are told (Sukesih & Siswanti, 2017) and to deal with various kinds of anxiety, have positive expectations, You can focus on your strengths, don't judge things with negative tendencies, and stay away from feelings of regret and frustration (Rafie, 2021).

Based on this phenomenon, researchers are interested in conducting research with the title of differences in anxiety levels in preoperative patients before and after positive affirmations in Cempaka Room I Regional General Hospital, Kudus Regency.

SUBJECTS AND METHOD

1. Study Design

This was a quasi-experimental study with one group pre-test and post-test, which was conducted at the Kudus Regional General Hospital, Kudus, Central Java.

2. Population and Sample

A sample of 47 preoperative patients was selected by accidental sampling.

3. Study Variables

The independent variable is anxiety. The dependent variable is positive affirmation.

4. Operational Definition of the Variables

Anxiety is a condition that motivates individuals to do something. Anxiety is a common event faced by anyone when they will face something important, including patients who will undergo surgery.

Positive Affirmations (Personal Suggestions) are a medium or means to influence the subconscious mind (Judge, 2021).

5. Instrument

The research instrument in collecting data on each variable is using a questionnaire. For affirmations use the Workbook Positive affirmation exercises. Meanwhile, to measure the level of anxiety the author uses the standardized Hamilton Rating Scale for anxiety (HRSA) (Saryono, 2008).

6. Data Analysis

This study used the Shaparowik data normality test and the paired t-test to determine the differences in the anxiety levels of preoperative patients before and after positive affirmations.

RESULTS

The description of the anxiety level of patients in Ruan Cempaka I general hospital, Kudus, before being given positive affirmations (Mean= 23.32; SD = 2.82) was lower than after giving positive affirmations (Mean = 23.13; SD = 3.13) (Table 1).

Table 1. Overview of preoperative patient anxiety levels before and after positive affirmations

Level of anxiety	N	Mean	SD	Median	Min.	Max.
Before	47	23.32	2.82	23.00	19	29
After	47	23.13	3.13	23.00	15	29

2. Bivariate Results

There was a difference in the patient's level of anxiety before (Mean= 23.32; SD= 2.82) and after (Mean= 23.13; SD= 3.13) positive affirmation, but this result was not statistically

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.12

significant (p= 0.659) (Table 2).

Table 2. Differences in anxiety levels of preoperative patients before & after Positive Affirmations

Level of anxiety	N	Mean	SD	p
Before	47	23.32	2.82	0.659
After	47	23.13	3.13	

DISCUSSION

The level of anxiety of preoperative patients before positive affirmations seen from the results of research conducted by researchers showed that almost all preoperative patients experienced anxiety, both mild to moderate levels of anxiety.

At first most of the patients expressed their fear of the surgery that would be undertaken. This fear can be generated from various reasons, for example: fear of pain, fear of something happening to him (Majid et al., 2021). However, that fear gradually became a motivation for a high desire to immediately get out of the suffering that had been experienced so far. This situation can be proven that the anxiety that occurs in most preoperative patients in the Cempaka I room seems to gradually recover by itself even without intervention from the nurse. However, this anxiety will reappear when the D-day of the operation program is approaching. This condition can be seen when the patient looks tense, often urinates even if asked the patient still says he is not afraid.

The level of anxiety of preoperative patients after positive affirmations. Based on the results of research conducted by researchers that preoperative patients who experience anxiety. After the positive affirmation action was taken, there was no significant difference, it could be seen that the level of anxiety was mild to moderate. As described above, preoperative patient anxiety arises in a fluctuating manner where at the time it was decided the surgical program the patient looked tense, afraid and so on.

Differences in anxiety levels of pre-operative patients before and after positive affirmations. Judging from the notion of affirmation is a technique that is able to move the waves of the human mind according to the needs and suggestions needed. An affirmation that is spoken should be done when a person reaches a state of hypnosis, namely a condition when a person easily accepts suggestions and suggestions. If the affirmation is not carried out under hypnosis, the affirmation spoken is only informational, has no effect (Judge, 2021).

One of the failures in positive affirmations was because the patient was less active in consistently practicing vibrational dhikr stabilization therapy at home (Kusumastuti et al., 2017). In doing other people's subconscious programming requires continous practice. NLP (Neuro Linguistic Programming) practitioners say that a habit or practice that is done for 21 days will become a reality or reality. While the time to program other people's subconscious is right before bed at night, the secret to successful programming of other people's subconscious mind is to

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.12

continue to do it every day without breaking for 21 days or according to needs (Judge, 2021).

Based on the analysis using the Paired-t-test statistical test, it was found that from 47 subjects whose level of anxiety was measured both before and after positive affirmation, the results of t count t table were 0.444, then Ho was accepted and Ha was rejected, which means there was no difference in the patient's anxiety level. preoperative before and after positive affirmation in Cempaka Room I of Kudus Regional General Hospital with a very strong significance level of 0.659. These results are also clearly seen in the results of the anxiety level assessment that the authors have described above.

This study concluded that positive affirmations were not effective in reducing anxiety in preoperative patients. Or there is no difference in the anxiety level of preoperative patients before and after positive affirmations due to technique & time. The technique in question is that affirmations will work well only when the patient is in a state of hypnosis and high imagenation. Meanwhile, to achieve all of this requires a calm, safe and comfortable condition.

AUTHORS CONTRIBUTION

The first researcher as the lead researcher coordinates the implementation of the research, takes care of internal and external licensing and provides interventions to patients in the hospital. The second researcher is in charge of analyzing research data, compiling manuscripts for research.

FINANCIAL SUPPORT AND SPONSORSHIP

This research was carried out with the support of LPPM Muhammadiyah Kudus University as an effort to develop lecturers to conduct research.

ACKNOWLEDGEMENT

The researcher would like to thank LPPM Muhammadiyah Kudus University for the opportunity that has been given to us. Researchers are very grateful to the Kudus Regional General Hospital, especially Cempaka Room 1 which has provided land for research. As well as students who have participated as research enumerators.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Cholifah N, Fahrida R, Hartinah D (2017). Pengaruh Pemberian afirmasi positif terhadap perubahan psikologis ibu hamil dengan pre eklampsia di klinik kandungan RSUD RA Kartini Kabupaten Jepara Tahun 2017 (Effects of giving positive affirmations on psychological changes in pregnant women with pre-eclampsia at the obstetrics clinic at RA Kartini Hospital, Jepara Regency in 2017). Indonesia Jurnal Perawat. 2(2): 80–86. doi: http://dx.doi.org/10.-26751/ijp.v2i2.463.

Kusumastuti I, Iftayani I, Noviyanti E (2017). Efektivitas Afirmasi positif dan stabilisasi dzikir vibrasi sebagai media terapi psikologis untuk mengatasi kecemasan

pada komunitas pasien hemodialisa (The effectiveness of positive affirmations and stabilization of vibrational dhikr as a medium of psychological therapy to overcome anxiety in the hemodialysis patient community). Jurnal Tarbiyatuna. 8(2): 123–131.

Rafie R (2021). Perbedaan metode afirmasi diri dan konseling untuk pencegahan kecemasan menghadapi tes (test anxiety) pada mahasiswa kedokteran di Universitas Malahayati (Differences in self-affirmation and counseling methods for the prevention of test anxiety (test anxiety) for medical students at Malahayati University). Jurnal Kebidanan Malahayati. 7(1): 123–130. doi: https://doi.org/10.33024/-jkm.v7i1.3288

Sukesih S, Siswanti H (2017). Afirmasi Positif terhadap peningkatan mobilisasi pada pasien post operasi benigna prostat hiperplasia (bph) (Positive affirmation of increased mobilization in postoperative benign prostatic hyperplasia (bph.) patients). Jurnal Ilmu Keperawatan Dan Kebidanan. 8(2): 79. doi: https://-doi.org/10.26751/jikk.v8i2.322.

Majid A, Yuda M, Istianah U (2021). Keperawatan perioperatif: edisi pertama (Perioperative nursing: first edition). Yogyakarta: Gosyen Publishing.

Hakim A (2021). Dahsyatnya pikiran bawah sadar cetakan I (The power of the subconscious mind prints I). Jakarta: Visi Media.

Hilman (2008). Efektivitas relaksasi dalam menurunkan nyeri (The effectiveness of relaxation in reducing pain). Ret-rieved from: efektivitas-musik-dalam-menurunkan-nyeri.html. Diakses pada 20 September 2018.

Kristiana (2012). Bagaimana afirmasi positif bekerja (How positive affirmations work). Retrieved from: http./kesehatan.com, Accessed November 2012

Saryono (2008). Kumpulan instrument penelitian kesehatan (Collection of health research instruments): Yogyakarta: Medika.

WAIST-HIP RATIO AND BODY MASS INDEX AMONG PATIENTS WITH HYPERTENSION IN ACEH, INDONESIA

Sofia, Nurjannah, Ratna Idayati

Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh, Indonesia

ABSTRACT

Background: Hypertension is a chronic disease that can be associated with obesity and overweight. Measurement of waist-hip ratio (WHR) needs to be done to determine central obesity. This study aimed to analyze the waist-to-hip ratio and body mass index in among patients with hypertension.
Subjects and Method: This was a cross-sectional study conducted at Syiah Kuala University Hospital, Banda Aceh, from June to August 2021. A total of 40 hypertensive patients was selected at random. The dependent variables were WHR and body mass index (BMI). The WHR was measured by waist ruler. The BMI was measured by weight scale and stature meter. The data were anlyzed by Chi-square and multiple logistic regression.
Results: There was not significant relationship between waist-to-hip ratio and hypertension (OR= 1.067; p= 0.942). Body mass index has not correlated with hypertension (OR= 0.99; 95% CI= 0.99 to 1.00; p=0.425) and it was statistically not significant.
Conclusion: Waist-to-hip ratio and body mass index not corelated among patients with hypertension.

Keywords: waist-hip ratio, body mass index, hypertension.

Correspondence:
Sofia. Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh, Indonesia. Jl. Teuku Nyak Arief No.441, Kopelma Darussalam, Kec. Syiah Kuala, Kota Banda Aceh. Email: sofia@unsyiah.ac.id. Mobile: +628126993145

BACKGROUND

Hypertension is one of the many public health problems that occur both in the world and in Indonesia. Hypertension is a non-communicable disease which is a risk factor for cardiovascular disease and stroke (Kemenkes, 2019). Based on the Data and Information Center of the Ministry of Health in 2017, cases of death from cardiovascular disease (45%) and stroke (51%) were caused by hypertension. WHO estimates that currently the global prevalence of hypertension is 22% of the total world population. In Indonesia, the results of Riskesdas 2018 show that the prevalence of hypertension in the population >18 years is 34.11%. This figure increased from 2007 which was 31.7%. Meanwhile, in Aceh the prevalence of hypertension reached 26.45% (Ministry of Health, 2019a) (Kemenkes, 2019a).

The risk factor for hypertension is obesity. Obesity as measured by Body Mass Index (BMI) is related to blood pressure. The risk for suffering from hypertension in obese people is almost 5 times higher than in people with normal weight (Aronow, 2017). An increase of 10% of body weight also increased 7 mmHg systolic blood pressure (Diaz, 2002).

An examination of nutritional status is an important part to assess the course of hypertension. The distribu-

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.13

tion of fat in the body is also an important risk factor in relation to hypertension. Indicators for measuring fat deposits, especially in the abdomen using the Waist to Hip Ratio (RLPP) measurement are important predictors of blood pressure (Nemesure et al., 2008; Li et al., 2019). This study aims to analyze body mass index and waist-hip ratio with the degree of hypertension in patients who have been diagnosed with hypertension.

SUBJECTS AND METHOD

1. Study Design

This was a cross sectional study conducted at Syiah Kuala University Hospital, Banda Aceh, from June to August 2021.

2. Population and Sample

The population in this study were all hypertensive patients who went to the Teaching Hospital of Syiah Kuala University. Sampling was carried out using accidental sampling technique to select patients who seek treatment and have been diagnosed with hypertension by doctors at the hospital.

Inclusion criteria included subjects aged 45-65 years, able to stand up straight (not stooped), had been diagnosed with hypertension and were willing to be respondents. The subjects used were 40 patients.

3. Study Variables

The dependent variables were degree of hypertension, the independent variables body mass index, waist-hip ratio.

4. Operational Definition of Variables

Hypertension degree is blood pressure which is divided into 3 categories, namely: 1) normal-high (systolic blood pressure 130-139 mmHg and or diastolic 85-89 mmHg), 2) hypertension grade 1 (systolic blood pressure 140- 159 mmHg and or diastolic 90-99, and 3) hypertension grade 2 (systolic blood pressure 160 and/or diastolic 100 mmHg).

Body mass index is a weight category by comparing weight and height. Data were obtained by measuring weight in kg divided by height squared in meters (kg/m2).

Waist-Hip Ratio is an indicator to determine abdominal obesity obtained by calculating the ratio between waist circumference (cm) and hip circumference (cm). Measurements were made using metlin to measure the waist and hip circumferences, then the waist circumference was compared to the hip circumference.

5. Instruments

The data were collected using a set of questionnaires and a list of demographic variables such as age, gender, domicile as well as the results of measurements of blood pressure, height, weight and waist and hip circumference.

6. Data Analysis

Univariate analysis was carried out to see the frequency and characteristics of the research subjects. While, bivariate analysis using the chi-square test to see the relationship between waist-hip ratio with degree of hypertension, and multivariate analysis using logistic regression to see the relationship between body mass index and degree of hypertension.

7. Research Ethics

The ethical clearance in this study was conducted at Medical School, Syiah Kuala University Hospital and was

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.13

declared ethical based on decree number 113/EA/FK-RSUDZA/2021.

RESULTS

1. Univariate Analysis

Univariate analysis included age, weight (kg), height (m), body mass index, and waist-hip ratio.

Table 1 showed mean of age (Mean= 53.70; SD= 5.72). The mean of weight 73.92 (Mean= 73.92; SD= 11.80), mean of height (m) is 1.59 (Mean= 0.09; SD= 1.43). The mean of body mass index 29.45 (Mean= 29.45; SD= 4.55), mean of waist ratio 95.60 (Mean= 95.60; SD= 12.54) and hip ratio 104.65 (Mean= 104.65; SD= 11.40), also waist-hip ratio 0.91 (Mean= 0.91; SD= 0.07).

Tabel 1. Univariate analysis (continuous data) age, weight (kg), height (m), body mass index, and waist-hip ratio.

Independent Variables	N	Mean	SD	Min.	Max.
Age (Years)	40	53.70	5.72	45.00	65.00
Weight (Kg)	40	73.92	11.80	52.00	103.00
Height (m)	40	1.59	0.09	1.43	1.75
Body mass index	40	29.45	4.55	20.83	42.22
Waist ratio	40	95.60	12.54	55.00	123.00
Hip ratio	40	104.65	11.40	63.00	130.00
Waist-hip ratio	40	0.91	0.07	0.64	1.06

2. Bivariate Analysis

Bivariate analysis using the chi-square to see the relationship between waist-hip ratio with degree of hypertension. Tabel 2 showed the subjects who had abnormal waist-hip ratio were 1.07 more at risk for developing grade 2 hypertension than people who had normal waist-hip ratio (OR= 1.07; p= 0.942).

Tabel 2. The relationship between waist-hip ratio and hypertension

Variable	Hypertension				OR	p
	Grade 1		Grade 2			
	N	%	N	%		
Waist-Hip Ratio					1.07	0.942
No	3	8.1	3	8.1		
Yes	15	40.5	16	43.2		

3. Multivariate Analysis

Multivariate analysis using logistic regression to see the relationship between body mass index with degree of hypertension.

Table 3. Logistic regression analysis of the body mass index with degree of hypertension (Grade 1 dan Grade 2)

Independent Variables	OR	95% CI		p
		Lower limit	Upper limit	
Body mass index (BMI) N Observation = 40 -2 log Likelihood = 54.696 Negelkerke R^2 = 0.022%	0.99	0.998	1.001	0.425

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.13

Table 3 showed that menunjukkan bahwa there is no relationship between BMI and the degree of hypertension (grade 1 and grade 2) (OR= 0.99; 95%CI= 0.99 to 1.00; p=0.425).

DISCUSSION

Hypertension is the most common cause of death every year in the world with more than 30% of people with hypertension having a heart attack (myocardial infarction) (American Academy of Family Physicians, 2021). One of the factors that can play a role in the risk of hypertension is body mass index (BMI). Hypertension has categories based on systolic and diastolic values which are divided into high-normal, grade 1 and grade 2 hypertension (Unger et al., 2020). This study showed that respondents with obesity had more grade 1 and grade 2 hypertension, but statistical analysis showed no significant relationship between BMI and the degree of hypertension (p> 0.050).

In addition to BMI, health risk assessment can be calculated by the waist-to-hip ratio index. Waist-hip ratio is the proportion of fat stored in the body in the waist and hips. The value of this index is different between men and women with the benchmark value for men >0.90 and women >0.80. If individuals pass this benchmark value, they will have a higher health risk of disease. This study found that male respondents with abnormal waist-hip ratio experienced the most hypertension grade 1 and grade 2 compared to respondents with normal waist-hip ratio index. Meanwhile, in female respondents, abnormal waist-hip ratio was found in obese BMI who had grade 2 hypertension. However, the relationship between the two was not statistically significant (p=0.425).

Epidemiological studies have shown that there is a close relationship between hypertension, obesity, and impaired glucose and fat metabolism (Modan et al., 1985). In general, people with hypertension are obese and have metabolic disorders, so many obese people are found to have hypertension (Amanda and Martini, 2018). However, this obese condition occurs in conditions that are not the same for everyone. Hypertension is associated with obesity and the distribution of central body fat that occurs in the waist and hips. This is very dangerous as a risk factor for cerebrocardiovascular disease (Lapidus et al., 1989; Larsson et al, 1989; Welin, 1987).

The waist-hip ratio assessment has been used as a stronger indicator as a risk factor in determining the association with diseases such as heart attack (myocardial infarction), stroke, and premature death compared to the assessment using BMI (Lapidus et al., 1984).

Accumulation of fat in the abdomen occurs associated with endocrine disorders including glucose intolerance (Kissebah and Peiris, 1989), hypothalamo-pituitary adrenocortical hyperactivity, and impaired steroid hormone secretion (Hartz et al., 1984).

The vriations of body mass index and waist-hip ratio in the subjects of this study occurred due to differences in muscle morphology and capillary density. Subjects with an abnormal waist-hip ratio index in this study had high blood pressure, namely grade 1

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.13

and grade 2 hypertension (in males) and grade 2 hypertension (in females).

The condition of muscle tissue in people with high waist-hip ratio has more type IIB muscle tissue, whereas type IIB consists of 20-30% having lower capillary density. Abnormal waist and hip circumference are known to be associated with peripheral insulin resistance and hyperinsulinemia (Bjorntorp, 1988). High waist-hip ratio values are associated with increased vascular system resistance, increased cardiac output, and stroke volume (Jern, 1992).

Differences in body fat accumulation differ by gender. Men have a high total body mass (lean mass) and bone mineral mass and lower fat mass than women. Womens have more total adipose tissue than men.

This difference occurs due to the distribution of the network which is also different due to the gender factor. Males have more arm muscle mass, larger and stronger bone mass, less fat in the extremities and a lot of fat relative to the central distribution. Differences based on sex are also influenced by steroid hormones in men and women (WHO, 2011).

Therefore, it can be concluded that the waist-hip circumference ratio is not associated with the degree of hypertension and is not statistically significant. BMI is not associated with the degree of hypertension and is not statistically significant.

AUTHOR CONTRIBUTION

Sofia analyzed the results and discussions and reviewed the entire contents of the article. Nurjannah conducted a literature study and statistical analysis and reviewed the results. Ratna Idayati collects respondent data and prepares draft articles.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This research was funded by the Institute for Research and Community Service at Syiah Kuala University with a contract number of170/UN11/SPK/-PNBP/2021.

ACKNOWLEDGMENT

The research team gives high appreciation to the medical staff of Syiah Kuala University Hospital, research assistants and respondents who have fully assisted technically until the completion of this research data collection.

REFERENCES

Amanda D, Martini S (2018). Hubungan Karakteristik dan Obesitas Sentral Dengan Kejadian Hipertensi (The Relationship between Characteristics and Central Obesity with Hypertension Incidence). JBE, 6(1): 43-50. DOI: 10.20473/jbe.v6i12018.43-50

American Academy of Family Physicians (2021). Hypertension: New guidelines from the International Society of Hypertension. Am Fam Physician, 103(12): 763-765.

Aronow WS (2017). Association of obesity with hypertension. Annals of translational medicine, 5(17), 350. DOI: https://doi.org/10.21-037/atm.2017.06.69

Björntorp P (1988). Abdominal obesity and the development of noninsulin-dependent diabetes melli-

tus. Diabetes/metabolism reviews, 4(6): 615–622. https://-doi.org/10.1002/dmr.56100406-07.

Díaz M (2002). Hypertension and obesity. Journal of Human Hypertension, 16: 18–22. https://-doi.org/10.1038/sj.jhh.1001335.

Hartz AJ, Rupley, DC, Rimm AA (1984). The association of girth measurements with disease in 32,856 women. American journal of epidemiology, 119(1): 71–80. https://doi.org/10.1093/oxfordjournals.aje.a113727.

Jern S, Bergbrant A, Bjorntorp P, Hansson, L (1992). Relation of Central Hemodynamics to Obesity and Body Fat Distribution. Hypertension, 19(6): 520–27. https://doi.org/10.1161/01.hyp.-19.6.520.

Kissebah AH, Peiris AN (1989). Biology of regional body fat distribution: relationship to non-insulin-dependent diabetes mellitus. Diabetes/metabolism reviews, 5(2), 83–109. https://doi.org/-10.1002/dmr.5610050202.

Lapidus L, Bengtsson C, Larsson B, Pennert K, Rybo E, Sjöström L (1984). Distribution of adipose tissue and risk of cardiovascular disease and death: a 12 year follow up of participants in the population study of women in Gothenburg, Sweden. British medical journal (Clinical research ed.), 289(6454): 1257–1261. https://doi.org/10.1136/bmj.28-9.6454.1257.

Lapidus L, Bengtsson C, Hällström T, Björntorp P (1989). Obesity, adipose tissue distribution and health in women Results from a population study in Gothenburg, Sweden.Appetite Journal, 13(1), 25–35. DOI: 10.1016/0195666-3(89)90024X.

Larsson B, Seidell J, Svardsudd K, Welin L, Tibblin G, Wilhemsen L, Bjorntorp P (1989). Obesity, adipose tissue distribution and health in men-The study of men born in 1913. Appetite, 13: 37-44.

Welin L, Svärdsudd K, Wilhelmsen L, Larsson B, Tibblin G (1987). Analysis of Risk Factors for Stroke in a Cohort of Men Born in 1913. New England Journal of Medicine, 317(9): 521–526. https://-doi.org/10.1056/NEJM1987082-73170901.

Li N, Yang T, Yu WQ, Liu H (2019). Is waist-to-height ratio superior to body mass index and waist circumference in predicting the incidence of hypertension? Annals of Nutrition and Metabolism, 74(3): 215-223. https://doi.org/-10.1159/000499073.

Kementerian Kesehatan Republik Indonesia (Kemenkes) Pusat Data dan Informasi (2019). Accessed from https://pusdatin.-kemkes.go.id/resources/download/pusdatin/infodatin/infodatinhipertensisipembunuh-senyap.-pdf.

Kementerian Kesehatan Republik Indonesia (Kemenkes) (2019a). Hasil Utama Riskesdas 2018. Diakses online pada: https://kesmas.kemkes.go.id/assets/upload-/dir_519d41d8cd98f00/files/Hasilriskesdas2018_1274.pdf.

Modan M, Halkin H, Almog S, Lusky A, Eshkol A, Shefi M, Shitrit A,

Fuchs Z (1985). Hyperinsulinemia: A link between hypertension obesity and glucose intolerance. Journal of Clinical Investigation, 75(3), 809-817. https://doi.org-/10.1172/jci111776.

Nemesure B, Wu SY, Hennis A, Leske MC (2008). The relationship of body mass index and waist-hip ratio on the 9-year incidence of diabetes and hypertension in a predominantly African origin population. Annals of epidemiology, 18(8),657-663. https://doi.org/-10.1016/j.annepidem.2008.02.006.

Unger T, Borghi C, Charchar F, Khan NA, Poulter NR, Prabhakaran D, Schutte AE (2020). 2020 International Society of Hypertension global hypertension practice guidelines. Hypertension, 75(6), 1334-1357. https://doi.org/10.-1161/hypertensionaha-.120.15026

World Health Organization (2011). Waist circumference and waist-hip ratio: report of a WHO expert consultation, Geneva.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.13

FACTORS INFLUENCING DEPRESSION IN MEDICAL STUDENTS DURING THE COVID-19 PANDEMIC

Heni Hastuti[1,2], Fatin Nabila Rizqi[1], Mohammad Fanani[1], Anak Agung Alit Kirti Estuti Narendra Putri[1]

[1]Faculty of Medicine, Universitas Sebelas Maret
[2]Center for Health Promotion and Community Empowerment Studies, The Institution of Research and Community Services, Universitas Sebelas Maret

ABSTRACT

Background: Student mental health in higher education has been an increasing concern during COVID-19 pandemic. Mental health issues are the leading impediment to academic success. Mental illness can affect students' motivation, concentration, and social interactions—crucial factors for students to succeed in higher education. This study aimed to determine the factors that influence depression in medical students during the COVID-19 pandemic.
Subjects and Method: This was a cross-sectional study. A sample of 589 students were selected for this study from the Medical Study Program, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Central Java, from 2017 to 2020. The dependent variable was depression. The independent variables were age, gender, year of class, self-control, and self-restraint. Depression was measured by Beck's Depression Inventory-II (BDI-II) questionnaire. Self-control was measured by the Self-Control Scale. Self-restraint was measured by Resilience Scale-14 (RS-14). The data were analyzed using logistic regression model.
Results: The risk of depression among medical students decreased with better self-control (OR= 0.93; 95% CI= 0.91 to 0.96; p= 0.399) and self-restraint (OR= 0.94; 95% CI= 0.92 to 0.96; p= 0.003), and it was statistically significant. The risk of depression among medical students increased if female (OR= 2.24; 95% CI= 0.89 to 5.58; p= 0.032) and it was statistically significant. The associations between depression and age as well as year of class were statistically non-significant (p>0.05).
Conclusion: Better self-control and self-restraint are associated with less risk of depression among medical students. Female students have higher risk of depression than males. Age and year of class are not significantly associated with the risk of depression.

Keywords: depression, self-control, self-restraint, COVID-19, medical student.

Correspondence:
Heni Hastuti. Faculty of Medicine, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Jebres, Surakarta, Central Java. Email: henihastuti1988@staff.uns.ac.id. Mobile: 081904534310.

BACKGROUND

The prevalence of depression globally has increased along with the movement of world conditions (Hidaka, 2012). From 1990 to 2017 the number of cases of depression reached 264 million from various age categories (WHO, 2020). From 264 million cases of depression in 2010 to 2015 there was a significant increase of 18.4% (WHO, 2017). In Indonesia, in 2011 there were 17.4 million people experiencing mental disorders in the form of anxiety and depression (Sulistyo-

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.14

rini and Subarisman, 2017). Based on Infodatin (2019) the link between depression and suicide can be seen in 2016, it was stated that 23.2% of suicide cases were caused because the person concerned had a mental illness. In Indonesia, cases of mental illness which include emotional mental disorders (anxiety and depression) in 2013 had a prevalence of 6% (Riskesdas, 2013). This prevalence increased in 2018 to reach 9.8% with a depression case rate of 6.1% of the total population. Of this 6.1%, only 9% of sufferers have undergone medical treatment for depression (Riskesdas, 2018). The lack of detection of people with depression in Indonesia can reduce the quality of life of individuals and increase the number of deaths due to suicide.

The medical study program has a higher stressor value than other professional study programs (Maulida, 2013). The prevalence of depression in medical students from 1982 to 2015 globally (47 countries) was 27.2% (Rotenstein et al., 2016). In Indonesia in 2014 the prevalence of depression in medical students was 30.8% (Hadianto, 2014). Hem et al. (2000) in Yusoff et al. (2013) also stated that at least 14% of medical students had thought of committing suicide and another 6% had planned to commit suicide during their education. The high risk of medical students experiencing depression, not only requires curative and rehabilitative efforts, but also requires preventive efforts in the form of early detection.

One of the early detection of depression can be seen from the ability of self-control and self-defense. Self-control ability can be used as a significant predictor of symptoms that arise from mental instability in the form of anxiety to depression (Belanger, 2017). Self-control ability can reduce a person's desire to do something from 70% to 17% (Hoffman et al., 2012), this condition can suppress the self-motivation concerned to do negative things that can lead to problems and other pressures. Self-defense as a form of ability to regulate negative emotions that come from external and internal has a protective function against mental stability in the form of anxiety and depression (Kermott et al., 2019). This is what makes self-restraint as a predictor of depression can be used to detect a person's mental condition in the short term, one of which is during the lecture period (Wu, 2020).

The COVID-19 pandemic that has occurred in the world has changed the lecture system at Sebelas Maret University from face-to-face or offline to online or online. Students listen to learning by using applications via electronic devices. Lectures during a pandemic are indicated to increase the pressure that causes students to experience anxiety to depression (Son et al., 2020).

The research on depression experienced by medical students conducted by Hadianto (2014) has not discussed in detail the internal factors of students. This is what makes the writer interested in linking self-control and self-resilience as an individual's internal ability in dealing with the existing pressure. The purpose of this study was to determine the factors that influence depression in me-

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.14

dical students during the COVID-19 pandemic.

SUBJECTS AND METHOD

1. Study Design

This study used a cross-sectional design. The research was conducted online at Sebelas Maret University, Surakarta, Central Java in December 2020.

2. Population and Sample

The sample consisted of students from the Medical Study Program, Faculty of Medicine, UNS class 2017, 2018, 2019, and 2020, totaling 589 students. The sampling technique used was purposive sampling.

3. Study Variable

The dependent variable was depression. The independent variables were age, gender, class year, self-restraint, and self-control.

4. Definition Operational of Variables

a. Depression

Definition: emotional disturbance or poor mood usually characterized by a prolonged feeling of sadness, hopelessness, guilt, and meaninglessness.

b. Age

Definition: the period of years calculated from the respondent's birth to the last birthday.

c. Gender

Definition: biological sex division.

d. Class year

Definition: Year of admission as a medical student.

e. Self-resilience

Definition: a person's ability to adapt to bad things or misfortunes that occur in his life.

f. Self-control:

Definition: a person's ability to control himself from the stimuli or impulses he gets by considering the consequences and situations.

5. Instrument Study

Depression was measured by the Beck's Depression Inventory-II (BDI-II) questionnaire. Self-control is measured by the Self-Control Scale. Self-control was measured by the Resilience Scale-14 (RS-14).

6. Data Analysis

Data analysis used logistic regression model.

7. Research Ethics

Ethics clearance was obtained from the ethics committee of RSUD Dr. Moewardi with the number: 1.317/ XII/ HREC/ 2020. Informed consent was obtained from students and the confidentiality of respondents was maintained during data analysis.

RESULTS

Based on table 1, this study received the most respondents from the Class of 2020 who were students who were undergoing the first year of lectures. Of the 589 respondents dominated by female sex as many as 436 people (72.3%). The age range of respondents in this study was 15-23 years with the most respondents aged 20 years, namely 137 people (23.3%). Respondents were dominated by moderate level of self-control as many as 354 people (60.1%). Moderate level of self-restraint also ranks at the top with 217 people (36.8%). While the measurement of depression found 427 people (72.5%) did not experience depression and 162 others (27.5%) suffered from depression. Of these 162 people 72 people (12.2%) had

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.14

mild depression, 61 people (10.4%) had moderate depression, and 29 people (4.9%) had severe depression.

Table 1. Distribution of Research Respondents' characteristics, Level of Self-Control, Level of Self-Defense, and Level of Depression

Category	Frequence	Percentage
Generations		
2017	151	25.6
2018	134	22.8
2019	89	15.1
2020	215	36.5
Gender		
Male	163	27.7
Female	436	72.3
Age (years)		
15	2	0.3
16	0	0
17	25	4.2
18	135	22.9
19	126	21.4
20	137	23.3
21	132	22.4
22	28	4.8
23	4	0.7
Self-control		
Very low	0	0
Low	38	6.5
Medium	354	60.1
High	187	31.7
Very High	10	1.7
Self-restraint		
Very low	61	10.4
Low	131	22.2
Medium	217	36.8
High	152	25.8
Very high	28	4.8
Depression		
Not depressed	427	72.5
Light	72	12.2
Moderate	61	10.4
Severe	29	4.9

Tabel 2. Correlation Test Results

Variable	p
Generations	0.442
Gender	0.006
Age	0.414
Self-control	<0.001
Self-restraint	<0.001

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.14

Table 3. Results of Logistics Regression Analysis

Variable	OR	95% CI		p
		Lower Limit	Upper Limit	
Age	1.21	0.69	2.12	0.675
Gender	2.24	0.89	5.58	0.032
Generations	1.36	0.78	2.48	0.584
Self-control	0.93	0.91	0.96	0.399
Self-restraint	0.94	0.92	0.96	0.003

Multivariate analysis was conducted to determine the effect of independent variables consisting of age, gender, years of age, self-control, and self-restraint with the dependent variable being depression.

Logistic regression analysis showed that the dominant factor that increased depression was gender (OR=2.24; 95%CI= 0.89 to 5.58; p=0.032), the result was statistically significant, while the factor that decreased depression was self-control (OR= 0.93; 95% CI= 0.91 to 0.96; p= 0.399) and self-resistance (OR= 0.94; 95% CI= 0.92 to 0.96; p=0.003), these results were statistically significant.

DISCUSSION

A. Sample Characteristics

This study obtained 162 medical students with depression who had an age range of 15-22 years and an average age of 19 years. Based on age classification Cuijpers et al. (2020) ages 15 to 17 years are included in the youth group and 18 to 22 years are included in the young adult group. Based on the data in table 1, nine respondents in the adolescent age group tend to have milder depression conditions than the young adult age group. This situation is in line with the research of Purborini et al. (2021) who stated that young adults are more prone to depression than other age groups. This happens because young adults tend to have to face the expectations of their family and social environment coupled with an unhealthy lifestyle.

The percentage of female respondents who experienced depression was more dominant (80.9%) than male respondents (19.1%). Overall, the number of students in the Medical Faculty of UNS in 2020 was more female students than male students, so that the respondents who filled out were also dominated by the female gender. However, this is not the main factor underlying the results of this study, there are studies that are in line with this situation where women tend to experience depression more than men (Albert, 2015). According to Albert (2015) this condition occurs due to hormonal changes that have an effect on individual physiological and psychological conditions and the characteristics of women who tend to think more about interpersonal relationships in their environment.

The largest proportion of depression in this study was obtained by medical students class of 2020 (44.4%) as first-year students during their lectures. These results are in accordance with Basnet et al. (2012) which states that first-year medical students will tend to feel excessive

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.14

pressure due to busy schedules and adjustments to academic conditions, this will lead them to symptoms of depression.

Students' self-control ability is dominated by a moderate level of self-control (60.1%). These results are in line with research conducted by Munazzah (2016) with 105 student respondents of UIN Maulana Malik Ibrahim Malang who showed a moderate level of self-control dominance (80.95%). According to him, the condition of moderate self-control where a person is in a fairly good condition in controlling himself is one of them influenced by self-discipline. Individuals can restrain and discipline themselves not to do something excessive. But on the other hand, under certain conditions this moderate level of self-control will also experience inability to resolve what is being faced. It is self-stability that determines a person in regulating his discipline.

Moderate levels make up the majority of the results of self-resistance measurements carried out in this study (36.8%). The results of this study are in line with research conducted by Amelia et al. (2014) with 119 medical students from Riau University as respondents. The research that was conducted showed that 89.07% of the respondents had a moderate level of self-restraint with various background factors that influenced the measurement results. In this study, the level of self-resistance was caused by social skills or adaptation that were still lacking. A person with limited social and communication skills will tend to keep his problems to himself so that it adds to the burden and results in the instability of his self-defense ability. In this case, the person concerned can control himself even though there are some conditions where his ability to control himself decreases due to the effects of certain things experienced.

Measurement of the level of depression showed that the majority of respondents (72.5%) were in normal condition and 162 respondents (27.5%) were depressed. Of the 162 respondents who experienced depression, the minority was in a state of severe depression (4.9%), followed by moderate depression 61 respondents (10.4%) and mild depression 72 respondents (12.2%). This percentage is lower than other research on depression. As one example is the research conducted by Martasari and Ediati (2018) on students of the Undergraduate General Medicine Study Program at Diponegoro University which used 101 respondents, 41.6% of the respondents indicated that they were depressed. By using the same questionnaire, namely the BDI-II in the study, 27.7% of respondents experienced mild depression, 10.9% of respondents experienced moderate depression, and 3% of respondents experienced severe depression. According to the study, depression is caused by pressure to achieve success, demands, and academic performance, differences in sleep quality, social relationships, and different adaptability in each student.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.14

B. The Relationship of Self-Control with Depression

Through this study, it was found that there was a significant relationship between self-control and depression. The better the self-control ability, the lower the probability that the person concerned will experience depression ($p<0.001$). Likewise with the opposite condition. In the research of Asthiningsih et al. (2010) found a significant relationship between self-control and depression ($p= 0.005$). Self-control that is too low is considered to make a person too regretful of the failures they have experienced and create feelings of guilt, resulting in depression. Through research Asthiningsih et al. (2010) also stated that individuals with low self-control tend to only make expectations without making maximum effort. This happens repeatedly until it can trigger the person concerned to blame the situation and the environment. The feeling of being unable to do anything or what is called a state of hopelessness slowly leads the person concerned into the depression stage.

Other studies Boals et al. (2011) revealed that there was a significant relationship between self-control ability and depression ($p= 0.001$). According to Boals et al. (2011) the results of this study relate to a person's self-control. Individuals with low self-control tend to lack self-control and choose to avoid the problems at hand. This condition will trigger other problems to arise and provide greater pressure until depression appears. Boals et al. (2011) also explained that the characteristics of this avoidance are a life style that tends to be unhealthy, alcohol consumption, and poor interpersonal relationships. Mental instability accompanied by a decrease in physical condition will lead individuals to experience depression.

C. The Relationship between Self-Defense and Depression

This study found that there was a significant relationship between the level of self-restraint and depression ($p< 0.001$). The relationship with this moderate level of closeness means that individuals with low levels of self-esteem will have a higher tendency to experience depression. Vice versa, individuals with high levels of self-restraint have a lower tendency to experience depression.

The results of this study support previous research on self-restraint and depression conducted by Firdaus and Kaloeti (2020), which is that there is a significant relationship between self-restraint and depression ($p<0.001$). The relationship that occurs in this study by Firdaus and Kaloeti (2020) explains that someone with negative emotions that are more dominant than positive emotions will tend to view problems as a burden, not as a process of life's journey. Positive emotions that are used to improve the quality of self-resistance will be eroded slowly to reduce the ability of self-resistance possessed.

Another study on the correlation between self-restraint and depression was conducted by Haddadi & Besharat (2010) on 256 University of Tehran students using a cross-sectional research design. This study revealed that there was a significant

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.14

relationship between self-restraint and depression (p<0.001). According to Haddadi and Besharat (2010) the results of this study can be related to the theory of self-resistance which is considered a positive resistance from within to respond to a negative experience that arises. This positive resistance will bring about the stability of self-esteem as a form of defense mechanism. Haddadi and Besharat (2010) state that acceptance will reduce anxiety and other uncomfortable feelings that can encourage depression. This is why high self-restraint abilities will reduce a person's chances of experiencing depression.

D. The Relationship of Self-Control and Self-Reliance with Depression

By controlling for the confounding variables of gender, age, and generation, it was found that there was a significant relationship between self-control and self-resilience with depression with the self-resilience variable having a greater influence than the self-control variable related to depression.

Depression has many influencing factors, one of which is gender (p=0.032). Marlena et al. (2012) explained that women tend to be more prone to depression than men. It was also mentioned that gender had a significant effect on the severity of depression. This condition is because women tend to focus on the symptoms of depression. This is different from the characteristics of men where they tend to divert attention to other things such as physical activities or entertainment (Darmayanti, 2008). The second factor that was tested as a confounding variable in this study was age. The results showed that there was no significant correlation (p>0.050). These results are in accordance with the research conducted by Khest et al (2019) which revealed that there was no significant relationship between age and depression. This condition is thought to be due to the lack of a wide age range of respondents used in the study. There are many age groups, but researchers only refer to two groups, namely adolescents and young adults. The third confounding variable used is the year of class in lectures. The results of the analysis showed that there was no significant relationship between the year of class and depression (p>0.05). These results are in accordance with research conducted by Pidgeon et al. (2017) which states that there is no significant correlation between the year of class and depression experienced. The pressure experienced in lectures depends on the given academic system. This difference does not only apply between study programs or faculties but also on a university scale.

In the research of Gazmararian et al. (2000) found several factors that influence depression, including exercise routine. In this study, it was found that individuals with regular exercise had a lower chance of experiencing depressive symptoms (p=0.002). The exercise routine undertaken by the respondents is the result of their disciplined abilities. Discipline in the effort to live a healthy life is a characteristic that becomes a measure of self-control ability (Tagney et al, 2004).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.14

Another multivariate study conducted by Yun et al. (2019) in 1991 respondents in South Korea from August 2014 to January 2015. Using the logistic regression test method, this study describes the factors that have an influence on depression. One that is discussed is positive thoughts or positive mindset. Yun et al. (2019) explains that individuals who have positive thinking skills in dealing with stressors or problems they experience will reduce their tendency to develop depressive symptoms (p=0.002). Vice versa, if the ability to think positively is low, the individual will be more prone to depression. Positive thoughts or beliefs in dealing with problems are part of a balance of thought or equality which is one of the characteristics used to assess a person's self-restraint (Wagnild, 2010).

The results of Cho et al. (2019) in 1,502 respondents stated that individuals who have a healthy lifestyle will have a lower tendency to suffer from depression ($p < 0.001$) and individuals who are often filled with depression or feelings of sadness will tend to have a higher tendency to develop symptoms of depression ($p < 0.001$). The factor of a healthy lifestyle is a characteristic of self-control and moodiness is a form of weak balance of thinking which is a characteristic of self-resistance.

This research was carried out during the COVID-19 pandemic so that lectures were conducted through the online method (on the network) or online. Lectures during a pandemic are indicated to increase the pressure that causes students to experience anxiety to depression (Son et al., 2020). According to Son et al. (2020) this condition occurs because individuals tend to experience increased fear and worry about health compared to normal conditions and decreased interaction with other people, especially their peers due to the implementation of social distancing. This condition results in decreased concentration, disturbed sleep cycles, and excessive stress regarding academics. This is why the factor of the pandemic condition indirectly affects the measurement of depression levels carried out by researchers. Son et al. (2020) adding support to each other by sharing stories is one solution to reduce symptoms of depression in students.

According to Pedrelli et al. (2014) students tend to keep their complaints to themselves, choose to find out via the internet, and feel more comfortable consulting using web-internet-based programs because they feel that their privacy is more protected. Therefore, according to Pedrelli et al. (2014) institutions or universities need to open online screening using tested questionnaires and provide experts through an internet platform that is opened from time to time to detect cases of depression in students early.

So it can be concluded that self-restraint has a greater influence than self-control, age, gender, and class on depression. The limitation of this research is that not all students in the class have filled out the questionnaire.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.14

AUTHOR CONTRIBUTION

Heni Hastuti, Fatin Nabila Rizqi, Mohammad Fanani, Anak Agung Alit Kirti Estuti Narendra Putri contributed in designing the research, collecting data and conducting analysis.

ACKNOWLEDGMENT

Thank you to the medical faculty of UNS and Pusdi Promkesdayamas.

FUNDING AND SPONSORSHIP

There was no external fund.

CONFLICT OF INTEREST

There was no conflict of interest.

REFERENCES

Asthiningsih NWW, Marchira CR, Sedyowinarso M (2010). Hubungan kemampuan kontrol diri dengan kecenderungan depresi pada Mahasiswa Program B Psik FK UGM (The relationship between self-control ability and depression tendencies in Psychological B Program Students, Faculty of Medicine, UGM). Jurnal Kedokteran Masyarakat. 26 (3): 138-143. doi: 10.22146/-bkm.3466.

Belanger, Sissel M (2017) Associations between self-control and symptoms of anxiety, depression and insomnia. Norwegian University of Science and Technology Master Thesis.

Boals A, Vandellen M, Banks J (2011). The relationship between self-control and health: the mediating effect of avoidant coping. Psychol Health. 26(8): 1049-1062. https://doi.org/10.1080/-08870446.2010.529139.

Cho Y, Lee, JK, Kim DH, Park JH, Choi M, Kim HJ, Park YG, et al. (2019). Factors associated with quality of life in patients with depression: a nationwide population-based study. PLOS ONE. 14(7): 1-7. https://doi.org/10.1-371/journal.pone.0219455.

Firdaus T, Kaloeti VS (2020). Hubungan antara negative emotional state dengan resiliensi pada warga binaan narkotika di lembaga pemasyarakatan Kedungpane Semarang (The relationship between negative emotional state and resilience in narcotics inmates at the Kedungpane Penitentiary Semarang). Jurnal Empati. 8 (4): 30-39.

Gazmararian J, Baker D, Parker R, Blazer DG (2000). A multivariate analysis of factors associated with depression. Arch Intern Med. 160(21): 3307-3313. https://doi.org/10.1001/archinte.160.21.3307.

Haddadi P, Besharat MA (2010). Resilience, vulnerability, and mental health. Procedia Soc Behav Sci. 5: 639-642. https://doi.org-/10.1016/j.sbspro.2010.07.157.

Hadianto H (2014). Prevalensi dan faktor-faktor risiko yang berhubungan dengan tingkat gejala depresi pada mahasiswa program studi Pendidikan Dokter Fakultas Kedokteran Universitas Tanjungpura (Prevalence and risk factors related to the level of depressive symptoms in students of the Medical Education study program, Faculty of Medicine, Tanjungpura Univer-

sity). Jurnal Mahasiswa Fakultas Kedokteran UNTAN. 1(1): 2.

Hidaka BH (2012). Depression as a disease of modernity: explanations for increasing prevalence. J Affect Disord. 140(3): 205-214. https://doi.org/10.1016/j.jad.2011.12.036.

Hofmann W, Baumeister RF, Förster G, Vohs KD (2012). Everyday temptations: An experience sampling study of desire, conflict, and self-control. J Pers Soc Psychol. 102(6): 1318-1335. https://psycnet.apa.org/doi/10.1037/a0026545.

Kermott CA, Johnson RE, Sood R, Jenkins SM, Sood A (2019). Is higher resilience predictive of lower stress and better mental health among corporate executives?. PLOS ONE. 14(6) : 1-14. https://doi.org/10.1371/journal.pone.0218092.

Infodatin (2019). Situasi dan Pencegahan Bunuh Diri (Situation and Suicide Prevention). Jakarta: Kementerian Kesehatan Republik Indonesia.

Maulida TR (2013). Depresi, kecemasan, dan stres pada mahasiswa kedokteran (Depression, anxiety and stress in medical students). In Skripsi.

Muhammad I (2014). Pemanfaatan SPSS dalam penelitian bidang kesehatan (Utilization of SPSS in health research). Citapustaka Media Perintis: Bandung.

Riskerdas (2013). Hasil Utama Riskesdas 2013 (Main Results of Riskesdas 2013). Kementerian Kesehatan RI Badan Penelitian dan Pengembangan Kesehatan.

Riskerdas (2018). Hasil Utama Riskesdas 2018 (Main Results of Riskesdas 2018). Kementerian Kesehatan RI Badan Penelitian dan Pengembangan Kesehatan.

Rotenstein LS, Ramos MA, Torre M, Segal JB, Peluso MJ, Guille C, Mata DA. (2016). Prevalence of depression, depressive symptoms, and suicidal ideation among medical students. JAMA. 316(21): 2214-2229. https://doi.org/10.1001/jama.2016.17324.

Sulistyorini W, Subarisman M (2017). Depresi: Suatu tinjauan psikologis (Depression: A psychological review). Kesejahteraan sosial sosio informa 3(2): 153-164.

Sumardiyono, Probandari AN, Widyaningsih V (2020). Statistik dasar untuk kesehatan dan kedokteran: analisis menggunakan SPSS 23 (Basic statistics for health and medicine: analysis using SPSS 23). Surakarta: UNS Press.

Pedrelli P, Nyer M, Yeung A, Zulauf C, Wilens T (2014). College students: mental health problems and treatment considerations. Acad Psychiatry. 39(5): 503-511. https://dx.doi.org/10.1007%2Fs40596-014-0205-9.

Tangney JP, Baumeister RF, Boone, AL (2004). High selfcontrol predicted good adjustment, less pathology, better grade, and interpersonal success. J Pers. 72(2): 271-324. https://doi.org/10.1111/j.0022-3506.2004.00263.x.

Wagnild GM (2010) Discovering Your Resilience Core. Accessed from https://www.resiliencecenter.-

com/articles/healthy-and-resilient-aging/discovering-your-resilience-core/.

WHO (2020). Depression. Accessed from https://www.who.int/news-room/fact-sheets/detail/depression.

WHO (2017). Depression and Other Common Mental Disorders-Global Health Estimates.

Wu Y, Sang ZQ, Zhang XC, Margraf J (2020). The relationship between resilience and mental health in chinese college students: A longitudinal cross-lagged analysis. Front Psychol. 11: 108. https://dx.doi.org/10.3389%2Ffpsyg.2020.00108.

Yun JY, Chung H, Sim J, Yun YH (2019). Prevalence and associated factors of depression among korean adolescents. PLOS ONE. 14(10): 1-13. https://dx.doi.org/10.1371%2Fjournal.pone.0223176.

Yusoff MSB, Abdul RAF, Baba AA, Ismail SB, Pa MNM, Esa AR (2013). Prevalence and associated factors of stress, anxiety and depression among prospective medical students. Asian J Psychiatr. 6(2): 128–133. https://doi.org/10.1016/j.ajp.2012.09.012.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.14

FACTORS AFFECTING ANXIETY AND DEPRESSION OF HEALTH WORKERS DURING THE FIRST WAVE COVID-19 PANDEMIC IN INDONESIA

Lely Indrawati[1)], Rofingatul Mubasyiroh[1)], Siti Isfandari[2)]

[1)]Center for Research and Development of Public Health Efforts,
Health Research and Development Agency, Indonesia
[2)]Center for Research and Development of Humanities and Health Policy,
Health Research and Development Agency, Indonesia

ABSTRACT

Background: During the COVID-19 pandemic, healthcare workers are expected to deal with patients' traumatic experiences and the unexpected loss of friends, family, and colleagues. As a result, they are affected by psychological distress, including depression, anxiety, and stress. This study aimed to determine the factors that influence anxiety and depression in health workers during the COVID-19 pandemic.
Subjects and Method: This time-series study was conducted on May 2-4, 2020, and September 3-30, 2020. A sample of 823 healthcare workers was selected for this study. The dependent variables were anxiety and depression. The independent variables were gender, age, resilience, area of residence, and COVID-19 zoning. Anxiety was measured by General Anxiety Disorder-7 (GAD-7). Depression was measured by Patient Health Questionnaire (PHQ-9). The data were analyzed using multiple logistic regression.
Results: The risk of moderate to severe anxiety increased with living in red-orange zone (OR= 0.35; 95% CI= 0.13 to 0.96; p= 0.041) and lack of resilience (OR= 4.51; 95% CI= 2.14 to 9.52; p<0.005), and statistically significant (p<0.05). The risk of moderate to severe anxiety increased with female gender (OR= 1.88; 95% CI= 0.70 to 5.09; p= 0.215), age <40 years (OR= 1.53; 95% CI= 0.61 to 3.84; p = 0.365), living in Java (OR= 2.52; 95% CI= 0.94 to 6.76; p= 0.067), but with statistically non-significant (p>0.05). The risk of moderate to severe depression increased with age <40 years (OR= 5.02; 95% CI= 1.15 to 22.00; p= 0.032), living in Java (OR= 5.53; 95% CI= 2.05 to 13.48; p= 0.001), lack of resilience (OR= 7.03; 95% CI= 3.47 to 17.67; p<0.001), and statistically significant (p<0.05).
Conclusion: The risk of moderate to severe depression increases with age <40 years, living in Java, lack resilience in health workers, and they are statistically significant. Likewise, the risk of moderate to severe anxiety increases with living in a red-orange zone, and lack of resilience, and they were statistically significant. The risk of moderate to severe anxiety increases with female gender, age <40 years, living in Java, but they are statistically non-significant.

Keywords: health workers, depression, anxiety, COVID-19 pandemic

Correspondence:
Lely Indrawati. Center for Research and Development of Public Health Efforts, Health Research and Development Agency, Indonesia. Jl. Percetakan Negara No 29, Central Jakarta. Email: lelyindra@gmail.com. Mobile: 08128176371.

BACKGROUND

Health workers are all people who do work to improve health. Health workers work in emergency care facilities and long-term care, public health, community-based care, social care, home care, and other occupations in the health and social work sector (ILO,

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.15

no date). Health workers and health services are at the forefront of their role when a particular disease (re)appears and spreads over a large area, known as a pandemic (Army, 2013).

A COVID-19 pandemic is an event that spreads the 2019 coronavirus (Coronavirus disease 2019) throughout the world. This disease is caused by a new type of coronavirus named SARS-CoV-2 (Gorbalenya et al., 2020). The COVID-19 outbreak was first detected in Wuhan City, Hubei Province, China, on 1 December 2019, and was declared a global pandemic by the World Health Organization (WHO) on 11 March 2020 (WHO, 2020). Until February 24, 2021, there were 111,419,939 confirmed cases of COVID-19 globally, of which 2,470,772 ended in death (WHO, 2021).

The first confirmed case of COVID-19 in Indonesia occurred in Depok, West Java, in March 2020. Two Indonesian citizens were infected by Japanese foreigners who came to Indonesia (Ihsanuddin, 2020). Ten months later, that number surpassed the million confirmed cases of COVID-19 (Kompas Team, 2021). This spike and increase in claims from time to time have made exceptional referral hospitals and general hospitals focus on services for handling cases of this infectious infection and its comorbidities by not eliminating health services for patients of other diseases. As of January 2021, at least ten provinces recorded an occupancy ratio of beds and ICU rooms (BOR) above 60 percent for COVID-19 patients. This means that more than half of the inpatient capacity treats COVID-19 patients (Kompas Team, 2021). The spike and addition of positive confirmed cases of COVID-19 occurred in the group of health workers in Indonesia. This is marked by an increase in the number of deaths of health workers who are confirmed positive for COVID-19. Since the pandemic period in 2020, the number of deaths from May to October was 15, 38, 60, 60, 71, and 74 cases. This increase will reach its peak in July 2021, which is 485 cases (Digital Center for Health Workers, 2021). The risk and occurrence of death, especially to the closest people, such as colleagues among health workers, is one of the significant risks faced during the pandemic.

Based on research during the SARS and Ebola pandemics, causing sudden, life-threatening symptoms of illness can cause tremendous stress on the health workforce (Liu et al., 2012). Increased workloads, physical exhaustion, inadequate personal protective equipment, nosocomial transmission, and difficulty making ethical decisions allow for dramatic effects on their physical and mental health. As a result, their ability to survive is affected by a state of isolation and loss of social support, relatives, and friends, as well as drastic changes that often disrupt their lives. Health workers are particularly vulnerable to mental health problems, including fear, anxiety, depression, and insomnia (Lung et al., 2009; Ping Wu et al., 2009). Based on the background description, this study aims to determine the factors that influence anxiety and depression in health workers during the COVID-19 pandemic.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.15

SUBJECTS AND METHOD

1. Study Design

This study uses a time-series research design. The study was conducted from 2 to 4 May 2020 and 3 to 30 September 2020.

2. Population and Sample

The sample is 823, with 568 respondents in the May 2020 stage and 255 respondents in the September 2020 data collection.

3. Study Variables

The dependent variable is anxiety and depression. The independent variables are gender, age group, resilience, area of residence, and COVID-19 zoning.

4. Operational Definition of Variable

a. Anxiety

Definition: a collection of symptoms that indicate an anxiety disorder based on the General Anxiety Disorder-7 questionnaire. Anxiety category if the score is at least 10.

Measurement Scale: Categorical
(0=anxious; 1=not anxious)

b. Depression

Definition: a collection of symptoms that indicate depressive disorder based on the Patient Health Questionnaire (PHQ-9). Depression category if the score is at least 10.

Measurement Scale: Categorical
(0= Depressed; 1=Not Depressed).

c. Gender

Definition: The difference between a woman and a man is biological from when a person is born.

Measurement scale: Categorical
(0=Female; 1=Male).

d. Age

Definition: Age of respondent by last birthday (in years). Age was grouped into two groups.

Measurement Scale: Categorical
(0= <40 years; 1=>40 years).

e. Resilience

Definition: An individual's ability (confidence and optimism) to adapt in the face of adversity during an outbreak.

Measurement Scale: Categorical
(0= No; 1= Yes).

f. House Ownership

Definition: The described economic level of residential ownership.

Measurement Scale: Categorical
(0=Family owned/rented/contracted; 1= Owned)

g. COVID-19 Zoning (Territory Severity)

Definition: The rate of COVID-19 cases that hit the area of residence, identified using report data on the number of cases per province from the COVID-19 Handling Task Force as of May 4, 2020-30 September 2020 (end of the online survey).

Measurement Scale: Categorical
(0= Orange: 501-2000 cases/Red; >2000 cases, 1=Green: 1-100 cases/ Yellow: 101-500 cases).

5. Instruments Study

Anxiety was measured by General Anxiety Disorder-7 (GAD-7). Depression was measured by the Patient Health Questionnaire (PHQ-9).

6. Data analysis

Data were analyzed using chi-square and multiple logistic regression.

7. Research Ethics

The ethical approval was obtained from the Research Ethics Commission of the NIHRD of Ministry of Health number LB.02.01/2/KE 326/2020.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.15

RESULT

The research results section includes univariate analysis, bivariate analysis, and multivariate analysis for each variable.

1. Univariate Analysis

Table 1. Frequency distribution of gender, age group, education level, housing status, area of residence, zoning status, and resilience

Variable	Frequency	Percentage
Gender		
Female	620	75.3
Male	203	24.7
Age		
≤ 40 years	626	76.1
>41 years	197	23.9
Education		
≤ Baccalaureate	297	36.1
>Bachelor	526	63.9
House Ownership		
Contract/rent/family-owned/office	321	39.0
Owned	502	61.0
Living Area		
Java Island	354	43.0
Outside of Java Island	469	57.0
Zoning Status (Beginning Pandemic)		
Red-orange	407	49.5
Yellow – Green	416	50.5
Resilience		
No	177	21.5
Yes	646	78.5

The results show that most health workers are female, namely 620 (75.3%). At the same time, the male gender was 203 (24.7%). Health workers who have an age <40 years are 626 (76.1%). Meanwhile, age >41 years were 197 (23.9%). Health workers with education level above bachelor's degree are 526 (63.9%), while education level below baccalaureate (D3) is 297 (36.1%). 502 health workers (61.0%) still have their own house, while 321 (39.0%). Health workers who live in areas outside of Java island are 469 (57.0%), while those who live on the island of Java are 354 (43.0%). Health workers who live in areas with yellow-green zoning status are 416 (50.5%), while those with red-orange zoning status are 407 (49.5%). Health workers with resilience are 646 (78.5%), while those who do not have resilience are 177 (21.5%).

2. Bivariate Analysis

Bivariate analysis was conducted to determine the relationship between the dependent variable, namely anxiety, and depression. The independent variables are gender, age, resilience, area of residence, and COVID-19 zoning determine the variables that enter into the multivariate model. This bivariate statistical test uses the chi-square test.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.15

Table 2. Factors that affect the anxiety of health workers in the early days of the COVID-19 pandemic

Variable	Anxiety Moderate to Severe		OR	p	Anxiety Low		OR	p
	n	%			n	%		
Gender								
Female	28	4.6	2.09	0.063	207	34.2	1.76	0.003
Male	5	2.5			47	23.5		
Age								
≤40 years	27	4.4	1.48	0.288	207	33.8	1.63	0.010
>41 years	6	3.1			47	24.4		
Education								
≤Bachelor	10	3.4	0.87	0.656	87	30.0	0.88	0.425
>Bachelor	23	4.5			167	32.4		
House Ownership								
Contract/rent	26	5.3	3.38	0.001	7	2.2	1.33	0.073
Owned	7	2.2			91	28.5		
Living Area								
Java Island	16	4.6	1.24	0.464	120	34.6	1.31	0.082
Outside of Java Island	17	3.7			134	29.2		
Zoning Status (Early Pandemic)								
Red-Orange	14	3.5	1.18	0.569	133	33.7	1.20	0.232
Yellow-Green	19	4.6			121	29.4		
Resilience								
No	14	8.3	4.97	<0.001	78	46.4	2.58	<0.001
Yes	19	3.0			176	27.6		

Table 3. Factors influencing depression of health workers in the early days of the COVID-19 pandemic

Variable	Depression Moderate to Severe		OR	p	Depression Low		OR	p
	n	%			n	%		
Gender								
Female	21	3.5	1.38	0.380	136	22.6	1.59	0.033
Male	6	3.0			31	15.6		
Age								
≤40 years	25	4.1	4.17	0.007	141	23.2	2.05	0.002
>41 years	2	1.0			26	13.3		
Education								
≤ Baccalaureate	10	3.5	1.10	0.757	51	17.7	0.74	0.106
>Bachelor	17	3.3			116	22.6		
House Ownership								
Contract/Rent	23	4.8	4.44	<0.001	115	23.8	1.68	0.006
Owned	4	1.3			52	16.4		
Living Area								
Java Island	21	6.1	2.63	0.002	74	21.5	1.15	0.436
Outside of Java Island	6	1.3			93	20.3		
Zoning Status (Early Pandemic)								
Red-Orange	21	5.3	2.46	0.005	87	22.0	1.22	0.263
Yellow-Green	6	1.5			80	19.7		
Resilience								
No	15	9.0	3.28	<0.001	59	35.3	3.03	<0.001
Yes	12	1.9			108	17.0		

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.15

3. Multivariate Analysis

Multivariate analysis is an analysis to find out the dependent variables are anxiety and depression, with the independent variables being gender, age, resilience, living area, and COVID-19 zoning.

Table 4. The effect of gender, age, area of residence, zoning status, and resilience on the anxiety of health workers in the early wave of COVID-19 pandemic

Variable	Moderate to Severe Anxiety				Low Anxiety			
	OR	95% CI		p	OR	95% CI		p
		Lower limit	Upper limit			Lower limit	Upper limit	
Gender								
Female	1.88	0.69	5.09	0.215	1.51	1.02	2.21	0.037
Male								
Age								
≤40 years	1.53	0.61	3.84	0.365	1.55	1.10	2.27	0.024
>41 years								
Living Area								
Java Island	2.52	0.94	6.76	0.067	1.31	0.86	1.99	0.218
Outside of Java Island								
Zoning Status								
Red-Orange	0.35	0.13	0.96	0.041	0.89	0.58	1.35	0.573
Yellow-Green								
Resilience								
No	4.51	2.14	9.52	0.005	2.53	1.75	3.65	0.005
Yes								

The results of the logistic regression on the dependent variable of anxiety showed that the most dominant variable influencing the anxiety of health workers in the early days of the COVID-19 pandemic was the resilience variable with values (OR= 4.51; 95%CI= 2.14 to 9.52; p<0.005), meaning that health workers who do not have resilience are at risk of experiencing moderate-to-severe anxiety 4.51 times compared to health workers who have resilience.

Table 5. The effect of age, area of residence, and resilience on the anxiety of health workers in the early days of the COVID-19 pandemic

Variable	Moderate to Severe Depression				Low Depression			
	OR	95% CI		p	OR	95% CI		p
		Lower limit	Upper limit			Lower limit	Upper limit	
Age								
≤40 years	5.02	1.15	22.00	0.032	2.10	1.32	3.34	0.002
>41 years								
Living area								
Java Island	5.53	2.05	13.48	0.001	1.15	0.80	1.64	0.453
Outside of Java Island								
Resilience								
No	7.83	3.47	17.67	0.005	3.09	2.09	4.58	0.005
Yes								

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.15

The results of the logistic regression on the dependent variable of depression showed that the most dominant variable affecting depression in health workers in the early days of the COVID-19 pandemic was the resilience variable with values (OR= 7.83; 95%CI= 3.47 to 17.67; p< 0.005), meaning that health workers who do not have resilience are at risk of experiencing moderate to severe anxiety 7.83 times compared to resilient health workers.

DISCUSSION

The main finding of this analysis was that health workers without (low) resilience had a high risk of experiencing moderate to severe anxiety (OR=4.51; 95% CI= 2.32 to 9.52) and moderate to severe depression (OR= 7.83; CI95). %=3.47 to 17.67). Meanwhile, other findings are the large proportion of moderate to severe anxiety in health workers (6.1%; 95% CI = 4.40 to 7.70) and depression (5.8%; 95% CI = 4.20 to 7.40) at the beginning of the COVID-19 pandemic in Indonesia. If we compare surveys at the beginning of the pandemic in Peru using the same instruments, the results are not much different. The proportion of anxiety is moderate (5.7%), severe (2.9%), moderate depression (6.9%), weight (0.6%) (Huarcaya-Victoria et al., 2020).

The proportion of moderate to severe anxiety and depression is lower than that in India, where anxiety is 17.7%, and depression is 11.4%, using the same online methods and measurement instruments as this study (Wilson et al., 2020). This study in India was conducted when the country was in a critical period (first peak), in which the health workforce was very overwhelmed at that time. This can make the proportion of Anxiety and Depression bigger. At the same time, our study is still at the pandemic's beginning. The difference in survey timing and case-level waves allows slightly different results.

Health workers involved in handling COVID-19 sufferers are, of course, the group most at risk of contracting it. Fear of catching the disease, transmitting it to family, having to stay at work (not going home), thinking about how to be treated/isolated when infected, and imagining the response of the surrounding community, making energy These health professionals are at risk for mental disorders (Fuchs et al., 2020). Especially medical personnel, coupled with the "moral injuries" they face when treating COVID-19 patients, decide which COVID-19 patients should receive the limited number of life-saving therapies at the expense of other dying patients (Greenberg et al., 2020).

Positive adaptation to survive adversity is a form of resilience in thoughts, behaviors, and actions (Fuchs et al., 2020). Resilience is built from a person's awareness of his existence, optimism in life, and the belief that problems can be solved (Giddie et al., 2017). One of the characteristics of a resilient person is to have optimism and internal control in the face of adverse events (Gheshlagh et al., 2017). Resilience is also related to coherence, namely seeing the meaning of life so that it can adapt to adversity (Fuchs et al., 2020). A person's resilience in dealing with problems is also bridged

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.15

by other protective factors, self-efficacy, social support, work, higher education, self-esteem, positive social orientation, asking for help, stress management, locus of control, coping, and older age. Protective factors play an essential role in building resilience (Gheshlagh et al., 2017).

People with a strong sense of self-efficacy dare to overcome adversity. Management needs to pay attention to increasing self-confidence in dealing with stress-reducing anxiety (Gheshlagh et al., 2017). Anxiety, emotional exhaustion, depression in health workers can be "burnout" psychological symptoms. In addition to signs of suspicion, irritability, helplessness, easy crying, decreased self-esteem and self-confidence, difficulty concentrating, and apathy towards patients (Kisa, 2020).

At the beginning of the pandemic, health workers were a group that experienced a heavy burden because they were faced with uncertainty, exacerbated by high patient mortality and the unknown mode of transmission. Meanwhile, health workers are at the forefront of patient care. They work 24 hours, facing the demands of leaders, superiors, and patients' families. Health workers are prone to experiencing physical and emotional exhaustion, including burnout, worry, anxiety, depression which can affect their performance. In addition to their workload, they are also faced with the family's burden, the lack of financial support while the family's needs must be met. Also, they are a high-risk group for infection. However, they fulfill their responsibilities as health workers. The research analysis results conducted at the beginning of the pandemic show that health workers with resilience are more or less at risk of experiencing severe depression. These results imply the importance of the resilience capabilities of health workers.

The red-orange zone was identified as a protective factor against the incidence of anxiety and depression, which means that health workers in the red and orange zones have better resilience than health workers in the yellow-green zone. Based on these results, factors contributing to or supporting better resilience among health workers in the red-orange zone can be identified. Meanwhile, the higher risk of health workers experiencing anxiety depression can be an alarm for regional leaders, hospitals, and other health care facilities to explore the factors that cause low resilience among health workers in Java. It is necessary to identify factors contributing to the quiet resilience of health workers in Java while studying the better resilience of health workers outside Java. The boom in Covid-19 patients/cases can be one contributor that weakens the resilience of health workers in Java.

As a preventive measure, it is essential for management to disseminate the risks that health workers will face. All health workers must be prepared for what they encounter during the COVID-19 pandemic. It is necessary to properly prepare staff for the work and challenges to reducing the risk of mental health problems (Greenberg et al., 2020). Furthermore, it is essential as an initial step to identify/detect the

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.15

mental health condition of health workers and their causal factors. Provide a forum for healthcare staff from all backgrounds to safely discuss the emotional and social challenges of caring for patients. Discussions should be led by the team leader and can be conducted remotely if needed. The team leader should reach out to staff who are "too busy" or repeatedly "unavailable" to attend these discussions. Most people find that support from colleagues and direct line managers protects their mental health. Staff members who constantly avoid meetings or become overly stressed may need sensitive discussion and help from experienced people such as their team leader trained peer support. If the stress they feel is severe or persistent, they should be actively supported or, in more severe cases, referred to a mental health support professional (Greenberg et al., 2020).

Protective factors that can be built are from the individual side and the management of the work environment. The health workers themselves pay attention to building the meaning of life, believing that there are opportunities to learn and grow from life experiences, both positive and negative. In addition, self-care must always be maintained, such as physical activity (Heath and Sommer, 2020). Studies have shown physical activity to have a good effect on reducing fatigue levels in doctors. Adequate sleep duration is essential in preventing fatigue and increasing self-restraint. Disruption of the circadian rhythm causes short- and long-term consequences, including disturbed sleep and daytime sleepiness, decreased logical reasoning, and reduced alertness.

From the environmental side, social support can be built. Evidence shows that physicians with strong, personally, and professionally meaningful relationships are happier and lower burnout risk. Cultivating meaningful relationships and solid social networks is important; However, these are interdependent on organizational factors that facilitate work-life balance and professional connectedness. The opening of a regular weekly reflection forum (e.g., 1 hour per week) to share concerns share experiences of success in professionalism can help find joy amid work pressure and reinforce goals to be achieved (Heath and Sommer, 2020).

Leaders must not forget to manage expectations clearly and compasssionately, clarify working hours, and provide adequate resources, including fair distribution of effective personal protective equipment. Leaders must pay attention to work schedules that can maintain physical endurance by allowing good sleep and providing access to rest areas for doctors in hospitals who work long hours or multiple shifts (Heath and Sommer, 2020).

The units of analysis in this study are those who claim to work in existing health care facilities, such as public health centers, clinics, and hospitals. The survey was designed specifically for health workers and the general public, including those dealing with the COVID-19 pandemic in the first year of the pandemic. The unavailability of the profession among health workers related to the workload in

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.15

providing services to COVID-19 patients is a limitation in this study.

The concept of resilience in this study is only based on the respondent's acknowledgment of 2 questions that describe whether they are confident and optimistic in facing the beginning of this COVID19 pandemic. This resilience question is not a standard instrument such as Anxiety and Depression, so it is possible that it cannot be compared between studies that have legal definitions.

Resilience and respondent characteristics have a role in anxiety and depression in health workers. There is a pattern where the lower resilience is in line with the more severe depression or anxiety in health workers. It is important to develop resilience in health workers, especially during a pandemic or crisis. Furthermore, management plays a vital role in monitoring the mental health condition of health workers and facilitating the fostering of worker resilience.

ABBREVIATIONS

HCWs: Healthcare Works; COVID-19: Corona Virus Disease 2019; GAD: General Anxiety Disorder; PHQ: Patient Health Questionnaire; OR: Odds ratio; NIHRD: National Institute of Health Research and Development.

ACKNOWLEDGMENTS

The authors thank the Director General of the National Institute of Health Research and Development (NIHRD) for facilitating access to the data. A gratitude thanks are also for the data management team for providing the data set.

AUTHORS CONTRIBUTIONS

LI designed the proposal and drafted the manuscript. RM ran and analyzed the data. SI analyzed the data. All authors have read and approved the manuscript.

FUNDING AND SPONSORSHIP

This study used the national survey data funded by the Indonesian government.

CONFLICT OF INTEREST

The authors declare no competing interests.

REFERENCES

Ariawan I (2008). Data Analysis Category. draft 0.90. Depok, Jawa Barat.

Army AP (2013). Indonesian Wikipedia, the free encyclopedia. Available at: http://id.wikipedia.org-/wiki/Riset.

Fuchs A, Abegglen S, Berger-Estilita J, Greif R, Eigenmann H (2020). Distress and resilience of healthcare professionals during the COVID-19 pandemic (DARVID): Study protocol for a mixed-methods research project. BMJ Open. 10(7): 1-7. doi: 10.1136/-bmjopen-2020-039832.

Gheshlagh RG, Sayehmiri K, Ebadi A, Dalvandi A (2017). The Relationship Between Mental Health and Resilience : A Systematic Review and Meta-Analysis. Iran Red Crescent Med J. 19(6): 8. https:-//doi.org/10.5812/ircmj.13537.

Giddie L, Gogdonoff D, Peddle N (2017). A Mixed-Method Study of Aid Workers in Sierra Leone

during the 2014-2015 Ebola Epidemic : Exploring Psychological Distress, Trauma, Resilience, and Coping. A Dissertation Submitted to the Faculty of The Chicago School of Professional Psychology In Par.

Gorbalenya AE, Baker SC, Baric RS, Groot RJD, Gulyaeva CA, Haagmans BL, Lauber C, et al. (2020). Severe acute respiratory syndrome-related coronavirus: The species and its viruses–a statement of the Coronavirus Study Group. bioRxiv. 1-15. https://-doi.org/10.1101/2020.02.07.937862.

Greenberg N, Docherty M, Gnanapragasam S, Wessel S (2020). Managing mental health challenges faced by healthcare workers during covid-19 pandemic. BMJ. 1211. 1-4. https://-doi.org/10.1136/bmj.m1211.

Heath C, Sommerfield A, von Ungern-Sternberg BS (2020). Resilience strategies to manage psychological distress among healthcare workers during the COVID-19 pandemic : a narrative review. Anaesthesia. 75(10):1364-1371. https://doi.org/10.1111/anae.15180.

Huarcaya-Victoria J, Elera-Fitzcarrald C, Crisol-Deza D, Villanueva-Zúñiga L, Pacherres A, Torres A, Huertas G, et al. (2020). Factors associated with distress among medical staff of a general hospital during the initial phase of the COVID-19 pandemic in Peru. Rev Colomb Psiquiatr (Engl Ed). S0034-7450(21)001-08-6. https://doi.org/10.1016/j-.rcp.2021.06.002.

ILO (no date) International Standard Industrial Classification of All Economic Activities (ISIC), ILO. Available at: https://ilostat.ilo.-org/resources/concepts-and-definitions/classification-economic-activities/.

Ihsanuddin KE (2020). Complete Facts of the First Case of Corona Virus in Indonesia. Kompas.-com. Retrieved from: https://-nasional.kompas.com

Kisa S (2020). Burnout among physicians and nurses during COVID-19 pandemic burnout among physicians and nurses during COVID-19 pandemic. Eur J Public Health. 4(2): em0055. https-://doi.org/10.29333/ejeph/8447.

Kroenke K, Spitzer RL, Williams JBW (2001). The PHQ-9: Validity of a brief depression severity measure. J Gen Intern Med. 16(9): 606-613. https://doi.org/-10.1046/j.1525-1497.2001.016-009606.x.

Liu X, Kakade M, Fuller CJ, Fan B, Fang Y, Kong J, Guan Z, et al. (2012). Depression after exposure to stressful events: Lessons learned from the severe acute respiratory syndrome epidemic. Compr Psychiatry. 53(1): 15-23. doi: 10.1016/j.comppsych.2011.-02.003.

Lung FW, Lu YC, Chang YY, Shu BC (2009). Mental symptoms in different health professionals during the SARS attack: A Follow-up study. Psychiatric Q.

80(2): 107-116. doi: 10.1007/s11126-009-9095-5.

Mubasyiroh R (2020). Impact of the COVID-19 pandemic on health Sub-Sector of Non-Communicable Diseases and Mental Health Research and Development Center for Public Health Efforts Health Research and Development Agency Ministry of Health Republic of Indonesia Year 2020. Accessed from https://apps.who.int/iris/bitstream/handle/10665/254716/9789290225164-eng.pdf.

Wu P, Fang Y, Guan Z, Fan B, Kong J, Yao Z, Liu X, et al. (2009). The Psychological Impact of the SARS Epidemic on Hospital Employees in China: Exposure, Risk Perception, and Altruistic Acceptance of Risk. Can J Psychiatry. 54(5): 302-311. doi: 10.1177/070674370905400504.

Digital Center for Health Workers (2021). Indonesian Health Workers Death Statistics, Covid-19 Report. Retrieved from: https://nakes.laporcovid19.org/statistik (Accessed: 3 September 2021)

Satgas COVID-19 (2021). COVID-19 Risk Map, Committee on COVID-19 Handling and National Economic Recovery. Available at: https://covid19.go.id/peta-risiko (Accessed: 2 September 2021).

Spitzer RL, Kroenke K, Williams JB, Lowe B (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. Arch Intern Med. 166(10): 1092–1097. doi: 10.1001/archinte.166.10.1092.

Tim Kompas (2021). A Million Cases of Covid-19 in Indonesia, Are We Not Disturbed?. Kompas.com. Retrieved from: https://jeo.kompas.com/sejuta-kasus-covid-19-di-indonesia-tidakkah-kita-terusik.

WHO (2020). WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020, WHO international. Retrieved from: https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19-11-march-2020.

WHO (2021). Globally, as of 2:48pm CET, 23 February 2021, there have been 111,419,939 confirmed cases of COVID-19, including 2,470,772 deaths, reported to WHO, WHO Health Emergency Dashboard. Retrieved from: https://covid19.who.int/

Wilson W, Raj JP, Rao S, Ghiya M, Nedungalaparambil NM, Mundra H, Mathew R (2020). Prevalence and Predictors of Stress, anxiety, and Depression among Healthcare Workers Managing COVID-19 Pandemic in India: A Nationwide Observational Study. Indian J Psychol Med. 42(4): 353-358. doi: 10.1177/0253717620933992.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.15

UNDER-REPORTED TUBERCULOSIS CASES AND RELATED FACTORS AT THE HOSPITAL LEVEL IN KUDUS, CENTRAL JAVA

Rusnoto[1)], Bhisma Murti[1)], Reviono[1)], Vitri Widyaningsih[1)], Eti Poncorini Pamungkasari[1)], Harsini[1)], Agus Kristiyanto[1)], Chatarina Umbul Wahyuni[2)], Ahmad Nur Syafiq[3)]

[1)]Universitas Sebelas Maret, Surakarta, Central Java, Indonesia
[2)]Universitas Airlangga, Surabaya, East Java, Indonesia
[3)]Universitas Muhammadiyah Kudus, Central Java, Indonesia

ABSTRACT

Background: Tuberculosis (TB) is an infectious disease of global concern. The number of TB cases in Indonesia has increased from year to year. One of the TB control problems stems from the inaccuracy in disease reporting. The previous studies have reported that there is still a large gap between the number of new cases reported and those that are not reported. This study aimed to determine the factors affecting the incidence of underreported tuberculosis cases at the hospital level in Kudus, Central Java.
Subjects and Method: This was a cross-sectional study conducted at hospital in Kudus in 2019. A sample of 700 TB cases was selected for this study. The dependent variable was unreported case. The independent variables were TB officer's competency, doctor in charge competency, and staff commitment. The data were collected from the Integrated Tuberculosis Information System (ITIS) and the medical record. The data were analyzed using logistic regression.
Results: The incidence of underreported cases increased with lack of TB officer's competency (OR= 19.90; p= 0.001), lack of doctor in charge competency (OR= 10.48; p= 0.001), and low staff commitment (OR= 7.88; p= 0.001).
Conclusion: The incidence of underreported cases increases with lack of TB officer's competency, lack of doctor in charge competency, and low staff commitment.

Keywords: underreported tuberculosis case, competency, commitment, healthcare officer

Correspondence:
Rusnoto. Universitas Sebelas Maret Surakarta. Jalan Ir. Sutami 36 Kentingan, Jebres, Surakarta 57126, Central Java, Indonesia. Email: rusnoto@student.uns.ac.id. Mobile: 081225057052.

BACKGROUND

Tuberculosis (TB) is still a public health problem in the world, although prevention efforts have been carried out in many countries for the past few years. Deaths from tuberculosis are estimated at 1.4 million deaths and 0.4 million deaths from tuberculosis in people with HIV. The number of TB cases in Indonesia in 2019 was 845,000 people, this number increased from the previous year in 2018 of 843,000 people. This places Indonesia as one of the countries that contributes 60% of all TB cases in the world (WHO, 2008).

The increasing burden of TB problems is caused by various factors. One of the factors that causes an increase in the burden of TB problems is the failure of the TB program. The failure of the TB program is caused by the inadequacy of TB service organi-

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.16

zations which include the inaccessibility of the community, non-standard case finding/diagnosis, drugs that are not guaranteed to be provided, monitoring, recording and reporting that are not standardized (Zhou et al., 2019).

Every year there is an increase in TB cases, one of which is because there is still a large gap between the number of new cases reported and those that are not reported. This gap is due to a combination of unreported and undiagnosed TB cases. The main reason for the gap between reporting and estimated cases is the reporting of TB cases that are detected but not reported, this is because there is no policy regarding the obligation to report TB patients to hospitals or other health services. In addition to unreported cases, underdiagnosis also adds to the reporting gap. Underdiagnosis can occur due to geographical factors, economic factors for health services, delays in treatment and failure of inaccurate diagnostic tests (WHO, 2015).

Notification or recording and reporting of TB cases must be carried out by advanced referral health facilities (FKRTL) such as Hospitals, BP4, Health Centers, and Main Clinics, in accordance with Minister of Health Regulation Number 67 of 2016 concerning Tuberculosis Prevention. In the explanation of this regulation, it is stated that violation of this obligation can result in administrative sanctions up to the revocation of the operating license of the health facility concerned in accordance with the provisions of the legislation. The notification system must be carried out manually or through an electronic system in accordance with the procedures and systems determined by the TB control program (Dabaro, 2017)

TB recording and reporting using SITT is carried out in stages, starting from first-level health facilities (FKTP) and advanced referral health facilities, district/city health offices, provincial health offices, to the ministry of health. The success of this system must be supported by the presence of competent TB officers, competent doctors in charge, staff commitment, hospital commitment and infrastructure, so that the level of validity of recording and reporting can meet standards as an effort to control TB (Cruz et al., 2017).

Information obtained from all hospitals in Kudus Regency in 2019 there were 700 TB cases. From these data there are reported and unreported cases. This is due to the lack of competent TB officers, doctors in charge who are incompetent in treating TB patients, lack of commitment from officers and hospitals and facilities and infrastructure that are not up to standard.

The purpose of this study was to determine the cause of under-reporting in Kudus Hospital, Central Java Province, Indonesia. This study only examines hospital system variables that cause underreporting of TB cases.

SUBJECTS AND METHOD

1. Study Design

This research is an analytic observational study with a cross sectional approach.

2. Population and Sample

The population in this study were all

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.16

TB case reporting data using SITT and medical records at the Kudus District Hospital. The sampling technique was carried out using a total sampling covering 700 cases. The data includes outpatient and inpatient records, TB cases detected but not reported in the Integrated Tuberculosis Information System (ITIS) are considered as unreported data.

3. Variable

The dependent variable is the unreported case. The independent variables are the competence of TB officers, the competence of the doctor in charge, and the commitment of the officers.

4. Operational Definition of Variable

Under-reporting TB cases are patients diagnosed according to hospital standards but not reported to the Hospital's Integrated TB Information System (ITIS) in Kudus health office. Measuring tools: Check the list of TB patient status. Scale: Categorical.

Competency Doctor is a doctor who diagnoses TB and attends nationally certified ITIS training or. Measuring tools: check the list of IT IS certificate ownership lists. Scale: Categorical.

Competency of health personnel are competent or less competent personnel in handling and reporting cases of tuberculosis and have a ITIS certificate. Measuring tools: check list of competencies. Scale: Categorical.

Commitment of Health Workers is the commitment of personnel including nurses, TB officers, laboratory workers in reporting TB cases. Measuring tools: Check the list of health workers commitments. Scale: Categorical.

1. Instrument

Data were collected from the Integrated Tuberculosis Information System (ITIS) and medical records.

2. Data Analysis

Data analysis using logistic regression model.

3. Research Ethics

This research has been approved by the Health Research Ethics Commission of Sebelas Maret University with the number 039 /UN27.06.6.1/-KEPK/EC/2020.

RESULTS

Based on the table above, it can be said that from 700 TB cases diagnosed January-December 2019 in seven hospitals, there were 352 TB cases (50.3%) not reported at ITIS.

Table 1. Distribution of reported and unreported cases based on medical records and Hospital SITT in Kudus Regency

Hospital	TB Case			
	Reported		Not Reported	
	N	%	N	%
Loekmono Hadi	85	53	76	47
Mardi Rahayu	84	46	97	54
Sunan Kudus	57	49	60	51
Aisyiyah	50	40	74	60
Kartika	45	73	17	27
Nurussyifa	16	52	15	48
Kumalasiwi	11	45	13	55
Total	348	49.7	352	50.3

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.16

Table 2. System for recording and reporting TB cases in Kudus Hospital

Variable	Category	TB Case Recording and Reporting System				OR	p
		Reported		Not reported			
		N	%	N	%		
TB officer	Competent	295	87	44	13	9.12	0.001
	Incompetent	55	15	306	85		
Doctor in charge	Competent	248	82	63	18	8.50	0.001
	Incompetent	66	19	287	81		
Officer commitment	Yes	267	72	102	28	7.23	0.001
	No	83	25	248	75		
Hospital Commitment	Yes	250	51	238	49	2.07	0.775
	No	100	47	112	53		
Infrastructure	Complete	168	49	174	51	3.02	0.069
	Incomplete	182	51	176	49		
Network space	Good	181	49	185	51	1.03	0.478
	Poor	169	51	165	49		

From the results of the bivariate analysis, it was found that there was a relationship between TB officers (p = 0.001), Doctor in Charge (p= 0.01) and Officer Commitment (p= 0.001) with the system for recording and reporting TB cases in hospitals in Kudus Regency. Meanwhile, the commitment of the hospital, infrastructure and network space has no relationship with the system for recording and reporting TB cases in hospitals. The results of the multivariate analysis of the three factors related to the system of recording and cleaning TB cases in hospitals caused under-reporting, namely TB officers (OR = 19.90), doctor in charge (OR = 10.24) and commitment of officers (OR = 7.88).

Table 3. Multivariate Analysis

Variables	OR	95% CI		p
		Lower limit	Upper limit	
TB officer	19.90	0.05	0.17	0.001
Doctor in charge	10.48	0.02	0.09	0.001
Officer commitment	7.88	0.07	0.24	0.001
N observation= 700				
-2 log likelihood= -152.87				

The results of the multilevel regression analysis stated that there was an influence of the competence of TB officers, doctors in charge and commitment of officers to the incidence of unreported cases. TB patients whose information was recorded by health workers with good competence were less likely to be unreported than those recorded by health workers with less competence (OR=0.05; 95% CI= 0.02 to 0.09; p<0.001). TB patients who were examined by doctors with good competence were less likely to go unreported than were examined by doctors with less competence (OR=

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.16

0.09; 95% CI= 0.05 to 0.17; p<0.001), and TB patients who were served by health workers with a strong commitment were less likely to be underreported than served by health workers with weak commitment (OR=0.13; 95% CI= 0.07 to 0.24; p<0.001).

DISCUSSION

The results of this study stated that 50.3% of TB cases were not reported from the standard registration system of the Kudus District Hospital. The results of this study are in line with the results of the Patient Path Analysis Study in 2017 which stated that not all TB cases treated were recorded in the standard recording system, especially from private health care facilities and private hospital or clinics (Mekonnen et al., 2015).

There are 3 factors related to the system of recording and reporting TB cases at the Kudus District Hospital based on bivariate analysis, including the TB officer factor (p= 0.001), the doctor in charge (p= 0.001) and the commitment of the officer (p = 0.001). The implementation of recording and reporting TB patients at the Kudus District Hospital has been going well, but there are still shortcomings. This can be seen from the results of the bivariate analysis which showed that TB officers had a relationship with the incidence of underreporting of TB cases in Kudus Regency. Incompetent TB officers are a strong cause of unreported TB cases. TB officers enter data into the system only following the instructions contained in the ITIS application. The ITIS handbook is not yet available at the Hospital but is available at the Kudus District Health Office. Only a few TB staff at Kudus general hospital have attended ITIS training. To reduce the number of under-reported TB cases, it is necessary to have ITIS system training for all TB officers and the ITIS manual as a guideline for officers who run the ITIS system.

There are 3 factors related to the system of recording and reporting TB cases at the Kudus District Hospital based on bivariate analysis, including the TB officer factor (p = 0.001), the doctor in charge (p = 0.001) and the commitment of the officer (p = 0.001). The implementation of recording and reporting TB patients at the Kudus District Hospital has been going well, but there are still shortcomings. This can be seen from the results of the bivariate analysis which showed that TB officers had a relationship with the incidence of underreporting of TB cases in Kudus Regency. Incompetent TB officers are a strong cause of unreported TB cases. TB officers enter data into the system only following the instructions contained in the ITIS application. The ITIS handbook is not yet available at the Hospital but is available at the Kudus District Health Office. Only a few TB staff at Kudus general hospital have attended ITIS training. To reduce the number of under-reported TB cases, it is necessary to have ITIS system training for all TB officers and the ITIS manual as a guide for officers who run the ITIS system.

According to Rahmi et al. (2017), human resources (HR) have a considerable influence in the development

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.16

of information systems in an organization. The official stated that the dissemination of the use of ITIS carried out by the health department usually only invited one officer so that there was only one person who knew about using ITIS. Socialization can be done by inviting more officers so that more officers are aware of the use of ITIS. Thus the data input work can be done by more than one person so that the data input work into the ITIS will be completed more quickly (Rahmi et al., 2017).

Anggraeni (2010) stated that the availability of a manual for the use of MCH SIM can improve the skills of officers in using MCH SIM. According to Fatimah (2008), the SIK operation manual provided by the Purbalingga District Health Office can be used to assist officers in studying the operation of the SIK (Fatimah, 2008).

In addition to TB officers, the doctor in charge also had a relationship with the factor of underreporting TB cases at the Kudus Hospital (p = 0.001). The doctor in charge must have competence in accordance with his field of expertise in terms of lung disease. In addition, the doctor in charge also evaluates the results of microscopic examinations from hospital laboratories. The reality is that not all doctors in charge of TB cases at the Kudus Hospital are competent in their fields, resulting in underdiagnosis. This shows the ineffectiveness of TB case finding. The health office needs to evaluate the recording and reporting so that it can be used as a basis for planning activities for the following year. This will strengthen the data on TB cases that are not reported at the Kudus Hospital.

In line with the Awusi et al. (2009) stated that screening activities for TB suspects to the community is considered not cost-effective, therefore passive case finding is carried out with active promotion, so that screening is only carried out when necessary such as investigations of home contacts, investigations of special groups such as dormitories and correctional institutions (Noveyani, 2009). and Martini, 2014).

Officer commitment was also a factor associated with under-reporting (p= 0.001). To reduce TB cases, there needs to be a strong commitment from staff and management team staff in a hospital. Evaluation is needed through supervision activities from both hospital management and from the department to examine the seriousness or commitment of the TB staff team. At the Kudus Hospital, some of the TB team doubled as nurses in another room, so that the TB patient data recording was incomplete, because the record officer doubled as a nurse in another room. In addition to the task of taking notes, the officer is also responsible for taking the need for microscopic examination in the laboratory. This causes the commitment of officers to be weak. These results are in line with the results of research from Chin and Hanson (2017) that recording and reporting are not optimal because recording officers have dual duties, thereby reducing the commitment of officers.

According to Uplekar et al. (2016), the components needed in the

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.16

implementation of mandatory notification of TB cases are policies and regulations, reporting systems and mechanisms, orientation of health service providers, monitoring and evaluation, and feedback. A comprehensive and consistent understanding between policy makers and implementers, regarding mandatory notification and its practical components will accelerate implementation among private practitioners. The five practical components are policies and regulations, reporting systems and mechanisms, service provider orientation, feedback, and monitoring and evaluation (Tollefson et al., 2016).

Based on the results of multivariate analysis of the three factors that have a relationship with the occurrence of under-reporting, the TB officer factor has the greatest relationship strength with an OR value of 19.9. In this study, it was found that TB officers felt involved in the medical management of TB, but most did not report due to ignorance or lack of socialization of the system and mechanism for the mandatory TB notification policy. Appropriate approaches such as communication and initial approaches are needed to bind private practitioners when the system is just starting, periodic socialization, informal socialization or a specific approach, or which includes all private practitioners by involving the licensing physician practice system or other stakeholders, such as professional organizations.

AUTHOR CONTRIBUTION

The first researcher (Rusnoto) is responsible for the entire research, starting from determining the research topic, collecting data, interpreting the data and writing research articles. Furthermore, the second, third, fourth, fifth and sixth researchers are responsible for guiding and directing this research from start to finish. The sixth and seventh researchers are responsible for providing an assessment of the research results and the eighth researcher is responsible for proofreading research articles.

ACKNOWLEDGEMENT

The researcher expresses his deepest gratitude to all dissertation promotors, supervisory lecturers, and head of the Doctoral Program of Public Health, Universitas Sebelas Maret, who have guided and directed the completion of this research.

FUNDING AND SPONSORSHIP

Penelitian ini adalah penelitian mandiri yang tidak didanai atau disponsori oleh pihak manapun

CONFLICT OF INTEREST

We declare that there was no conflict of interest.

REFERENCES

Chin DP, Hanson CL (2017). Finding the missing tuberculosis patients. J Infect Dis. 216 (7): S675-S678. doi: 10.1093/infdis/jix368.

Cruz SG, Aldea-Mansilla C, Sordo VDV (2017). Under-reporting of tuberculosis disease. Med Clin (Barc). 149(3):131. doi: 10.1016/-j.medcli.2017.03.044.

Dabaro D (2017). Factors affecting

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.16

tuberculosis case detection in Kersa District, South West Ethiopia. J Clin Tuberc Other Mycobact Dis. 9. 1-4. doi: 10.1016/j.jctube.2017.08.003.

Fatimah S (2008). Faktor kesehatan lingkungan rumah yang berhubungan dengan kejadian TB paru di Kabupaten Cilacap (Kecamatan: Sidareja, Cipari, Kedungreja, Patimuan, Gandrungmangu, Bantarsari) Tahun 2008 (Home environmental health factors related to the incidence of pulmonary TB in Cilacap Regency (Sub-districts: Sidareja, Cipari, Kedungreja, Patimuan, Gandrungmangu, Bantarsari) 2008). Jurnal Kesehatan UNDIP.

Mekonnen F, Tessema B, Moges F, Gelaw A, Esthetie S, Kumera G (2015). Multidrug resistant tuberculosis: prevalence and risk factors in districts of metema and west armachiho, Northwest Ethiopia. BMC Infect Dis. 15: 461. doi: 10.1186/s12879-015-1202-7.

Noveyani AE, Martini S (2014). Evaluasi Program Pengendalian Tuberkulosis Paru Dengan Strategi DOTS Di Puskesmas Tanah Kalikedinding Surabaya (Evaluation of Pulmonary Tuberculosis Control Program with DOTS Strategy at Tanah Kalikewall Health Center Surabaya). Jurnal Berkala Epidemiologi. 2(2): 251–262. Retrieved from: https://e-journal.unair.ac.id/JBE/article-/view/180/50.

Rahmi N, Medison I, Suryadi I (2017). Hubungan Tingkat Kepatuhan Penderita Tuberkulosis Paru dengan Perilaku Kesehatan, Efek Samping OAT dan Peran PMO pada Pengobatan Fase Intensif di Puskesmas Seberang Padang September 2012 - Januari 2013 (The Relationship between the Compliance Level of Pulmonary Tuberculosis Patients with Health Behavior, Side Effects of OAT and the Role of PMO in the Intensive Phase of Treatment at the Seberang Padang Health Center September 2012 – January 2013). Jurnal Kesehatan Andalas. 6(2): 345. doi: 10.25077-/jka.v6i2.702.

Tollefson D, Ngari F, Mwakala M, Gethi D, Kupruto H, Cain K, Bloss E (2016). Di bawah pelaporan kasus TB BTA-positif di Kenya (Under reporting of smear-positive TB cases in Kenya). Int J Tuberc Lung Dis. 20(10): 1334-1341. doi: 10.5588/IJTLD.16.0156.

WHO (2008). Implementing the End TB Strategy: The Essentials. Retrieved from: https://www.-who.int/tb/publications/2015/end_tb_essential.pdf.

WHO (2015). Global tuberculosis report 2015. Retrieved from: https://apps.who.int/iris/handle/10665/191102.

Zhou D, Pender M, Jiang W, Mao W, Tang S (2019). Under-reporting of TB cases and associated factors: a case study in China. BMC Public Health. 19(1): 1-9. doi: 10.1186/s12889-019-8009-1.

ENVIRONMENTAL SANITATION AND ITS CORRELATION WITH INTESTINAL WORM INFECTION IN ELEMENTARY SCHOOL STUDENTS IN WEST AMANUBAN DISTRICT, EAST NUSA TENGGARA, INDONESIA

Wanti Wanti, Rafael Paun, Irfan Irfan, Kusmiyati Kusmiyati, Jefrin Sambara, Sisilia Leny Cahyani, Indhira Shagti, Yosephina Gunawan

Health Polytechnics, Ministry of Health Kupang, East Nusa Tenggara, Indonesia

ABSTRACT

Background: Intestinal parasitic infections are still major public health problems. ntestinal parasitic infections, mainly Ascariasis, Trichiuriasis, and hookworm, are common clinical disorders in man, with resultant impairments in physical, intellectual, and cognitive development. The greater proportion of infections is associated with poor water, sanitation, and hygiene (WASH). This study aimed to examine the correlation between environmental sanitation and intestinal worm infection.
Subjects and Method: This was a cross-sectional study conducted at elementary school students in West Amanuban, East Nusa Tenggara, Indonesia. A sample of 160 elementary school students was selected by simple random sampling. The dependent variable was intestinal worm infection. The independent variables were poor latrine, type of latrine, poor drinking water sources, poor trash bins, poor sewerage, the presence of animals, and the presence of cages. The data were collected by questionnaire and analyzed by Chi square.
Results: The risk of intestinal worm infection in elementary school students increased with poor latrine (OR= 6.41; 95% CI= 2.49 to 16.53; p<0.001), type of latrine (OR= 23.93; 95% CI= 5.42 to 105.71; p<0.001), poor drinking water sources (OR= 3.94; 95%CI= 1.78 to 8.71; p=0.001), poor trash bins (OR= 8.53; 95% CI= 3.93 to 18.52; p<0.001), and poor sewerage (OR= 5.25; 95% CI= 2.42 to 11.42; p<0.001). The presence of animals(OR= 1.84; 95% CI= 0.58 to 5.80; p= 0.426) and the presence of cages (OR= 2.55; 95% CI= 0.91 to 7.09; p= 0.106) were not significantly associated with intestinal worm infection.
Conclusion: The risk of intestinal worm infection in elementary school students increases with poor latrine, type of latrine, poor drinking water sources, poor trash bins, and poor sewerage. The presence of animals and the presence of cages are not significantly associated with intestinal worm infection.

Keywords: intestinal worms, environmental sanitation, children

Corespondence:
Wanti Wanti. Health Polytechnics, Ministry of Health Kupang, East Nusa Tenggara, Indonesia. Jl. Piet A. Tallo, Kupang, East Nusa Tenggara, Indonesia. Email: trivena78-@yahoo.com. Mobile: 08113830302.

BACKGROUND

Until now, helminthiasis is still a health problem for developing countries, including in Indonesia. One of the causes of intestinal worms or intestinal worm infection is Soil Transmitted Helminth (STH), which is a type of intestinal nematode that requires soil media in its life cycle. Worms belonging to this STH include *Ascaris lumbricoides*, *Trichuris trichiura*, hookworms or hook worms

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.17

(*Ancylostoma duodenale* and *Necator americanus*) and *Strongyloides* (Supali et al., 2008). Soil transmitted helminths (STH) are a group of parasitic nematodes that cause infection in humans through contact with eggs or parasitic larvae that develop in soils with moist and warm conditions, especially in tropical and subtropical countries in the world (Bethony et al., 2006).).

Intestinal worms live in the intestinal cavity and their eggs come out with feces/feces so that they can infect other people who are contaminated with the eggs/larvae of the parasite. If a person is infected with intestinal worms, it is more likely that their feces contain worm eggs, and will mature in the soil, then re-infect humans. A person infected with STH in the early stages has no symptoms, but in severe infection it can cause more complex health problems such as abdominal pain, diarrhea, blood-protein loss, rectal prolapse, anemia and growth disorders (CDC, 2013; Putra- Wardhana, 2014; Wardhana, 2014) appropriate (humid and warm) can affect an area to become endemic for worms as well as factors for clean and healthy living behavior of the community. Endemicity is also influenced by the number of eggs that can live to become infective and enter the host. The more eggs found in the source of contamination (soil, dust, vegetables, etc.), the higher the endemicity in an area. Often in plantation and mining areas, hookworm infection is also common in the people who live around it. Hookworms in their transmission cycle require loose sandy soil, mixed with humus, and protected from direct sunlight.

The impact of this worm disease on children, among others, is that it can interfere with the child's ability to study and do activities at school properly. In moderate infections it can cause cognitive dysfunction and in adults it will decrease work productivity in the long term and reduce their income, and this will result in a decrease in the quality of human resources. Data on helminthiasis has not been found or researched until now, which is usually more commonly found in toddlers and school-age children. The process of spreading worms is transmitted through the soil which is often found in elementary school-aged children who are still playing with the soil. Soil contamination is the cause of the transmission of worm eggs from the soil and then into the mouth with food (Supali et al., 2008). The environment plays a very important role in determining the occurrence of intestinal worm infections, including the presence of latrines, types of latrines, the presence of livestock and cages, drinking water sources, type of house floor, floor conditions, trash cans and the presence of SPAL. For this reason, this study aims to determine the relationship between environmental factors and the incidence of intestinal worm infection in elementary school children.

SUBJECTS AND METHOD

1. Study Design

This research is a quantitative observational with a cross sectional study design. The research was conducted in

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.17

2021 at an elementary school in West Amanuban District, South Central Timor Regency.

2. Population and Sample

The research sample size is 160 elementary school children in West Amanuban District, South Central Timor Regency. The sampling technique used was simple random sampling at three elementary schools in West Amanuban District, South Central Timor Regency.

3. Operational Definition

Intestinal worm infection is a child's status based on the presence of worm eggs / larvae in the feces.

Availability of latrines is the presence or absence of latrines in the respondent's house. Type of latrine is the type of latrine used for defecation.

The type of floor is the flooring material in the respondent's house.

The condition of the floor is the condition of the cleanliness of the floor of the respondent's house. Trash cans are the availability of trash cans in the respondent's house.

Waste water disposal is the availability of waste water disposal facilities at the respondent's house.

Livestock is the presence of livestock in the respondent's house.

The cage is the presence of a cattle shed around the respondent's house.

4. Variable

The independent variables of this study were environmental sanitation (presence of latrines, types of latrines, presence of livestock and cages, source of drinking water, type of house floor, floor conditions, trash cans and presence of waste water disposal) and the dependent variable was the incidence of intestinal worm infection.

5. Instrument

Data was collected by collecting feces and examining feces in the laboratory. In addition, interviews and observations were also conducted to collect environmental sanitation data.

6. Data Analysis

Data were analyzed univariately to see the percentage of each variable and bivariate analysis using Chi-Square test to see the relationship between independent and dependent variables.

RESULTS

1. Sample Characteristics

The results of the research from the research subjects were 160 elementary school children in the West Amanuban District. The frequency distribution of the characteristics of the research subjects showed that most of the subjects were male as much as 58.1%, ownership of the latrine was as much as 85.6%, the type of goose neck latrine was 56.9%, had livestock 86.9%, owned drums for livestock was 20.0%, water sources were from local water company is 78.8%, ownership of trash cans is 70.0% and ownership of sewerage is 51.2%.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.17

Tabel 2. Sample Characterististics

Characteristics	Category	n	%
Gender	Male	98	58.1
	Female	62	41.9
Toilet	No	23	14.4
	Yes	137	85,6
Type of toilet	Trench latrine	69	43.1
	Pit latrine	68	56.9
Animal/pet	Yes	139	86.9
	No	21	13.1
Cage	No	128	80.0
	Yes	32	20.0
Source of water	River	34	21.3
	Local water company /well	126	78.8
Rubbish bin	No	48	30.0
	Yes	112	70.0
Waste water disposal	No	78	48.8
	Yes	82	51.2

Table 3 The Relationship between Environmental Conditions and Intestinal Worm Infections in Elementary School Children

Environment sanitation	Intestinal Worm Infection				OR	p
	Yes		No			
	N	%	N	%		
Toilet						
- No	15	65.2	8	34.8	1.77	0.000
- Yes	31	22.6	106	77.4		
Type of toilet						
- Trench latrine	29	42.0	40	58.0	1.02	0.000
- Pit latrine	2	2.9	66	97.1		
Animal/pet						
- Yes	42	30.2	97	69.8	6.60	0.292
- No	4	19.0	17	81.0		
Cage						
- No	41	32.0	87	68.0	4.00	0.067
- Yes	5	15.6	27	84.4		
Source of water						
- River	18	52.9	16	47.1	0.27	0.000
- Well	28	22.2	98	77.8		
Rubbish bin						
- No	29	60.4	19	39.6	0.43	0.000
- Yes	17	15.2	95	84.8		
Waste water disposal						
- No	35	44.9	43	55.1	1.00	0.000
- Yes	11	13.4	71	86.6		

The results of the bivariate analysis with the chi-square test contained in Table 2. show that the analysis of the relationship between latrine ownership and the incidence of intestinal worm infection with $p < 0.001$ and

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.17

OR= 1.77. Children who do not have latrines have a 1.77 times risk of infection with intestinal worms compared to children who have latrines. The relationship between the type of latrine used and the incidence of intestinal infection with p value = 0.000 and OR = 1.02. Children who use the latrine model have a 1.02 times risk of intestinal worm infection compared to children who use the goose neck model. The relationship between livestock ownership and the incidence of intestinal worm infection with p value = 0.292 and OR = 6.60. Children who own livestock have a 6.60 times risk of intestinal worm infection compared to children who do not own livestock.

The relationship between ownership of drums and the incidence of intestinal worm infection with p= 0.067 and OR= 4.00. Children who have bladders have a 4.00 times risk of intestinal worm infection compared to children who do not have drums. The relationship between water sources and the incidence of intestinal worm infection with p< 0.001 and OR= 0.27. Consuming river water is a protective factor against the incidence of intestinal worm infection in children. The relationship between the availability of waste disposal sites with the incidence of intestinal worm infection with p< 0.001 and OR= 0.43. The unavailability of waste disposal sites is a protective factor for intestinal worm infections in children. The relationship between ownership of sewerage and the incidence of intestinal worm infection with p< 0.001 and OR = 1.00. Children who do not have sewerage are not a risk factor for infection with intestinal worms.

DISCUSSION

Environmental factors are divided into three components, namely the physical environment such as geography and seasonal conditions, the biological environment, namely all living things around us that can transmit disease, and the socio-economic environment can be in the form of work, economic development, and others that can have an influence on the environment. behavior in society (Notoatmodjo, 2010).

Environmental factors that influence the infection of Soil Transmitted Helminths are physical and socio-economic factors. Physical environmental factors such as climatic conditions, namely tropical and subtropical climates, humidity, altitude areas, house floor conditions, latrine ownership, and others. While the socio-economic environment factors can be in the form of work, education, and income.

Highlands or commonly referred to as mountainous areas geographically are plains located at an altitude of above 500 meters above sea level. An area can be classified as a plateau if the plain has a set of peaks of the same height that are separated by valleys.

Environmental characteristics that distinguish it from the lowlands are much higher air humidity, low oxygen pressure, low temperature, high solar radiation, high wind speed, low nutrition, and steep topography. In addition, the dominant characteristics that can be observed are soil conditions that are denser than low-

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.17

lying areas (Syahputra et al., 2015). With conditions of high air humidity and dense soil or clay conditions, it is very possible for this area to be an excellent habitat for the development of soil-transmitted helminths.

Lowlands are sloping areas and are located in low areas, which are less than 100 m above sea level. Lowlands generally have a relatively flat or slightly wavy shape. The characteristics of lowland areas are flat areas, areas where there are many residential areas, population activities consist of various types such as agriculture, fisheries, industry and commerce. Soil conditions in lowland areas are humus, sandy, and loose (Wardhana, 2014).

The results showed that there was a relationship between family latrine ownership and the incidence of intestinal worm infection and had a 1.77 times risk of developing intestinal worm infection in elementary school children and the type of latrine also affected intestinal worm infection. This study is different from the research of Olin et al. in Southwest Sumba, where latrines and types of latrines have no effect on helminthiasis in elementary school children, but this study is not much different from research (Fitri et al., 2012) in East Angkola District which showed that latrines had a significant effect on the incidence of helminth infections. The obtained p value = 0.000 and OR= 16.35, where houses with latrines that do not meet health requirements have 16.35 times the chance of being infected with worms compared to houses with latrines that meet health requirements. Feces have a very large role in the spread of disease. Besides being able to directly contaminate food and beverages, contamination can also occur indirectly through vector intermediaries (flies, cockroaches, etc.) and objects that have been contaminated.

The source of water used by families of elementary school children also affects the incidence of intestinal worm infections. This study is not different from research (Fitri et al., 2012) in Angkola Timur District which shows that the availability of clean water has a significant effect on the incidence of helminth infections with p< 0.001 and OR = 4.53, where houses with clean water do not meet the requirements. Health workers have 4.53 times the chance of being infected with worms compared to homes with clean water that meet health requirements. In addition to feces, unhealthy water also has a very large role in the transmission of diseases known as water borne diseases. As a result of unhealthy water can cause health problems such as cholera, diarrhea, dysentery, and other diseases including worms.

Garbage disposal sites and waste water disposal facilities affect the incidence of intestinal worm infections. Not having trash cans and waste water disposal facilities will provide breeding grounds for various germs including worm eggs and larvae, which are easily transferred by flies or cockroaches to the food eaten.

The results of this study indicate that there is a relationship between environmental sanitation and the incidence of intestinal worm infection in elementary school children, namely there is a relationship between the

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.17

incidence of intestinal worm infection with family latrine ownership and type of latrine, drinking water source, type of house floor, floor condition, availability of trash cans and wate water disposal. While the variable presence of animals/livestock and cages is not associated with intestinal worm infection.

It is recommended that program managers at the Health Service and Puskesmas need to carry out intensive health promotion to school children and the community about environmental sanitation and its management.

AUTHOR CONTRIBUTION

WW makes proposals, discusses and writes articles, RP makes proposals, data collection and data analysis, II makes methodologies, discussions, KK makes discussion and article writing, JS designs research methodologies, SLC does data analysis and article writing, IS does collection and analysis data and YG makes research administration.

FUNDING AND SPONSHORSIP

This research was carried out with funding from the Center for Health Personnel Education, Ministry of Health, RI.

ACKNOWLEDGEMENT

A big thank you to the Ministry of Health for funding support, and thanks also to Poltekkes Kemenkes Kupang for giving us the opportunity to conduct this research. Thank you also especially to the students and teachers in the West Amanuban District who have worked well together during this research.

CONFLICT INTEREST

There is no conflict of interest in this study.

REFERENCES

Bethony J, Brooker S, Albonico M. (2006). Soil Transmitted Helminth Infection: Ascaris, Trichusiasis and Hookworm, Lancet. 367(9521). doi: 10.1016/S0140-6736(06)68653-4.

CDC (2013). Centers for Disease Control and Prevention. Available at: https://www.cdc.gov/parasites/hookworm/biology.html.

Fitri J, Saam Z, Hamidy MY (2012). Analisis Faktor-Faktor Risiko Infeksi Kecacingan Murid Sekolah Dasar Di Kecamatan Angkola Timur Kabupaten Tapanuli Selatan Tahun 2012. Jurnal Ilmu Lingkungan (Analysis of Risk Factors for Worm Infections in Elementary School Students in Angkola Timur District, South Tapanuli Regency, 2012. Journal of Environmental Sciences). 6(2) 146–161.

Notoatmodjo S (2010). Metode Penelitian Kesehatan (Health Research Methods). Jakarta: Rineka Cipta.

Supali T, Margono S, ABidin S (2008). Buku Ajar Parasitologi Kedokteran (Textbook of Medical Parasitology). 4th edn. Jakarta: Balai Penerbit FKUI.

Syahputra E, Fauzi, Razali (2015). Karakteristik Sifat Kimia Sub Grup Tanah Ultisol di Beberapa Wila-

yah Sumatera Utara (Characteristics of Chemical Properties of Ultisol Soil Sub Groups in Several Regions of North Sumatra). Jurnal Agroekoteknologi4 4(1): 1796-1803. doi: 10.1016/j.ecolecon.2013.05.006.

Wardhana (2014). Identifikasi Telur Soil Transmitted Helminths pada Lalapan Kubis (Brassica oleracea) di Warung-Warung Universitas Lampung Sumatra. Universitas Lampung Sumatra. Available at: http://digilib.unila.ac.id/2388/1/CoverDalam.-pdf.

Wardhana, Putra K (2014). Centers for DIseases Control and Prevention. Lampung.

Paun R, Wilhelmus O, Zacharias T (2019). The Impact of Soil Transmintted Helmints (Sth) Towards Anemia Case In Elementary School Student In The District Of Northwest Sumba, 11(5): 117-122.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.17

QUALITY OF LIFE OF CHRONIC KIDNEY FAILURE PATIENTS UNDERGOING HEMODIALYSIS THERAPY IN OMNI HOSPITAL PULOMAS JAKARTA: SOCIAL AND PSYCHOLOGICAL PERSPECTIVE

Ulfah Nuraini Karim[1)], Zakiyah[1)], Meri Susana Berahmana[2)]

[1)]Study Program of Nursing, Faculty of Nursinf and Midwivery,
Universitas Binawan, Jakarta, Indonesia
[2)]Nurse of Omni Hospitals, Jakarta, Indonesia

ABSTRACT

Background: Quality of life is a condition where a person gets satisfaction or enjoyment in everyday life. Indicators of quality of life include the dimensions of physical health, dimensions of psychological well-being, dimensions of social relations, and dimensions of environmental health. The purpose of the study was to describe the quality of life in chronic kidney failure patients undergoing hemodialysis therapy from the social and psychological aspects at Omni Hospitals Pulomas Jakarta.
Subjects and Method: This study uses a descriptive study with a cross-sectional approach. The sample consisted of 30 respondents who were taken using purposive sampling method. Instrument using a quality-of-life questionnaire from WHOQOL-BREF. Data analysis used univariate and bivariate analysis with Chi-Square.
Results: The study on the quality of life based on social aspects were obtained: 22 respondents (73%) less, 7 respondents (23%) sufficient, and 1 respondent (3%) good; quality of life based on psychological aspects obtained: 27 respondents (90%) less, and 3 respondents (10%) enough. Quality of life seen from social and psychological aspects (OR= 5.70 : 99% CI= 1.07 to 10.95; p= 0.004).
Conclusion: there is a relationship between the quality of life of the social aspect and the quality of life of the psychological aspect of chronic kidney failure patients undergoing hemodialysis at OMNI Hospitals Pulomas Jakarta in 2020.

Keywords: quality of life, chronic kidney failure, hemodialysis, social, psychology.

Correspondence:
Ulfah Nuraini Karim. Study Program of Nursing, Faculty of Nursing and Midwifery, Binawan University, Jakarta, Indonesia. Email: ulfah@binawan.ac.id. Mobile: 081352508894.

BACKGROUND

The 2010 Global Burden of Disease stated that Chronic Kidney Disease (CKD) was the 27th leading cause of death in the world in 1990 and increased to 18th in 2010 (Infodatin, 2017). Based on the World Health Organization (WHO) in 2011 patients with CKD reached 50% and received treatment only 25% and 12.5% were treated well (Indrasari, 2015). According to Hill et al. (2016) the global prevalence of Chronic Kidney Disease (CKD) is 13.4% with 48% of whom have decreased kidney function and are not undergoing dialysis and as many as 96% of people with kidney damage or reduced kidney function are not aware that they have Chronic Kidney Disease (PGK).

The prevalence of CKD in Indonesia from year to year continues to increase. The Indonesian Nephrology Association (PERNEFRI) (2017)

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.18

in the Indonesian Renal Registry (IRR) Program reported that the number of patients with CKD in Indonesia in 2011 was 22,304 with 68.8% new cases and in 2012 it increased to 28,782 with 68.1% new cases (IRR, 2017) .

Based on the prevalence of chronic kidney failure (permil) from a doctor's diagnosis according to the 2018 Basic Health Research (Riskesdas), the highest region is North Kalimantan (6.4% /mile). Jakarta ranks 10th highest out of 34 provinces and has increased since 2013 (Riskesdas, 2018). According to Moeloek in 2018, it was stated that CKD sufferers in Indonesia reached 499,800 people (2%/mile). Riskesdas (2018) states that Jakarta occupies the first position in 38.7% of 34 provinces in Indonesia with the proportion of patients diagnosed with CKD who have had and are undergoing hemodialysis. Deaths in patients undergoing hemodialysis during 2015 were recorded as 1,243 people with a length of life with HD 1-317 months. A proportion of the world's z receive treatment with dialysis or a kidney transplant and only about 10% actually experience such treatment. Ten percent of the world's population suffers from Chronic Kidney Failure and millions die every year because they do not have access to treatment (Aulia, 2017). Patients undergoing hemodialysis perceive their quality of life at a low level with physical conditions feeling tired, in pain and often restless. This is due to the lack of will to quality of life who have started to surrender to the condition of the disease. In patients with chronic renal failure in improving the quality of life itself is influenced by several factors, including: age, gender, CKD stage, frequency of hemodialysis therapy, social support. These factors are expected for the patient to be able to adapt and cope with changes in the environment so that it becomes a coping ability. CKD patients undergoing hemodialysis are often reported to have decreased quality of life (Mulia, 2018).

Patients with CKD have decreased quality of life in terms of physical, mental, social and environmental. Several studies have shown that patients undergoing hemodialysis have a poor quality of life and are more likely to experience complications such as depression, malnutrition, and inflammation. Many of them suffer from cognitive disorders, such as memory loss, low concentration, physical, mental, and social disorders which will interfere with daily activities (Mailani, 2015).

The quality of life of hemodialysis patients is influenced by the individual's understanding of the disease so that a person knows how to maintain health, as well as economic factors where this is a particular concern for the cost of treatment. The dominant aspect of forming the quality of life of hemodialysis patients is the psychosocial aspect including physical, psychological support and spirituality (Prastiwi, 2012). Where physical health can be assessed from physical function and physical role limitations, it depends on how the individual patient is coping. Psychological aspects include mental health which can be assessed from social

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.18

function and the limited emotional role of the environment, in this case family support plays a very important role (Supriyadi et al., 2011).

The results of Suwanti's research (2019) get an overview of the quality of life of patients with chronic kidney failure seen from the physical health dimension 56.1% have a poor quality of life, the psychological health dimension has a poor quality of life (58.5%), the social relationship dimension has a good quality of life (51.2%), the environmental dimension has a good quality of life 53.7%, and the description of the quality of life of kidney failure patients undergoing hemodialysis has a poor quality of life (61.0%), while 39.0% have a good quality of life. Based on the results of a survey conducted by researchers, data obtained that hemodialysis patients at OMNI Hospitals Pulomas Jakarta in the last 3 months, namely July - September 2019 there were 30 patients. Based on the results of the initial survey through observations made by researchers from 10 patients undergoing hemodialysis, 7 patients had very high motivation in undergoing hemodialysis therapy according to a predetermined schedule and 3 patients had no enthusiasm for hemodialysis therapy. This study aims to determine the quality of life of patients with chronic kidney failure (CKD) undergoing hemodialysis seen from the psychosocial aspect at Omni Pulomas Hospital, East Jakarta.

SUBJECTS AND METHOD

1. Study design

This descriptive research was conducted using a cross-sectional approach.

2. Study sample

30 respondents from the total population of patients undergoing hemodialysis at OMNI Hospitals Pulomas Jakarta in the period March-May 2020 who have met the research criteria and were taken by purposive sampling

3. Study instrument

Data collection was carried out by distributing questionnaires on the quality of life of CKD patients viewed from 2 aspects, namely psychological and social which were made by researchers with modifications from the WHOQOL-BREF.

4. Data analysis

The data obtained were analyzed using the frequency distribution and chi-square.

RESULTS

Table 1 showed that 60% of sample was male, 46% were at age 41-60 years, 50% attained senior high school, and two-third (67%) of them were unemployed.

Table 2 showed that two-third of sample has lack social life quality (73.3%) but has enough physchology life quality (90%).

Table 3 showed that there was a significant relationship between quality of social life and quality of phychological life (p= 0.040).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.18

1. Distribution of gender, age, education and occupation

Table 1. Distribution of research subjects by gender, age, education, and occupation

Variable	Frequency	Percentage (%)
Gender		
Male	18	60
Female	12	40
Age (Year)		
18-40	3	11
41-60	14	46
>60	13	43
Education		
Junior high school	1	3
Senior high school	15	50
Academy/College	14	47
Working status		
Working	10	33
Not working	20	67

2. Distribution of social and psychological quality of life

Table 2. Distribution of research subjects based on social and psychological quality of life

Quality of Life	Frequency	Percentage (%)
Social Life Quality		
Lacking	22	73.3
Enough	7	23.4
Good	1	3.3
Psychology Life Quality		
Lacking	3	10
Enough	27	90

3. Relationship of Social Quality of Life with Psychological Quality of Life

Table 3. Relationship between social quality of life and psychological quality of life

Quality of Social Life	Psychological Quality of Life				p
	Lack		Enough		
	n	%	n	%	
Lack	0	0	22	73.3	0.040
Enough	2	6.7	5	16.7	
Good	1	3.3	0	0	

DISCUSSION

1. Distribution of Respondents by Gender

This study shows that there are far more male respondents than female respondents. The results of this study are the same as the research conducted by Jos (2016) at Tarakan Hospital, where male respondents were 67.9%, while female respondents were 32.1%. Likewise with the research of Dani et al. (2015) at the Arifin Achmad Hospital Riau stated that the average patient suffering

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.18

from chronic kidney failure and undergoing hemodialysis was 61.1% male and the remaining 38.9% female. Researchers assume that in responding to the severity of the disease, gender can affect the incidence of chronic kidney failure depending on the accompanying disease.

The results showed that as many as 14 respondents or (46%) aged 41-60 years, as many as 13 respondents or (43%) aged >60 years and as many as 3 respondents or 11% aged 18-40 years. Most of the respondents in this study were old. Jos' research (2016) at Tarakan Hospital found that the average age of CKD patients undergoing hemodialysis was 53.5 years (Jos, 2016). According to Tilong (2014) the most patients with kidney failure are aged 36-40 years (55%) with an average of 34.4 (Mean= 34.4.; SD= 6.75), the most occurring at the age of 40 years are 14 people (17.5%) classified as adults. The risk of young people in that group is very large because an unhealthy diet, lack of movement, obesity and an unhealthy lifestyle can cause stiff blood vessels, resulting in hypertension. Handayani's research (2013) showed in her research that the average age of the research respondents was 48.74 years with the youngest-oldest age range being 12 to 76 years. Based on Hanifa's research (2009) at H Adam Malik Hospital, Medan, most patients with chronic kidney failure are in the 31-50 year age group (50.5%).

Harahap's research (2018) stated that the majority of chronic kidney failure occurred in patients aged 46-55 years (early old age) as many as 10 people (27%), while patients aged 36-45 years (late adulthood) were 9 people (24.3%), patients aged 56-65 years (late old age) as many as 8 people (21.6%), patients aged 26-35 years (early adults) as many as 7 people (18.9%), patients aged 17-25 years (late adolescents) as many as 2 people (5.4%), and patients aged >65 years (elderly) as many as 1 person (2.7%) The increasing age and added with chronic diseases such as high blood pressure (hypertension) or diabetes, the kidney tends to become damaged and cannot be recovered.

Patients with chronic kidney disease begin to develop symptoms when there is a buildup of metabolic waste products such as urea, creatinine, electrolytes and fluids. Elevated blood urea levels are a common cause of a collection of symptoms known as the uremic syndrome in patients with chronic kidney disease. The uremic syndrome occurs when the glomerular filtration rate is less than 10 ml/min/1.73 m2. Increased blood urea levels due to impaired renal excretory function cause multisystem disorders (Lewis, 2011). Meanwhile, Nurcahyati (2010) in her research stated that the average age of CKD patients undergoing hemodialysis was 44.82 years. Renal function will change with age. After the age of 40 years there will be a progressive decline in the glomerular filtration rate.

Age is one of the biggest factors affecting metabolism. Metabolic decline occurs with age. Metabolism drops by 50 percent every 10 years

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.18

after age 40. This is because humans tend to lose muscle mass. With aging, the kidneys become less able to respond to acute fluid and electrolyte changes. This was also found in the results of this study, where it was found that the average age of patients undergoing hemodialysis due to CKD was 55.6 years. This is consistent with the theory which states that there is a decline in kidney function after the age of 40 years, as well as the theory regarding old age as a specific risk factor for the progression of CKD that cannot be modified.

Researchers assume that in essence the quality of life is something subjective and multidimensional so that each individual assesses the quality of life from a different point of view. These results are in accordance with Nurchayati (2010), which states that there is no relationship between age and quality of life of chronic kidney failure patients undergoing hemodialysis.

2. Distribution of Respondents Based on Education

Education is an effort to foster and develop the human personality either in the spiritual or in the physical. There are also some experts who interpret education as a process of changing the attitudes and behavior of a person or group of people in maturing through teaching and training. According to the National Education System Law No. 20 of 2003, education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and the necessary skills. himself and society.

The risk of complications of kidney disease occurs in patients who have low education. This is in line with what Notoatmodjo (2007) stated that education is one of the factors that directly influence health behavior. The longer a person undergoes hemodialysis, the more obedient and regularly he will carry out hemodialysis (Suparti, 2016).

The results showed that 15 respondents or (50%) had high school education, 14 respondents or (47%) had Academy/University education, 1 respondent or 3% had elementary school education, besides that there were no elementary school educated respondents. In this study, there were more respondents with high school education than others, but not much different from respondents with academic or college education. In the highly educated group, the quality of life, both good and bad, is almost the same.

Researchers assume that CKD patients with low education have less knowledge or may receive misinformation from others. People with low levels of education are also more likely to believe in inaccurate information about hemodialysis procedures. This can be seen from the lack of respondents in the low education group. In this group, almost all of the respondents have a fairly good quality of life. Suparti and Solikhah (2016), basically a person's level of education does not significantly affect knowledge and quality of life, but patients with high and low education have their own way of

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.18

seeking information related to their illness and treatment. Quality of life is subjective so it is not determined by the level of education. In fact, they both don't care about the condition they are currently experiencing, all they know is that at this time they are only seeking treatment to recover without thinking about the needs that support their quality of life. Researchers believe that education does not affect the quality of life of patients with chronic kidney failure (CKD) undergoing hemodialysis therapy at the Omni Pulomas Hospital in 2020. Every disease attacks from various educational groups and the lower the education level of the patient eats will affect his quality of life.

3. **Distribution** of Respondents by Occupation

The results showed as many as 20 respondents or 67% did not work and as many as 10 respondents or 33% were still working. Most of the respondents are as many as not working, and as many as working. Generally, respondents who do not work answered that their daily work or activities are just sitting around, watching, sleeping, eating and no more activities are being done, this happens because if they do strenuous activities or work they are not as strong as before. sick and feel tired quickly. Individuals who undergo HD often feel worried about their illness after being diagnosed with HD therapy, usually the patient will experience financial problems and difficulty in maintaining a job. Asri (2010) stated that 2/3 of patients who received dialysis therapy never returned to their usual activities or work so that many patients lost their jobs.

4. **Quality of life of CKD patients undergoing hemodialysis seen from a psychological perspective**

The results showed that of the 30 respondents, 27 respondents (90%) had a quality of life in the poor category and 3 respondents (10%) had a quality of life in the sufficient category. The results of Marta's research (2017) state that they feel that life satisfaction is ordinary (39.7%), respondents do not enjoy life (27.6%), feel that their lives are less meaningful (58.6%), respondents are also unable to concentrate optimally (34.5%), respondents do not have enough money to meet their needs (46.6%), respondents feel lonely, hopeless, anxious, and depressed (36.2%) and respondents feel dissatisfied with their sexual life (74.1%). While the psychological health in the good category was 17 people (41.5%).

Assessing the good quality of life which is included in the good category, namely the psychological dimension where most of the respondents answered the questionnaire questions given by the researcher to the respondents with the results of the answers that many respondents felt often worried, sad, bored with their respective circumstances, but there were also patients who answered that there is still enthusiasm from family or closest people. Patients who have been on hemodialysis for a long time tend to perceive their quality of life to be decreasing.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.18

This declining quality of life can also be related to changes in economic life because respondents are no longer working and have income. This is what is often felt to be a burden for sufferers and their families.

5. Quality of life of CKD patients undergoing hemodialysis seen from the social aspect.

The results showed that of the 30 respondents, 22 respondents (73%) had a quality of life in the poor category, 7 respondents (23%) had a quality of life in the sufficient category. Respondents as much as 1 respondent (3%) have a good quality of life.

The results of this study indicate that the quality of life of hemodialysis patients from a social perspective is relatively poor. This was stated from the respondents' answers to the questionnaire which stated that they rarely participated in social activities outside the home due to fatigue and chronic kidney failure. Reduced social relations with friends.

From the results of the researchers' observations during the study, there was not a good relationship between the patient and the patient's friends and family, it was seen from the results of the researcher's observation that each respondent scheduled for hemodialysis was only delivered to the room after being left and picked up after hemodialysis was completed.

Another limitation is the large number of patients who must be treated so that medical personnel rely on the active participation of the family undergoing hemodialysis therapy, which can indirectly motivate patients to get better. Several respondents said that the support provided by friends or family made patients more enthusiastic about undergoing hemodialysis and motivated to recover from their illness. This shows that there is still a lack of attention and support from friends for every activity that chronic kidney failure patients participate in by providing correct directions and information on these activities.

In addition to relationships with relatives, from the results of research through questionnaires, respondents are also less satisfied with their sexual needs during illness. The opinion of Hudak and Gallo (2010) which states that patients undergoing HD will experience a decrease in sexual function (libido) in men: impotence often occurs, perhaps because of the disease or side effects of antihypertensive drugs. Women during the hemodialysis process do not experience menstruation due to the influence of immunosuppressive drugs. This makes patients not getting what they need so that they feel less valuable in living their lives. Information provided by others will influence a person to increase knowledge, abilities, and skills so that it will make the belief to do something great (Sarafino, 2014). According to the researcher's assumption that dependence on hemodialysis machines, also makes the patient's activity limited and decreases physical and psychosocial health conditions from time to time.

Based on the results of the study, it can be concluded that the quality of life of chronic kidney failure patients undergoing hemodia-

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.18

lysis therapy at OMNI Hospitals Pulomas Jakarta in 2020 is in the quality of life of less to adequate from social and psychological aspects, and there is a relationship between quality of social life and quality of psychological life. Concrete efforts in improving nursing services comprehensively to improve the quality of life of patients with chronic kidney failure, especially those undergoing hemodialysis need to be carried out and improved, and further research is also needed on other factors that can reduce or improve the quality of life of patients with chronic kidney failure.

REFERENCES

Abshire M, Jiayu Xu, Diana B, Johana R, Jingzhi X, Abby C, Martha J, Cheryl D (2015). Nutritional Interventions in heart failure: A Systemic review of the literature. Department of Health & Human Services, 21(12): 989-99. Doi:10.1016/-j.cardfail.2015.10.004.

Elisa K, Clarissa P, Bruna M, Marina K, Carolina C (2012). Quality of Life, Self-Efficacy and Psychological WellBeing in Brazilian Adults with Cancer: A Longitudinal Study. Psychology 3(4), 304-309. Doi:10.4236/psych-.20112.34043.

Harahap (2018). Faktor-faktor risiko kejadian gagal ginjal kronik (GGK) di ruang hemodialisis (HD) RSUP H. Adam Malik Medan (Risk factors for chronic kidney failure (CKD) in hemodialysis (HD) H Adam Malik Hospital Medan). Medan: RSUP H. Adam Malik. 1(1) 2621-2161. http://e-journal.-sari-mutiara.ac.id/index.php/-Keperawatan

Anas T, Helena L, Hendrit P (2010). Faktor-faktor yang mempengaruhi kecemasan pada ibu saat menghadapi hospitalisasi pada anak di ruang anak RSUD Pare Kediri Tahun 2008 (Factors influencing anxiety in mothers when facing hospitalization in children in the pediatric room at Pare Kediri Hospital in 2008). Jakarta: EGC.

Umi L, Annis, Yuli K, Kusuma E, (2016). Faktor Risiko Kejadian Gagal Ginjal Kronik Pada Usia Dewasa Muda Di RSUD Dr. Moewardi (Risk factors for chronic kidney failure in young adults at Dr Moewardi Hospital). Surakarta: Universitas Muhammadiyah Surakarta.

Lewis, Sharon L et al. 2011. Medical Surgical Nursing Volume 1. United States America : Elsevier Mosby

Mailani Fitri (2015). Kualitas hidup pasien penyakit ginjal kronik yang menjalani hemodialisis: systematic review (Quality of life of patients with chronic kidney disease undergoing hemodialysis: a systematic review). Available form: http;//vol11-no1_2015_4.pdf.com.

Notoatmodjo S (2012) . Metodologi penelitian kesehatan (Health research methodology). Jakarta: Rineka Cipta

Handi R, Hengky T, Tinalia P (2018). Faktor-Faktor Yang Mempengaruhi Kualitas Hidup Pasien

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.18

Chronic Kidney Disease (CKD) Yang Menjalani Hemodialisis (Factors Affecting Quality of Life of Chronic Kidney Disease (CKD) Patients Undergoing Hemodialysis). JKS. https://-doi.org/10.31539/jks.v1i2.8.

Suparti S, Solikhah U, (2016). Perbedaan Kualitas Hidup Pasien gagal Ginjal Kronik Ditinjau dari Tingkat Pendidikan, Frekuensi dan Lama Hemodialisis di RSUD Goeteng Taroenadibrata Purbalingga (Differences in Quality of Life of Patients with Chronic Kidney Failure in terms of Education Level, Frequency and Duration of Hemodialysis at Goeteng Taroenadibrata Hospital, Purbalingga). Medisains: Jurnal Ilmiah Ilmu-ilmu Kesehatan. 14(2).

KEMAS. 6 (2): 1-7-112. http://journal.unnes.ac.id/index.php-/kemas

Suwanti S, Abdul W, Taufikurrahman T (2019). Gambaran Kualitas Hidup Pasien gaggal Ginjal Kronis Yang Menjjalani Terapi Hemodialisis (Overview of the Quality of Life of Chronic Kidney Failure Patients Undergoing Hemodialysis Therapy). Reserch Gate.

Supriyadi, Wagiyo, Sekar R, (2017). Kualitas Hidup Pasien Gagal Ginjal Kronik Terapi Hemodialisis (Quality of Life of Patients with Chronic Kidney Failure Hemodialysis Therapy).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.18

FAMILY EMPOWERMENT FOR THE PREVENTION OF CHILDHOOD STUNTING IN LOW AND MIDDLE-INCOME COUNTRIES: SCOPING REVIEW

Ida Nursanti[1,3], Bhisma Murti[2], Sri Mulyani[1]

[1]Doctoral Program in Public Health, Universitas Sebelas Maret, Surakarta
[2]Masters Program in Public Health, Universitas Sebelas Maret, Surakarta
[3]Department of Nursing, Universitas Jenderal A. Yani, Yogyakarta

ABSTRACT

Background: Progress has been made worldwide in reducing chronic undernutrition and rates of linear growth stunting in children under five years of age. However, rates remain high in many regions. Policies, programs, and interventions supporting maternal and child health and nutrition have the potential to improve child growth and development. An important factor contributing to the prevalence of stunting, a manifestation of malnutrition among children, is believed to be the lack of empowerment among women and families. This study aimed to review all available family approaches to prevent childhood stunting.
Subjects and Method: This scoping review explored the available published literature on family empowerment approaches to the prevention of childhood stunting. Online articles from January, 2012 to August, 2021 were searched from various databases, including PubMed, Science Direct, ProQuest, EBSCO, and Google Scholar. The searching keywords included family OR parent AND empowerment OR participation AND child OR children OR childhood OR infant AND stunting OR growth disorder OR feeding behavior OR nutritional status. As many as 697 articles were identified, of which 6 articles were included using the inclusion criteria. The data were analyzed narratively.
Results: Family empowerment for stunting prevention were carried out by health education approaches at the levels of individual, group, and community (such as campaign by the mass media). Changes in family behavior were maintained by counseling and monitoring through home visit. The other empowerment approaches included provision of food supplement, cash assistance, family food security strengthening, free health services, clean water, and construction of latrines.
Conclusion: Empowerment for families with low economic status and food-insecurity have been implemented through various approaches. It is necessary to examine the effectiveness of family empowerment intervention in the prevention of stunting.

Keywords: family empowerment, stunting, prevention, low and middle-income countries

Correspondence:
Ida Nursanti. Doctoral Program in Public Health, Universitas Sebelas Maret, Surakarta. Jl. Ir. Sutami 36 A, Surakarta 57126, Central Java, Indonesia. Email: nursantida@-gmail.com. Mobile: 081225412615.

BACKGROUND

UNICEF/World Health Organization World Bank Group Joint Malnutrition Estimates (2021) reports that in 2020 the prevalence of stunting in Asia will reach 53% and Africa 41%. Stunting is not only a problem of length/height, but is also associated with a decline in children's cognitive and motor skills, the risk of obesity, susceptibility to

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.19

infection, and an increased risk of chronic disease in adulthood (Onis and Branca, 2016). Stunting prevention interventions aim to achieve optimal fetal and child development through improved nutrition and preventing recurrent infectious diseases in children under two years of age (WHO, 2012).

Improving nutrition and preventing infectious diseases in children cannot be separated from the role of the family. Health promotion strategies to increase family empowerment in stunting prevention efforts are carried out through the provision of information, health education, and communication for behavior change (WHO, 2017; Arikpo et al., 2018; Aramico et al., 2020). Information, health education and communication are mostly addressed to mothers or caregivers. They are part of a family that is directly related to the provision of nutrition and child health care (Galasso et al., 2019; Jardí, Casanova and Arija, 2021). Interventions aimed at other family members were given to fathers and grandmothers (Menon et al., 2016; Faye, Fonn and Kimani-Murage, 2019).

Ongoing monitoring and support is needed to help direct behavior change, increase family member care and social support. Behavioral change techniques can increase self-efficacy to provide good nutrition to children (Hulme, 1999; Webb Girard et al., 2020). Monitoring is carried out by means of home visits, holding discussion group meetings involving the role of the community. Monitoring and counseling can also be done through electronic messaging (Hulme, 1999; Galasso et al., 2019; Rafieyan-Kopaei et al., 2019; Webb Girard et al., 2020).

The success of family empowerment interventions in stunting prevention is influenced by the characteristics of each family and the social environment in which they live (Vuorenmaa et al., 2016; Faye et al., 2019; Januarti, Abdillah and Priyanto, 2020). Family empowerment interventions in low-income families need efforts to increase family income, such as cash assistance, food supplementation, or increasing family income through food security training through agricultural programs (Renzaho et al., 2017; Galasso et al., 2019; Heckert , Olney and Ruel, 2019).

Unfortunately, there are still relatively few studies on family empowerment interventions in stunting prevention that are appropriate for low- and middle-income countries (Acero et al., 2020; Dibley et al., 2020; Huda et al., 2020; Kirkwood et al., 2020). We reviewed the published literature to gauge the scope of family empowerment interventions relevant to stunting prevention in low- and middle-income countries. We consider family empowerment as a household-level activity influenced by sectors outside of health and nutrition, and summarize the challenges, gaps and implications for further research. Our goal to guide this scoping review was to identify the approach used to review all available family approaches to prevent child stunting.

SUBJECTS AND METHOD

1. Study Design

This was a scoping review. Articles were obtained from 5 online databases, namely PubMed, Science Direct,

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.19

ProQuest, EBSCO, and Google Scholar. The keywords used in the article search were family OR parent AND empowerment OR participation AND child OR children OR childhood OR infant AND stunting OR growth disorder OR feeding behavior OR nutritional status.

2. Inclusion Criteria

The inclusion criteria we used in this study were guided by Peters et al. (2020), covering participants, concepts, and context. We include studies that focus on family empowerment interventions in stunting prevention efforts through approaches to aspects of education, improvement in the economy, physical environment, social situation, culture, politics, and technology. Intervention for families who have children aged 0-23 months. Addressed to mothers, caregivers, other family members. English-language publications published in the last 10 years (from January 2012 to August 30, 2021) and conducted in low- and middle-income countries according to the 2010 World Bank.

3. Exclusion Criteria

This study does not include literature with an observational research design or uses secondary data, but a study whose intervention only uses one approach in an effort to empower families.

4. Data Analysis

Data is analyzed in a narrative way.

RESULTS

The results of the electronic search got as many as 697 articles. We found 35 duplicates, the number of articles considered further was 662 articles. After being selected based on the title and abstract, there were 43 articles with full text that were assessed. Each article was identified based on the established criteria, 4 articles were systematically reviewed, 4 articles were still in protocol form (study is in progress), 5 articles where the study was not conducted in low- and middle-income countries, 5 articles had inappropriate populations (children with nutritional problems; wasting and stunting), 5 articles with interventions that did not show the process of family empowerment, and 17 articles only using one approach technique. A manual search was carried out through Google Scholar based on references to the two systematic reviews, and 3 articles were found that were relevant to the objective. found 6 articles that were identified according to the study criteria Flowchart in Figure 1.

There are three studies conducted in low-income countries, namely Ethiopia (Fenn et al., 2012), Madagascar (Galasso et al., 2019), Burkina Faso (Heckert, Olney and Ruel, 2019). The studies were conducted in middle-income countries, including Indonesia (Fahmida et al., 2020), Nepal (Renzaho et al., 2017), and Cambodia (Reinbott et al., 2016). Almost all interventions are directed at the mother/caregiver, and the intervention has been started since pregnancy (Fenn et al., 2012; Galasso et al., 2019; Fahmida et al., 2020).

Table 1 compiles all intervention approaches. Most of the research aims to influence the behavior of mothers/ caregivers/other family members to practice nutrition and disease prevention. The average family empowerment intervention is carried out in a span of 3 - 24 months. There are two studies

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.19

that evaluate interventions over a 5-year period, conducted by Fenn, et.al (2012) and Renzaho, et.al (2017). Most studies involve the role and support of the community, namely community health workers.

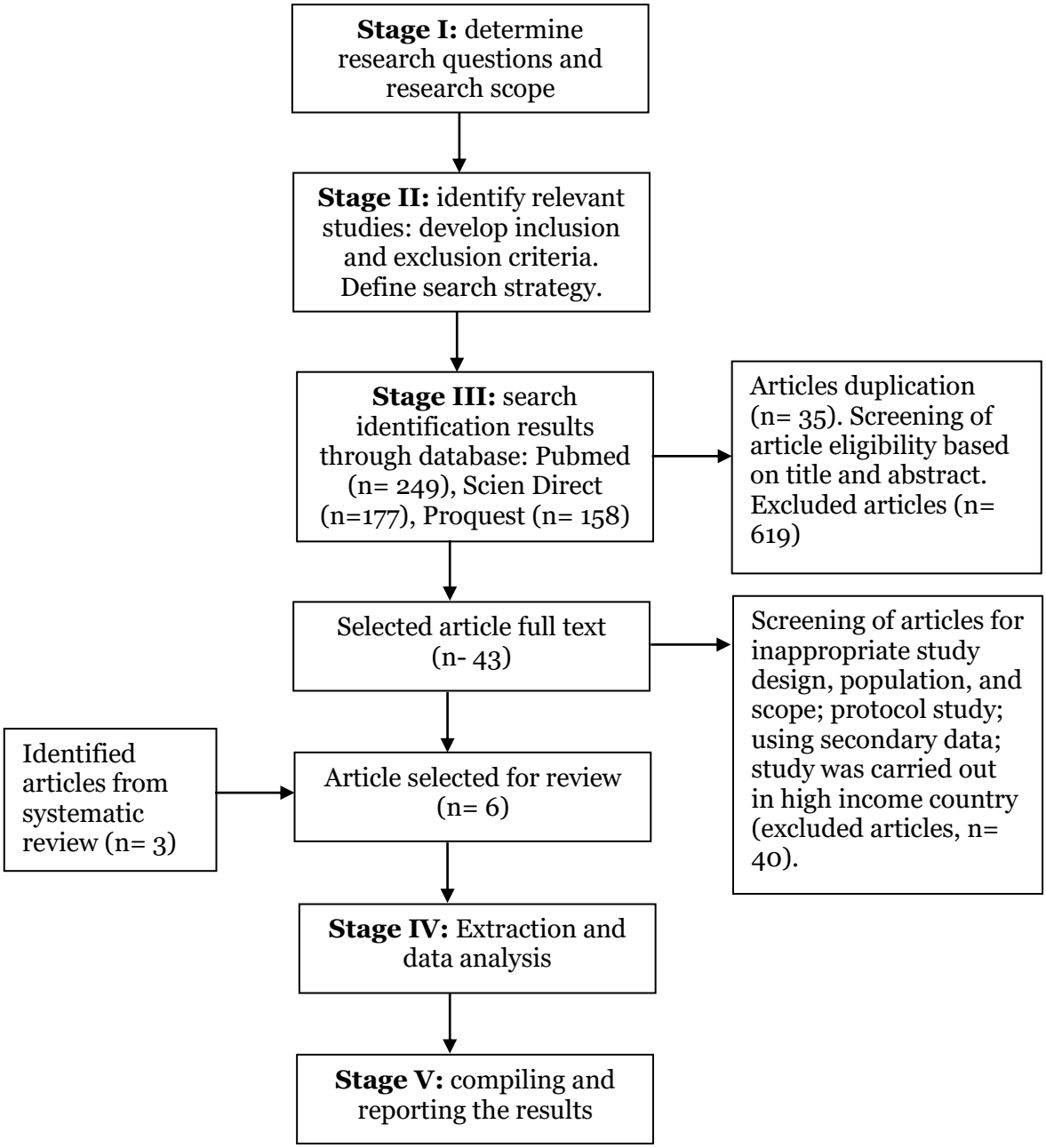


Figure 1. Stages of scoping review

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.19

Table 1. Family Empowerment Intervention Approach

No	Author	Country (Year)	Family Empowerment Approach
1	Fenn et al. (2012)	Ethiopia	Behavior change communication interventions through health education, free health services, clean water supply, latrine construction, and agricultural programs for food security. Health education regarding child nutrition, hygiene, and disease prevention is carried out with monthly home visits. Given during pregnancy until the child is 38 months old. Promoter: trained public health worker
2	Heckert et al. (2019)	Burkina Faso	Behavior change communication interventions through health education are integrated with activities for food security (livestock and gardening). Health education on child nutrition and health maintenance Promoters: community health workers and health professionals.
3	Galasso et al. (2019)	Madagascar	Health education interventions, provision of lipid supplements, and stimulation of children's plants and flowers. Health education on child nutrition, food security, hygiene, and developmental stimulation. Home visits are carried out since the mother is pregnant, to provide counseling and monitoring of growth and development until the child is 24 months old. Promoter: trained community health worker.
4	Fahmida et al. (2020)	Indonesia	Behavior change interventions through health education (counseling with home visits and mass media campaigns), strengthening the health system, and providing clean water. Health education on nutrition for pregnant women and infants, and disease prevention. The treatment was given from the third trimester of pregnancy until the child was 18 months old. Promoter: professional health workers (midwives) and trained community health workers (health cadres and trained facilitators
5	Renzaho et al. (2017)	Nepal	Intervention: communication of social behavior change through counseling and mass media campaigns (radio), and the provision of cash assistance. Health education on nutrition, hygiene, and sanitation. Treatment is given for 5 years Promoter: trained public health volunteer
6	Reinbott et al. (2016)	Cambodia	Behavior change communication interventions through health education and agricultural training for food security. Health education on infant feeding and hygiene practices The treatment was given for 7 months. Promoter: trained community nutritionist

DISCUSSION

Family empowerment is a condition where a person has self-confidence and is no longer dependent on others in making decisions (Friedman, Bowden and Jones, 2003). Family empowerment interventions will increase the ability of families to overcome problems through increasing competence, utilizing access and control over the resources needed, making decisions and solving problems (Hulme, 1999). From the synthesis of the results of this study, we highlight the important things found, which are related to the

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.19

family empowerment intervention approach.

Appropriate family empowerment strategies for child care and stunting prevention have begun to be tested in several countries. Based on a review of existing articles, identified six approaches that are used as interventions for family empowerment in stunting prevention efforts. Behavioral change communication programs through health education were found in all studies. Health education facilitates families to interact with health workers and increases understanding, and confidence in making decisions (self-efficacy) (Hulme, 1999).

Individual, group health education, mass media campaigns (radio and TV spots) and mass mobilization (video and theater) in Indonesia and Nepal (Renzaho et al., 2017; Fahmida et al., 2020). Administration of micronutrients and lipid supplements in Madagascar (Galasso et al., 2019). Cash transfer and social service protection programs in Nepal (Renzaho et al., 2017). Family food security programs through agricultural projects in Ethiopia, Burkina Faso, and Cambodia (Fenn et al., 2012; Reinbott et al., 2016; Heckert, Olney and Ruel, 2019). The provision of clean water and the provision of environmental sanitation are carried out in Ethiopia, Indonesia, and Nepal (Fenn et al., 2012; Renzaho et al., 2017; Fahmida et al., 2020).

The researchers concluded that family empowerment interventions that have a strong influence are providing external stimuli such as providing education, improving the economy, physical environment, social situation, culture, politics, and technology (Vuorenmaa et al., 2016; Januarti, Abdillah and Priyanto, 2020). External factor intervention is expected to affect family characteristics (family systems and functions), so that it will increase self-confidence and make decisions to take care and improve nutrition in children (Hulme, 1999; Vuorenmaa et al., 2016; Januarti, Abdillah and Priyanto , 2020).

The results of testing the family empowerment model conducted by Januarti et al. (2020) mentions that external factors that have a strong influence are socio-cultural factors. Social support from the environment is also found in all articles that include the role of community health workers in the process of health education, counseling, and monitoring (Fenn et al., 2012; Reinbott et al., 2016; Renzaho et al., 2017; Galasso et al. ., 2019; Heckert, Olney and Ruel, 2019; Fahmida et al., 2020). The more stimulus factors from outside are given to the family, it is expected that the higher the level of family empowerment achieved (Januarti et al., 2020).

All studies indicate that health education targets are aimed at mothers. Mothers are individuals who are directly related to child care. According to Friedman et al. (2003), the family is a collection of individuals who can cause or prevent health problems. The limited influence of mothers in making decisions about caring for and fulfilling nutrition for children occurs due to the influence of cultural factors (Faye et al., 2019; Heckert et al., 2019). So that the involvement of fathers and grandmothers is proven to increase family empowerment (Menon et al., 2016; Owais et al., 2017).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.19

The duration of the intervention carried out for the family empowerment process varies from researcher to researcher, ranging from a minimum of 7 months (Reinbott et al., 2016) and a maximum of 5 years (Renzaho et al., 2017). Family empowerment intervention is a process of developing family relationships with health practitioners starting from building trust, gathering information, participation and decision making. So that the intervention techniques planned to carry out family empowerment interventions require sufficient time (Hulme, 1999). The results of studies that demonstrate the effectiveness of a comprehensive family empowerment intervention approach and complete intervention results are needed to be able to form a family empowerment intervention model to prevent stunting in early childhood in low and middle income countries.

AUTHOR CONTRBUTION

IN prepared the first draft of the research protocol, then BM and SM provided directions for developing the first draft. All authors contributed to the development of eligibility criteria, search strategies, and selection of articles included in the study. All authors read and agree to the final manuscript.

ACKNOWLEDGMENT

The author would like to thank all parties involved in this research.

FUNDING AND SPONSORSHIP

The research implementation is financially supported by Jenderal A. Yani University, Yogyakarta. Funders are not involved in research, manuscript writing, and publication.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest with any party.

REFERENCES

Acero CG, Martinez S, Pérez-Expósito A, Winters S (2020). Effect of an innovative behavioural change strategy and small-quantity lipid-based nutrient supplements on stunting and obesity in children in Baja Verapaz, Guatemala: protocol for a randomised control trial. BMJ Open. 10(7). doi: 10.1136/bmjopen-2019-035528.

Aramico B, Huriyati E, Susetyowati S, Dewi FST (2020). The Effectiveness of the Information, Communication, and Education Model for Balance Diet and Against Stunting in the First 1000 Days of Life: A Literature Review. Open Access Macedonian Journal of Medical Sciences, 8(F SE-Public Health Education and Training). 226–233. doi: 10.3889/oamjms.2020.4328.

Arikpo D, Edet ES, Chibuzor MT, Odey F, Caldwell DM (2018). Educational interventions for improving primary caregiver complementary feeding practices for children aged 24 months and under. Cochrane Database Syst Rev. 5(5): CD011768. doi: 10.1002/14651858.CD011768.pub2.

Arksey H, O'Malley L (2005). Scoping studies: towards a methodological framework. Int. J. Soc. Res. Methodol. 8(1): 19-32. doi: 10.1080/1364557032000119616.

Dibley MJ, Alam A, Fahmida U, Ariawan I, Titaley CR, Htet MK, Damayanti R, et al. (2020). Evaluation of a Package of Behaviour Change Interventions (Baduta Program) to Improve Maternal and Child Nutrition in East Java, Indonesia: Protocol for an Impact Study. JMIR Res Protoc. 9(9): e18521. doi: 10.2196/18521.

Fahmida U, Htet MK, Ferguson E, Do TT, Buanasita A, Titaley C, Alam A, et al. (2020). Effect of an Integrated Package of Nutrition Behavior Change Interventions on Infant and Young Child Feeding Practices and Child Growth from Birth to 18 Months: Cohort Evaluation of the Baduta Cluster Randomized Controlled Trial in East Java, Indonesia. Nutrients. 12(12): 3851. doi: 10.3390/nu12123851.

Faye CM, Fonn S, Kimani-Murage, E. (2019). Family influences on child nutritional outcomes in Nairobi's informal settlements. Child Care Health Dev. 45(4):509-517. doi: 10.1111/cch.12670.

Fenn B, Bulti AT, Nduna T, Duffield A, Watson F (2012). An evaluation of an operations research project to reduce childhood stunting in a food-insecure area in Ethiopia. Public Health Nutr. 2012/04/17. Cambridge University Press, 15(9): 1746-1754. doi: 10.1017/S1368980012001115.

Friedman MM, Bowden VR, Jones E (2003). Family nursing: Research, theory & practice. Prentice Hall Upper Saddle River, NJ.

Galasso E, Weber AM, Stewart CP, Ratsifandrihamanana L, Fernald LCH (2019). Effects of nutritional supplementation and home visiting on growth and development in young children in Madagascar: a cluster-randomised controlled trial. The Lancet Global Health. 7(9): e1257-e1268. doi: 10.1016/S2214-109X(19)30317-1.

Heckert J, Olney DK, Ruel MT (2019). Is women's empowerment a pathway to improving child nutrition outcomes in a nutrition-sensitive agriculture program?: Evidence from a randomized controlled trial in Burkina Faso. Soc. Sci. Med. 233. 93-102. doi: 10.1016/j.socscimed.2019.05.016.

Huda TM, Alam A, Tahsina T, Hasan MM, Iqbal A, Khan J, Ara G, et al. (2020). Shonjibon cash and counselling: a community-based cluster randomised controlled trial to measure the effectiveness of unconditional cash transfers and mobile behaviour change communications to reduce child undernutrition in rural Bangladesh. BMC Public Health. 20. 1-14. doi: 10.1186/s12889-020-09780-5.

Hulme PA (1999). Family empowerment: a nursing intervention with suggested outcomes for families of children with a chronic health condition. J. Fam. Nurs. 5(1). 33-50. doi: 10.1177/107484079900500103.

Januarti LF, Abdillah A, Priyanto A (2020). Family Empowerment Model in Stunting Prevention Based on Family Centered Nursing. STRADA Jurnal Ilmiah Kesehatan. sjik.org. Available at:

https://sjik.org/index.php/sjik/article/view/536.

Jardí C, Casanova BD, Arija V (2021). Nutrition Education Programs Aimed at African Mothers of Infant Children: A Systematic Review. Int J Environ Res Public Health. 18(14). 7709. doi: 10.339-0/ijerph18147709.

Kirkwood EK, Dibley MJ, Hoddinott JF, Huda T, Laba TL, Tahsina T, Hasan MM, et al. (2021). Assessing the impact of a combined nutrition counselling and cash transfer intervention on women's empowerment in rural Bangladesh: a randomised control trial protocol. BMJ open. 11(6). e044263. doi: 10.1136/bmjopen-2020-044263.

Labrecque JA, Kaufman JS, Balzer LB, Maclehose RF, Strumpf EC, Matijasevich A, Santos IS, et al. (2018). Effect of a conditional cash transfer program on length-for-age and weight-for-age in Brazilian infants at 24 months using doubly-robust, targeted estimation. Soc Sci Med. 211: 9-15. doi: 10.1016/j.socscimed.2018.05.040

Menon P, Nguyen PH, Saha KK, Khaled A, Sanghvi T, Baker J, Afsana K, et al. (2016). Combining intensive counseling by frontline workers with a nationwide mass media campaign has large differential impacts on complementary feeding practices but not on child growth: results of a cluster-randomized program evaluation in Bangladesh. J Nutr. 146(10): 2075-2084. doi: 10.3945/jn.116.-232314.

Nair N, Tripathy PK, Gope R, Rath S, Pradhan H, Rath S, Kumar A et al. (2017). Effect of participatory women's groups and counselling through home visits on children's linear growth in rural eastern India (CARING trial): a cluster-randomised controlled trial. BMJ Glob Health. 5(10): e1004–e1016. doi: 10.1136/bmjgh-2021005066.

Nikièma L, Huybregts L, Martin-Prevel Y, Donnen P, Lanou HB, Grosemans J, Offoh P, *et al.* (2017). Effectiveness of facility-based personalized maternal nutrition counseling in improving child growth and morbidity up to 18 months: A cluster-randomized controlled trial in rural Burkina Faso. PLoS One. 12(5). doi: 10.1-371/journal.pone.0177839.

Onis MD, Branca F (2016). Childhood stunting: a global perspective. Matern Child Nutr. 12: 12-26. doi: 10.1111/mcn.12231.

Owais A, Schwartz B, Kleinbaum DG, Suchdev PS, Faruque ASG, Das SK, Rahman S *et al.* (2017). A nutrition education program in rural Bangladesh was associated with improved feeding practices but not with child growth. J Nutr. 147(5): 948-954. doi: 10.3945/jn.-116.243956.

Peters MDJ, Godfrey C, Mclnerney P, Munn Z, Tricco AC, Khalil H (2020). Chapter 11: scoping reviews (2020 version). 2020. Joanna Briggs Institute Reviewer's Manual. The Joanna Briggs Institute. Available from: https://reviewersmanual. joannabriggs.org-/. Accessed, 14.

Rafieyan-Kopaei, Fathian-Dastgerdi Z, Tarrahi MJ, Zamani-Alavijeh F (2019). Effectiveness of message-framing intervention on complementary feeding related behaviors among mothers with infants aged 4–8 months: a 3-arm randomized controlled trial. Ital J Pediatr. 45 (1): 1-13. doi: doi: 10.1186/s1305-2-019-0749-0.

Reinbott A, Schelling A, Kuchenbecker J, Jeremias T, Russell I, Kevanna O, Krawinkel MB. *et al.* (2016). Nutrition education linked to agricultural interventions improved child dietary diversity in rural Cambodia. Br J Nutr. 116 (8): 1457-1468. doi: 10.1017/S0-007114516003433.

Renzaho AMN, Chitekwe S, Chen W, Rijal S, Dhakal T, Dahal P. (2017). The Synergetic Effect of Cash Transfers for Families, Child Sensitive Social Protection Programs, and Capacity Building for Effective Social Protection on Children's Nutritional Status in Nepal. Int J Environ Res Public Health. 14(12):1502. doi: 10.339-0/ijerph14121502.

Singh V, Ahmed S, Dreyfuss ML, Kiran U, Chaudhery DN, Srivastava VK, Ahuja RC, et al. *(*2017). An integrated nutrition and health program package on IYCN improves breastfeeding but not complementary feeding and nutritional status in rural northern India: A quasi-experimental randomized longitudinal study. PLoS One. 12(9): e0185030. doi: 10.1371/-journal.pone.0185030.

UNICEF/WHO/The World Bank (2021). Levels and trends in child malnutrition: key findings of the 2021 edition of the joint child malnutrition estimates. New York: United Nations Children's Fund.

Vuorenmaa M, Perälä M-L, Kaunonen M, Åstedt-Kurki P (2016). Associations between family characteristics and parental empowerment in the family, family service situations and the family service system. Child Care Health Dev. 42(1): 25-35. doi: 10.1111/cch.12-267.

Girard AW, Waugh E, Sawyer S, Golding L, Ramakrishnan U (2020). A scoping review of social-behaviour change techniques applied in complementary feeding interventions. Matern Child Nutr. 16(1): e12882. doi: 10.1111/mcn.1-2882.

WHO (2012). Maternal, infant and young child nutrition. The sixty-fifth world health assembly WHA65. 6, Geneva, Switzerland.

WHO (2017). Milestones in health promotion: Statements from global conferences. 2009.Geneva: World Health Organization.

THE EFFECT OF BACK ACUPRESSURE ON THE BREAST MILK SECRETION AND INFANTS WEIGHT AT THE MATERNITY WARD, FASTABIQ GENERAL HOSPITAL, PATI, CENTRAL JAVA

Atun Wigati, Dwi Astuti, Nasriyah, Dewi Hartinah

Faculty of Health Sciences, Universitas Muhamadiyah Kudus, Central Java

ABSTRACT

Background: Breastmilk is the best food for babies that helps the growth and development of children optimally and protects children from disease. However, there are still many problems with breastfeeding. This study aimed to determine the effect of acupressure on increasing breast milk volume and the baby's weight.
Subjects and Method: This was a quasi-experiment with pre and post-test with no control group design, conducted at Fastabiq General Hospital, Pati, Central Java, from March to April 2021. A total of 30 post-partum mothers was selected for this study. The dependent variables were breast milk volume and baby weight (gram). The independent variable was back acupressure. The data were collected by observation sheet and analyzed by paired t-test.
Results: Mean score of breastmilk volume after intervention (Mean = 7.40; SD= 1.24) was higher than before (Mean= 4.93; SD= 0.96) and it was statistically significant (p< 0.001). Mean score of baby weight after intervention (Mean= 3,130; SD= 346.3) was higher than before (Mean= 2,893; SD= 359.4) and it was statistically significant (p< 0.001).
Conclusion: Back acupressure effectively increases breast milk volume and baby weight.

Keywords: acupressure, breastmilk, weight, baby

Correspondence:
Atun Wigati. Faculty of Health Sciences, Universitas Muhamadiyah Kudus. Jl. Ganesha Raya No. 1 Purwosari, Kudus, Central Java. Email: atunwigati@umkudus.ac.id. Mobile: +62 81390508618.

BACKGROUND

Mother's Milk emulates fat in a solution of protein, lactose, and inorganic salts secreted by the mother's mammary glands, which is useful as food for her baby. However, many post-partum mothers are still on the first day until the third day. Usually, the breast milk has not come out, so the mother cannot give exclusive breastfeeding to her baby because the mother will give formula milk to meet her baby's needs. (Febriyanti, 2020).
The percentage of exclusive breastfeeding for infants 0-6 months in Indonesia in 2018 was 55.7%, higher than in 2017, which was 52.3%; this shows an increase in the percentage of exclusive breastfeeding due to the efforts made by the Health Office, including counseling, socialization, and supervision of breastfeeding programs (Fikawati and Syafiq, A, 2010).

Central Java Province in 2018 experienced a decrease in the coverage of exclusive breastfeeding, which previously had reached 60% in 2017 to 56.1%. The percentage of breastfeeding in Pati Regency in 2018 was 54.7%

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.20

and increased in 2015 to 63.39%. This percentage has not met the target of achieving exclusive breastfeeding in national development and national strategies of 80% (Pati Health Office, 2018).

The inhibiting factor in breastfeeding is the smoothness of breastfeeding itself. The flow of milk that is lacking and slow to come out can cause mothers not to give enough breast milk to their babies. In addition to the hormone prolactin, lactation also depends on the hormone oxytocin, which is released from the posterior pituitary in response to nipple sucking. Oxytocin affects the myoepithelial cells that surround the mammary alveoli so that the alveoli contract and expel the milk that the mammary glands have secreted. The mother's psyche influences the oxytocin reflex. If there is a feeling of anxiety, stress, and doubt, breastfeeding may be hampered (Nugraheny, 2016).

Cholifah and Mareta's research (2015) with the title Acupressure on Breastfeeding Mothers Increases Adequacy of Infant Milk Intake in Mungkid District in 2014 the results show that there is a significant difference in breast milk adequacy between the intervention group and the control group (Mean= 14.12; p<0001), this indicates that acupressure can increase the adequacy of breast milk in infants.

Research by Fendristica et al. (2019) with the title The Effectiveness of Acupressure on Infant Weight Gain. The analysis results using the Independent t-test showed a difference in the weight gain of infants of breastfeeding mothers who received acupressure and without acupressure. From research, it is known that acupressure is proven to increase the flow of breastfeeding and the bond between parents and babies, which impacts the quality of breast milk. This automatically increases the motivation of mothers to give exclusive breastfeeding to their babies.

SUBJECTS AND METHOD

1. Study Design

This research is a quasi-experimental research with a pre-post test design. This research was conducted at Fastabiq General Hospital, Pati, Central Java, from March to April 2021.

2. Population and Sample

The population in this study was postpartum women at the Fastabiq General Hospital, Pati, Central Java, from March to April 2021. A total of 30 postpartum women were randomly selected in this study.

3. Study Variables

The dependent variables were the volume of breast milk and the baby's weight. The independent variable is back acupressure.

4. Operational Definition of Variables

The volume of breast milk is the adequacy of the mother's milk that the baby drinks.

Baby weight measures the baby's weight measured in grams or kilograms.

Back acupressure is a massage technique performed on mothers to increase the volume of breast milk.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.20

5. Instruments

The research instrument used informed consent, Standard Operating Procedures, and observation sheets.

6. Data Analysis

Univariate analysis was used to see the frequency distribution of subjects, while bivariate analysis used paired t-test analysis to see differences before and after the intervention.

RESULTS

1. Univariate Analysis

Based table 1 shows the average smoothness of breastfeeding before being given acupressure therapy intervention (Mean = 4.93; SD = 0.96), and the average smoothness of breastfeeding after the intervention (Mean = 7.40; SD = 1.24), the average weight of the baby before the mother was given the intervention was (Mean = 2893; SD = 359.4), while after the mother was given the intervention, it was (Mean = 3130; SD = 346.3).

Table 1. Univariate analysis (continuous data) of breastfeeding before and after acupressure therapy (intervention group).

Variable	N	Mean	SD	Min.	Max.
Breastmilk secretion					
Before	15	4.00	1.46	2.00	6.00
After	15	4.066	1.57	2.00	7.00
Infant weight					
Before	15	2920	346.3	2400.00	3500.00
After	15	2926	368.3	2400.00	3500.00

Table 2. Univariate analysis (continuous data) of breastfeeding fluency before and after acupressure therapy (control group with the communication).

Variable	N	Mean	SD	Min.	Max.
Breastmilk secretion					
Before	15	4.00	1.46	2.00	6.00
After	15	4.066	1.57	2.00	7.00
Infant weight					
Before	15	2920	346.3	2400.00	3500.00
After	15	2926	368.3	2400.00	3500.00

Table 2 shows the average smoothness of breastfeeding before the control group (giving communication) (Mean= 4.00; SD= 1.46), and the average smoothness of breastfeeding after the control group (giving communication) (Mean= 4.06; SD= 1.57), the infants weight before being in the control group was (Mean= 292; SD= 346.3) while after the mother was given the intervention, it was (Mean= 2926; SD= 368.3).

2. Bivariate Analysis

The average fluency of breastfeeding before the intervention (Mean= 4.90; SD= 0.96) and after the intervention (Mean= 7.40; SD= 1.24), with p= 0.001. The breastmilk secretion before in the group that was not given acupressure therapy (Mean= 14.00;

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.20

SD= 1.46) and after (Mean= 4.06; SD= 1.57), with p= 0.334 (Table 3).

Table 3. Differences in breastmilk secretion in the intervention group and the control group

Groups	n	Mean	SD	p
Intervention				
Before	15	4.90	0.96	0.001
After	15	7.40	1.24	
Control group				
Before	15	4.00	1.46	0.334
After	15	4.06	1.57	

Table 3 shows the average value of breastfeeding fluency before the intervention (Mean= 4.90; SD= 0.96) and after the intervention (Mean= 7.40; SD= 1.24) and statistically significant (p= 0.001). The smoothness of breastfeeding before in the group that was not given acupressure therapy (Mean= 14.00; SD= 1.46) and after (Mean= 4.06; SD= 1.57) and not statistically significant (p= 0.334).

Table 4. Differences in infant weight in the intervention group and the control group

Groups	n	Mean	SD	p
Intervention				
Before	15	2,893	359.4	0.001
After	15	3,130	346.3	
Control group				
Before	15	2,920	368.3	0.334
After	15	2,926	367.4	

Table 4 shows the mean weight of infants before the intervention (Mean= 2,893; SD= 359.4) and after the intervention (Mean= 3130; SD= 346.3) and statistically significant (p= 0.001). Infant weight before in the group not given acupressure therapy (Mean= 2,920; SD= 368.3) and after (Mean= 2,927; SD= 367.4) and not statistically significant (p= 0.164).

DISCUSSION

Postpartum mothers obtained the study results before being given acupressure therapy at Fastabiq Sehat Muhammadiyah Hospital, Pati. The average weight of the babies in the intervention group was 2893, while after being given acupressure therapy, as much as 3130.

The statistical test results using the paired sample t-test were obtained in the control group, p-value = 0.334 so that in the control group, there was no difference in the fluency of breastfeeding. While in the intervention group, p= 0.001. Therefore Ho is rejected. So it can be concluded that acupressure affects the smooth flow of breast milk in the postpartum room at Fastabiq Sehat PKU Muhammadiyah Hospital, Pati.

The results showed that 17 people (81%) mothers breastfed their babies more than 10 times within 24 hours after being given acupressure

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.20

therapy; 16 people (76%) mothers breastfed their babies for 10 minutes on each other breast. Then, 20 people (95%) after feeding, the baby fell asleep quietly for 2 hours or more.

In addition to having an impact on increasing the smoothness of breastfeeding, the presence of bonding between mother and baby will also have a positive impact on the baby. If the mother feels comfortable and calm, the baby will also calm down so that the breastfeeding process will be comfortable and enjoyable. The baby gets enough breast milk from the mother to increase the baby's weight; the mother will also be much calmer and happier knowing the baby's weight has increased. The breastfeeding process becomes a fun and memorable moment for the mother (Yulia, 2019).
Bodyweight is a measure that is commonly or often used to assess human nutrition. Bodyweight is a body measurement of weight, which is weighed in a minimally dressed state without any equipment. Bodyweight is measured by measuring body weight with a unit of kilograms. Bodyweight is an indicator to assess the results of increasing or decreasing all existing tissues in the body (bone, muscle, fat, body fluids) so that the child's nutritional status or growth and development will be known. Body weight can also be used to calculate drug doses. (Nilakesuma et al., 2015)

Fendristica et al., 2019 research entitled The Effectiveness of Acupressure on Infant Weight Gain. The analysis results using the independent t-test showed a difference in the weight gain of breastfeeding mothers who received acupressure and without acupressure. From research, it is known that acupressure is proven to increase the flow of breast milk and the bond between parents and babies, which impacts the quality of breast milk. This can automatically increase the motivation of mothers to give exclusive breastfeeding to their babies.

Based on the study results, supporting theories, and previous research, it can be concluded that acupressure on the baby's weight in the postpartum room at Fastabiq Sehat Muhammadiyah Hospital, Pati, massaging the upper back can relax the shoulders and stimulate the let-down reflex. The back will make breast milk smooth. Babies who get breast milk smoothly will affect body weight.

Research conducted at the Mujahidah Bantul clinic showed an effect of acupressure on breast milk production with indicators of baby weight and baby frequency (Djanah and Muslikhatun, 2017).

Back massage and acupressure therapy can increase prolactin hormone levels. This therapy can be given to postpartum and breastfeeding mothers for milk production and can be considered for practice in midwifery care (Anita et al., 2020).

Research conducted in Theran found that acupressure and general education methods effectively increased the volume of breast milk in nursing mothers. The acupressure method is more effective than other methods. Therefore, applying the acupressure method as an alternative treatment method is recommended to increase milk production (Esfahani et al., 2015).

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.20

Similar research was conducted at Ungaran Hospital. The results showed that the difference between the mean and the treatment group was 282.31 and the control group was 218.08 with p-value = 0.000 (<0.05). In conclusion, this study recommends that patients independently perform breast acupressure and oxytocin massage to increase milk production (Parwati et al., 2017).

AUTHOR CONTRIBUTION

Atun Wigati acts as the main author of this research, coordinates the research, conducts all research stages, and completes research papers. Dwi Astuti plays a role in compiling the research framework, data analysis, presenting analytical research results, and preparing research papers. Nasriyah and Dewi Hartinah played a role in developing ideas, research designs, hypotheses, and completeness research files.

CONFLICT OF INTEREST

There is no conflict of interest in compiling this article.

FUNDING AND SPONSORSHIP

In carrying out research, funding and sponsorship are obtained from workplace institutions (Muhammadiyah Kudus University), ranging from permits to compensation for research respondents.

ACKNOWLEDGMENT

The researcher would like to thank the Chancellor of the Holy Muhammadiyah University, the Research and Community Service Institute, Fastabiq Pati Hospital, and all parties who helped the research run smoothly.

REFERENCES

Anita N, Ahmad M, Usman AN, Sinrang AW, Alasiry E, Bahar B (2020). Potency of back message and acupressure on increasing of prolactin hormone levels in primipara postpartum: Consideration for midwifery care. Enfermería Clínica, 30, 577–580. Https://Doi.Org/10.1016/J.Enfcli.2019.07.165

Cholifah S, Srtyowati H, Mareta R (2015). Acupressure for breastfeeding mothers increased the adequacy of infant milk intake in the Mungkid sub-district in 2014. Journal of Maternity Nursing, 3(2), 111-117.

Dinas Kesehatan Pati (2018). Pati District Health Profile.

Djanah N, Muslihatun WN (2017a). Acupressure on breast milk production in post partum mothers. Photon: Journal of Science and Health, 8(01): 73–77. Https://-Doi.Org/10.37859/Jp.V8i01.533

Esfahani MS, Berenji SS, Valiani M, Ehsanpour S (2015). Effect Of Acupressure On Milk Volume Of Breastfeeding Mothers Referring To Selected Health Care Centers In Tehran. IJNMR, 20(1), 7–11.

Febriyanti, Mifta A (2020). Comparison of the effectiveness of upper back massage with warm breast compresses on the smooth excretion of breastmilk in postpartum mothers in the Banjarsari Metro Utara Health Center (Doctoral Dissertation, Health Polytechnics Tanjung Karang).

Fendristica GG, Susilawati S, Armawati NM (2019). The Effectiveness of Acupressure on Baby Weight Gain. SMART Journal of Midwifery, 5(2): 43-52. http://-dx.doi.org/10.34310/sjkb.v5i2.-212.

Fikawati S, Syafiq A (2010). Study of implementation and policy of exclusive breastfeeding and early breastfeeding initiation in Indonesia. Makara kesehatan, 14(1), 17-24.

Nilakesuma A, Jurnalis YD, Rusjdi SR (2015). Relationship between infant nutritional status and exclusive breastfeeding, mother's education level, and family economic status in the Padang Pasir Public Health Center Work Area. Andalas Health Journal, 4(1).

Novika YJ (2019). Qualitative Analysis of Breastfeeding Practices for Infants Age 0–4 Months in the Rajabasa Region, Bandar Lampung City. Scientific Journal of Nursing Sai Betik, 15(2). DOI:10.26630/jkep.v15i2.1626

Nugraheny E (2016). Inhibiting and driving factors for the implementation of exclusive breastfeeding. Journal of Midwifery, 2(2): 79-86.

Parwati DMW, Hartati LE, Suheri T (2017). The Effect Of Breast Acupressure And Oxylosins Massage To Improve The Breast Milk Production In Postpartum Mother. J Med Sci Clin Res. 5(10). Https://Doi.Org/10.18-535/Jmscr/V5i10.47

EFFECTS OF COFFEE AND TEA CONSUMPTION AND DIETARY DIVERSITY ON ANEMIA IN PREGNANT WOMEN: A META-ANALYSIS

Lilik Hanifah[1,2)], Catur Setyorini[1,2)], Anita Dewi Lieskusumastuti[1,2)], Saras Kuntari[2)], Aris Widiyanto[2)]

[1)]Universitas 'Aisyiyah, Yogyakarta
[2)]School of Health Sciences Mamba'ul 'Ulum, Surakarta

ABSTRACT

Background: Gestational anemia has become a significant global burden. Anemia has multiple risk factors, including food consumption. The most important thing is hypotesized to be the lifestyle-based risk factors. This study aimed to determine the effect of coffee and tea consumption and dietary diversity on anemia in pregnant women.
Subjects and Methods: This study was a meta-analysis. Online articles from 2011 to 2021 were searched from databases, including PubMed, MEDLINE, and Google Scholar, from 2011 to 2021. The PICO was as follows. Population: pregnant women. Intervention: coffee consumption and tea and diet diversity. Comparison: without coffee and tea consumption and dietary diversity. Outcome: anemia. The data were analyzed using RevMan 5.3 software.
Results: A total of 9 articles from Ethiopia and Tanzania were included in the meta-analysis. Pregnant women who frequently consumed coffee and tea after meals had a higher risk of developing anemia than those who did not (OR=1.63; 95% CI= 0.34 to7.78; p=0.53). Likewise, pregnant women with low scores on the diversity of foods had a higher risk of developing anemia (OR=4.16; 95% CI= 2.35 to 7.38; p= 0.001).
Conclusion: The habit of consuming tea and coffee after eating and the low score of the diversity of foods can increase the risk of anemia in pregnant women.

Keywords: coffee-tea, diet diversity, anemia, pregnant women

Correspondence:
Lilik Hanifah. Universitas 'Aisyiyah Yogyakarta. Jl. Siliwangi No. 63, Mlangi, Nogotirto, Gamping, Sleman, Yogyakarta. Email: lilik_hanifah84@yahoo.co.id. Mobile: 085725630249.

BACKGROUND

Anemia is a public health problem that has affected a third of the world's population and is more common in young, middle- and low-income women and pregnant women (Kumar et al., 2013). Globally anemia affects approximately 32.4 million (38.2%) pregnant women. This is a public health problem that occurs in South-east Asia (48.7%) and Africa (46.3%) (Abay et al., 2017; WHO, 2015). Anemia that occurs during pregnancy is a major cause of maternal morbi-dity and mortality in developing countries, and has consequences for both mother and fetus (Salhan et al., 2012). It is estimated that anemia causes more than 115,000 maternal deaths and 591,000 perinatal deaths globally per year (Balarajan et al., 2011). Severe levels of anemia (<7

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.21

g/L) during pregnancy can cause complications for the mother and fetus, namely increasing the risk of premature birth, low birth weight, intrauterine fetal death, neonatal death, maternal and infant mortality (Ayano, 2018).

The causes of anemia in pregnant women are very complex, including infections (malaria and worm infestations), nutritional deficiencies (iron, folic acid, and vitamin B12), and genetic factors (hemoglobinopathy) (Balarajan et al., 2011; Broek, 2011). 1998; Tolentino and Friedman, 2007). Women often become anemic during pregnancy due to the increased need for iron and other vitamins in the body. It is estimated that blood volume increases by about 50 percent during pregnancy, so the amount of blood plasma rises disproportionately greater. This causes dilution of the blood, causing the hemoglobin concentration to fall, with the lowest hemoglobin concentration between the 25th and 30th weeks of gestation (Salhan et al., 2012).

Anemia has multifactorial causes, namely complex interactions between nutrition, infectious diseases, and other factors (Balarajan et al., 2011). In developing countries, pregnant women are prone to anemia due to low socioeconomic conditions, poor nutritional intake, repeated infections, frequent pregnancies, blood loss during menstruation, lifestyle, and low behavior in seeking services or health information related to anemia (Getahun et al., 2017; Karaoglu et al., 2010; Khan et al., 2006; Tadesse et al., 2017). Pregnant women with low (≤3) and moderate (4–6) food diversity scores are more at risk of experiencing anemia when compared to pregnant women who have food diversity scores >6 (Tulu et al., 2019).

Monitoring health problems and their determinants is very important to develop effective interventions (Muhangi et al., 2007). Pregnant women are more susceptible to stress, which can affect the state of fetal growth in the womb (Handayani et al., 2020). It is important to identify risk factors that contribute to the increasing incidence of anemia in pregnant women for prevention efforts and to implement global nutrition targets to reduce the prevalence of anemia in pregnant women by half (WHO, 2014).

However, the limited number of studies is a challenge in itself to reduce the incidence of anemia, especially in developing countries such as Indonesia. Therefore, this study aims to determine the risk factors for anemia, one of which is the influence of the habit of consuming coffee and tea after eating and the diversity of diets on anemia in pregnant women.

SUBJECTS AND METHOD

1. Study Design

This research is a systematic review and meta analysis. The articles used in this study were obtained from several databases, namely PubMed, MEDLINE, and Google Scholar between 2011 and 2021. The selection of articles was carried out using PRISMA flow diagrams. The keywords to search for articles are as

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.21

follows “anemia”, “coffee-tea”, “diet diversity”, “pregnant women”, and “risk factors”.

2. Inclusion Criteria

The inclusion criteria of this study were: full-text articles with a cross-sectional study design for the dependent variable coffee and tea consumption, as well as case-control for the variable low in the diversity score of diet. research subjects are pregnant women, research using multivariate logistic regression analysis.

3. Exclusion Criteria

The exclusion criteria for this study were: articles in languages other than English and Indonesian, incomplete or unavailable research data, articles published before 2011.

4. Operational Definition of Variables

Anemia in pregnancy is defined as a hemoglobin level below 11 gm/dl. Coffee and tea consumption variables were defined as pregnant women who consumed coffee and/tea after meals. The low food diversity score is the average dietary diversity scores (DDS) below three.

5. Variable

The dependent variable is anemia. The independent variables were coffee and/tea consumption and dietary diversity scores.

6. Instrument

Search articles using online databases (PubMed, MEDLINE, and Google Scholar). The process of searching and filtering articles using a Prism diagram (chart 1). Articles included in this study must meet the inclusion criteria and have been reviewed using a critical appraisal in accordance with the research design of each article.

RESULTS

1. Characteristics of Study Subjects

There are a total of 129 articles search results from the online databases PubMed, MEDLINE, and Google Scholar using the keywords "anemia", "coffee-tea", "diet diversity", "pregnant women", and "risk factors" by choosing the year of publication between 2011 -2021. There were a total of 14 articles that met the inclusion criteria and were processed in qualitative and quantitative synthesis. A total of 9 articles explain the effect of coffee and tea consumption, while 7 articles explain the effect of low dietary diversity scores on the incidence of anemia among pregnant women. There are 6 articles using a case-control study design and 8 articles using a cross-sectional study. Of the 14 articles that have been selected, 5 of them are from the Public Library of Science (PLOS) journal.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.21

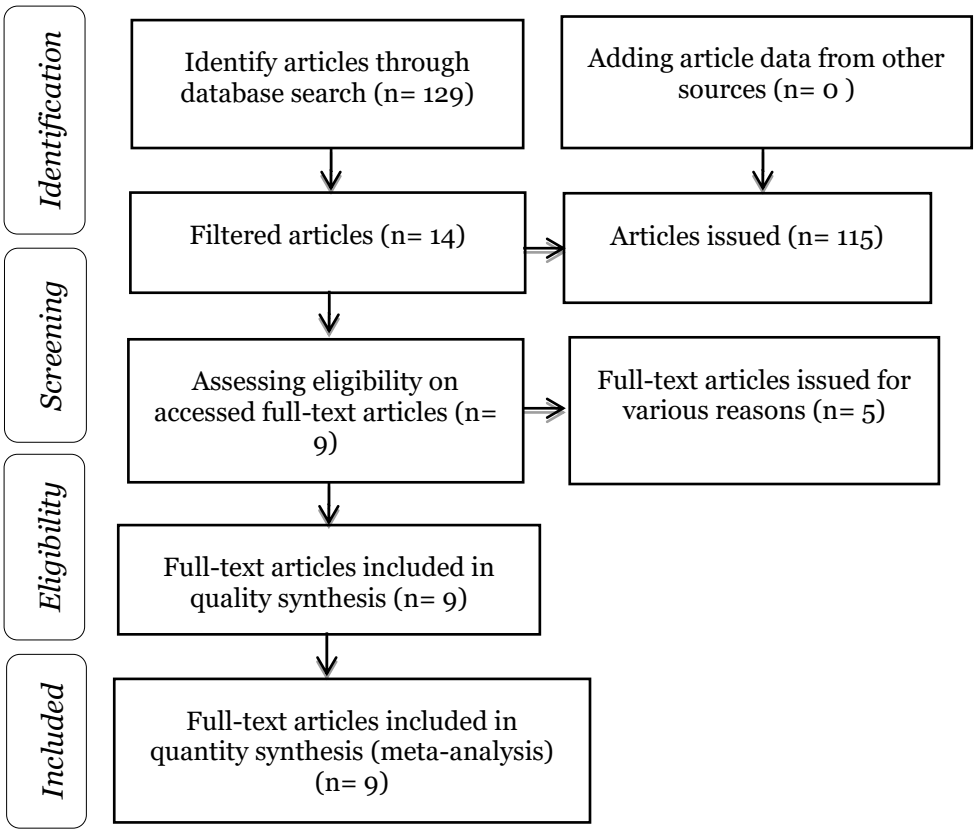


Figure 1. PRISMA Diagram

The characteristics of the articles included in the qualitative synthesis are described in table 1. The number of references and journal sources can be seen in table 2. The data for the extraction of articles can be seen in table 3. There are 2 risk factors that were analyzed using the review manager application.

1. The effect of coffee and tea consumption on the incidence of anemia in pregnant women

Pregnant women who have the habit of frequently consuming coffee or tea after eating have a 1.63 higher risk of anemia compared to pregnant women who do not have these habits, although the results were not statistically significant (p=0.06). The value of heterogeneity (I^2) in this analysis is 96%, so the authors use a random effect in determining the results (Figure 1).

Based on the results of the funnel plot (Figure 2), the results of the meta-analysis do not show publication bias due to the symmetrical distribution of the circles and there are circles that touch the center line of the graph.

2. The effect of low food diversity score on the incidence of anemia in pregnant women

Pregnant women who have low scores on dietary diversity have a risk of developing anemia by 4.16 higher than those who have moderate and high scores. These results were statistically significant (p=0.001). The heterogeneity value (I^2) in this analysis was 53%, so the authors used a random effect in determining the

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.21

results (graph 3). Based on the results of the funnel plot (graph 4), the results of the meta-analysis do not show publication bias due to the symmetrical distribution of circles.

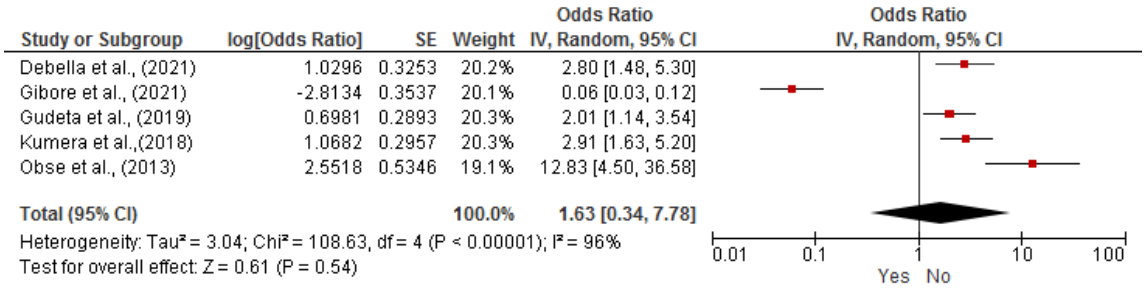


Figure 1. Forest plot of coffee and tea consumption variables

The forest plot in Figure 1 shows that pregnant women who consume coffee and tea have a 1.63 times risk of developing anemia compared to pregnant women who do not consume coffee and tea (aOR= 1.63; 95% CI= 0.34 to 7.78), and the results are statistically significant. significant (p= 0.54). The heterogeneity of the research data showed I^2= 96% so that the distribution of the data was declared heterogeneous (random effect model).

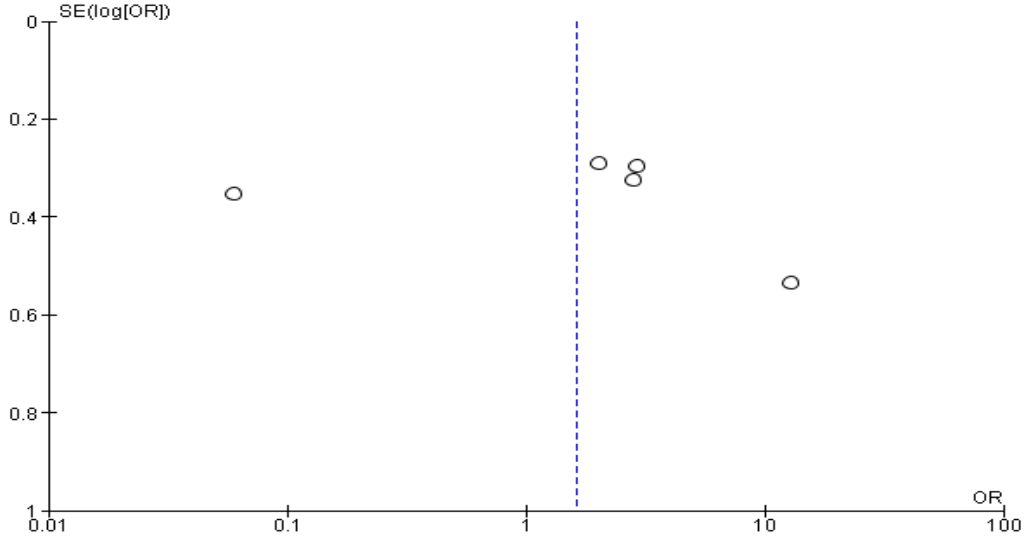


Figure 2. Funnel plot of coffee and tea consumption variables

The funnel plot in Figure 2 shows publication bias with an overestimated effect characterized by an asymmetric distribution between the right and left plots. There is one plot on the right and four plots on the left. The plot on the right side of the graph has a standard error (SE) between 0.2 and 0.4. The plot on the left side of the graph has a standard error (SE) between 0.2 and 0.6.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.21

Table 1. The Effect of Coffee and Tea Consumption and Dietary Diversity on Anemia in Pregnant Women

No	Author (year)	Country	Study design	Number of sample	P (Population)	I (Intervention)	C (Comparison)	O (Outcome)	aOR (CI 95%)
1	Deriba et al., (2020)	Ethiopia	Case-control	426 pregnant women (142 cases and 284 controls)	Pregnant women	Low diet diversity score	High diet diversity score	Anemia	3.29 (1.83 to 5.90)
2	Berhe et al., (2019)	Ethiopia	Case-control	600 pregnant women (150 cases and 450 controls)	Pregnant women	Low diet diversity score	High diet diversity score	Anemia	3 (1.5 to 5.5)
3	Tulu et al., (2019)	Ethiopia	Case-control	191 anemic pregnant women and 382 non-anemic pregnant women	Pregnant women	Low diet diversity score	High diet diversity score	Anemia	12.30 (4.64 to 32.72)
4	Ebuy et al., (2017)	Ethiopia	Case-control	264 pregnant women (88 cases and 176 controls)	Pregnant women	Low diet diversity score	High diet diversity score	Anemia	3.23 (1.19 to 8.71)

Table 2. The Effect of Coffee and Tea Consumption and Dietary Diversity on Anemia in Pregnant Women

No	Author (year)	Country	Study Design	Total of Subjects	P (Population)	I (Intervention)	C (Comparison)	O (Outcome)	aOR (CI 95%)
1	Kumera et al.,(2018)	Ethiopia	Cross-sectional	234 pregnant women	Pregnant women	Consuming tea and coffee after eating	Do not consume tea and coffee after eating.	Anemia	2.91 (1.63 to 8.78)
2	Gudeta et al., (2019)	Ethiopia	Cross-sectional	1871 pregnant women	Pregnant women	Consuming tea and coffee after eating	Do not consume tea and coffee after eating.	Anemia	2.01 1.14 to 3.55)
3	Obse et al., (2013)	Ethiopia	Cross-sectional	374 pregnant women	Pregnant women	Consuming tea and coffee after eating	Do not consume tea and coffee after eating.	Anemia	12.83 (4.5 to 28.9)
4	Gibore et al., (2021)	Tanzania	Cross-sectional	338 pregnant women	Pregnant women	Consuming tea and coffee after eating	Do not consume tea and coffee after eating.	Anemia	0.06 (0.03 to 0.13)
5	Debella et al., (2021)		Cross-sectional	405 pregnant women	Pregnant women	Consuming tea and coffee after eating	Do not consume tea and coffee after eating.	Anemia	2.8 (1.48 to 5.61)

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.21

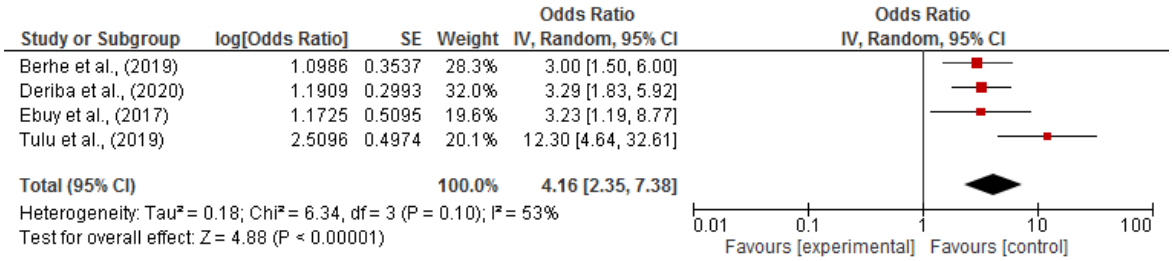


Figure 3. Forest plot variable low score of diet diversity

The forest plot in Figure 3 shows that pregnant women with low dietary diversity scores had 4.16 times the risk of developing anemia compared to pregnant women with high dietary diversity scores (aOR = 4.16; 95% CI = 2.35 to 7.38), and these results are generally statistically significant ($p<0.001$). The heterogeneity of the research data shows $I^2= 53\%$ so that the distribution of the data is declared heterogeneous (random effect model).

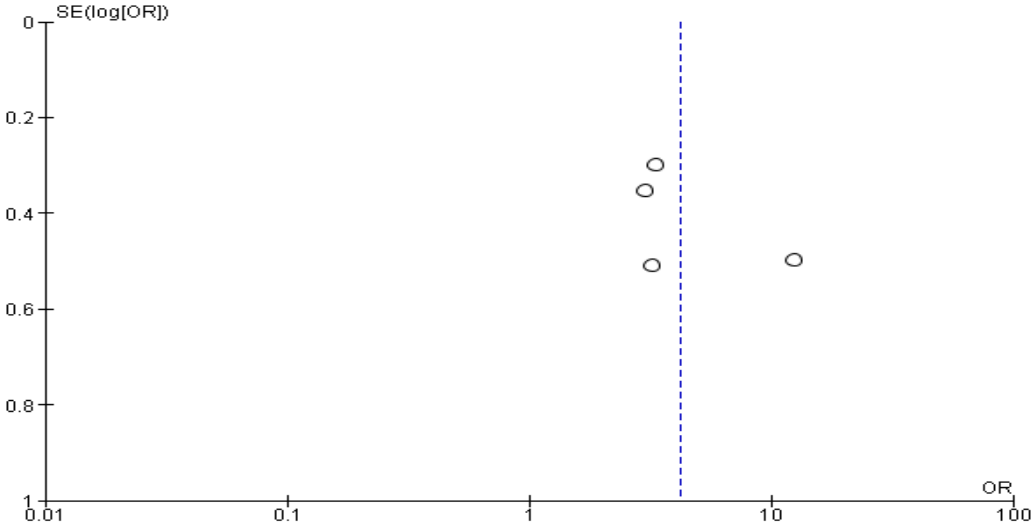


Figure 4. Funnel plot of the low score on the diversity of diets

The funnel plot in Figure 4 shows publication bias with an under-estimate effect characterized by an asymmetric distribution between the right and left plots. There are three plots on the right and one plot on the left. The plot on the right side of the graph has a standard error (SE) between 0.2 and 0.6. The plot on the left side of the graph has a standard error (SE) between 0.4 and 0.6.

DISCUSSION

The results of this meta-analysis show that there is a relationship between the habit of consuming coffee and tea after eating with the incidence of anemia in pregnant women. This is in accordance with the statement by Muñoz et al. (1988) who explained that maternal coffee intake during pregnancy can worsen anemia in the mother. The study by Sung et al.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.21

(2018) explained that coffee consumption was associated with lower serum ferritin levels in Korean adults. Ferritin is a protein that plays a role in storing iron. A decrease in ferritin levels can indicate a decrease in iron stores, and can be caused by a related nutritional deficiency condition (Putri, Nindya and Probosari, 2016).

Coffee and tea contain tannins which have the potential to interfere with iron absorption (Savolainen 1992). Coffee affects the bioavailability of iron and its potential as an absorption inhibitor tends to exacerbate anemia when physiological needs are increased or when dietary iron intake is essential (Food & Agriculture Org. 1988). A study by Fan 2016) has proven that drinking tea with or after meals can decrease iron absorption by up to 50%.

The results of the meta-analysis in this study stated that pregnant women who had low dietary diversity scores were more prone to developing anemia during their pregnancy. These results are in accordance with Gebremedhin and Enquselassie (2011) which states that respondents with low dietary diversity scores during pregnancy have a much higher risk of anemia. This is in line with the results of a study by Saaka (2015), that a high dietary diversity score is associated with a reduced risk of anemia in the third trimester of pregnancy. Low dietary diversity causes mineral and vitamin deficiencies that can affect the status of iron levels in the body. Given that during pregnancy there is an increase in the need for energy and nutrients which can be met by increasing the frequency of various meals (Berhe et al., 2019; Makhoul et al., 2012).

The conclusion of this study is that pregnant women who have a habit of drinking tea or coffee after eating and for mothers who have low scores on the diversity of daily food consumption are at risk of developing anemia during pregnancy. Increased education to mothers about correct and varied dietary habits can be delivered by health workers during antenatal visits. The diversity of countries of origin of articles in this meta-analysis is still limited to 2 countries. Therefore, the authors hope that further meta-analysis can expand the coverage of the country of origin of the article as well as other risk factors that influence anemia in pregnant women.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGMENT

We thank the online database providers PubMed, MEDLINE, and Google Scholar.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Abay A, Yalew HW, Tariku A, Gebeye E (2017). Determinants of prenatal anemia in Ethiopia. Arch Public Health. 75: 51. doi: 10.1186/s13690-017-0215-7.

Ayano B, Amentie B (2018). Assessment of prevalence and risk factors for anemia among pregnant mothers attending anc

clinic at Adama Hospital Medical Collage, Adama, Ethiopia, 2017. Obstet. Gynecol. 6(3): 31-39. doi: 10.11648/j.jgo.201806-03.11.

Balarajan Y, Ramakrishnan U, Ozaltin E, Shankar AH, Subramanian SV (20110). Anaemia in low-income and middle-income countries. Lancet. 378 (9809): 2123-2135. doi: 10.1016/S0140-6736(10)62304-5.

Benoist DB, McLean E, Egli I, Cogswell (2008). Worldwide Prevalence of Anaemia 1993-2005; WHO global database on anaemia. World Health Organization.

Berhe K, Fseha B, Gebremariam G, Teame H, Etsay N, Welu G, Tsegay T (2019). Risk factors of anemia among pregnant women attending antenatal care in health facilities of Eastern Zone of Tigray, Ethiopia, Case-Control Study, 2017/18. Pan Afr Med J. 34: 121. doi: 10.11604/-pamj.2019.34.121.15999.

Broek NVD (1998). Anaemia in Pregnancy in Developing Countries. Br J Obstet Gynaecol. 105 (4): 385-390. doi: 10.1111/j.1471-0528.1998.tb10120.x.

Debella A, Dheresa M, Geda B, Tiruye G, Fage SG (2021). A third of pregnant women are affected by anemia in Eastern Ethiopia: A Facility-Based Study. J Blood Med. 12: 299-306. doi: 10.2147-/JBM.S305567.

Ethiopia. Ethiop J Health Sci. 28 (5): 625-34. doi: 10.4314/ejhs.v28i5-.14.

Deriba BS, Bulto GA, Bala ET (2020). Nutritional-related predictors of anemia among pregnant women attending antenatal care in Central Ethiopia: An Unmatched Case-Control Study. Biomed Res. Int. 8824291. doi: 10.1155-/2020/8824291.

Ebuy Y, Alemayehu M, Mitiku M, Goba GK (2017). Determinants of severe anemia among laboring mothers in Mekelle City Public Hospitals, Tigray Region, Ethiopia. PLoS One. 12 (11): e0186724–e0186724. doi: 10.1-371/journal.pone.0186724.

Fan FS (2016). Iron deficiency anemia due to excessive green tea drinking. Clin Case Rep. 4 (11): 1053-1056. doi: 10.1002/ccr3.707.

FAO (1988). Requirements of Vitamin A, Iron, Folate, and Vitamin B12: Report of a Joint FAO/-WHO Expert Consultation (No. 23). Retrieved in https://agris.-fao.org/agris-search/search.do-?recordID=XF9095135.

Gebremedhin S, Enquselassie F (2011). Correlates of Anemia among Women of Reproductive Age in Ethiopia: Evidence from Ethiopian DHS 2005. Ethiop J Health Dev. 25 (1): 22-30. doi: 10.4314/ejhd.v25i1.69842.

Getahun W, Belachew T, Wolide AD (2017). Burden and associated factors of anemia among pregnant women attending antenatal care in Southern Ethiopia: Cross sectional study. BMC Res. Notes. 10(1): 276. doi: 10.1186/-s13104-017-2605-x.

Gibore NS, Ngowi AF, Munyogwa MJ, Ali MM (2021). Dietary Habits Associated with Anemia in

Pregnant Women Attending Antenatal Care Services. Curr Dev Nutr. 5 (1): nzaa178. doi: 10.1093/cdn/nzaa178.

Gudeta TA, Regassa TM, Belay AS (2019). Magnitude and factors associated with anemia among pregnant women attending antenatal care in Bench Maji, Keffa and Sheka Zones of Public Hospitals, Southwest, Ethiopia, 2018: A Cross-Sectional Study. PloS One. 14 (11): e0225148. doi: 10.1371/journal.pone.0225-148.

Handayani RT, Widiyanto A, Atmojo JT, Setyorini C (2020). Effect of Antenatal Mental Health Disorder on Fetal Growth: A Systematic Review. J Matern Child Health, 5 (2): 147-153. doi: 10.-26911/thejmch.2020.05.02.04.

Karaoglu L, Pehlivan E, Egri M, Deprem C, Gunes G, Genc MF, Temel I (2010). The prevalence of nutritional anemia in pregnancy in an East Anatolian Province, Turkey. BMC Public Health. 10: 329. doi: 10.1186/-1471-2458-10-329.

Khan KS, Wojdyla D, Say L, Gulmezoglu AM, Look PFV (2006). WHO Analysis of causes of maternal death: a systematic review. Lancet. 367 (9516): 1066-74. doi: 10.1016/S0140-6736(06)68397-9.

Kumar GS, Premarajan KC, Kar SS (2013). Anemia among antenatal mothers with better healthcare services in a rural area of India. J Res Med Sci. 18(2): 171.

Kumera G, Haile K, Abebe N, Marie T, Eshete T (2018). Anemia and its association with coffee consumption and hookworm infection among pregnant women attending antenatal care at Debre Markos Referral Hospital, Northwest Ethiopia. PloS One. 13 (11): e0206880. doi: 10.1371-/journal.pone.0206880.

Makhoul Z, Taren D, Duncan B, Pandey P, Thomson C, Winzerling J, Muramoto M, Shrestha (2012). Risk factors associated with anemia, iron deficiency and iron deficiency anemia in Rural Nepali pregnant women. Southeast Asian J Trop Med Public Health. 43 (3): 735-746.

Muhangi L, Woodburn P, Omara M, Omoding N, Kizito D, Mpairwe H, Nabulime J, et al. (2007). Associations between Mild-to-Moderate Anaemia in Pregnancy and Helminth, Malaria and HIV Infection in Entebbe, Uganda. Trans R Soc Trop Med Hyg. 101 (9): 899-907. doi: 10.1016/j.trstmh.2007.03.017.

Muñoz LM, Lönnerdal B, Keen CL, Dewey KG (1988). Coffee Consumption as a Factor in Iron Deficiency Anemia among Pregnant Women and Their Infants in Costa Rica. Am. J. Clin. Nutr. 48(3): 645–51. doi:10.1093/-AJCN/48.3.645.

Obse N, Mossie A, Gobena T (2013). Magnitude of Anemia and Associated Risk Factors among Pregnant Women Attending Antenatal Care in Shalla Woreda, West Arsi Zone, Oromia Region, Ethiopia. Ethiop J Health Sci. 23(2): 165-173.

Putri NMG, Probosari E (2016).

Perbedaan kadar serum ferritin remaja putri status gizi normal dan status gizi lebih (Differences in serum ferritin levels of adolescent girls with normal nutritional status and over nutritional status). J Am Coll Nutr. 4 (5): 360-367. doi: 10.14710/jnc.-v5i4.16449.

Saaka M, Rauf AA (2015). Role of dietary diversity in ensuring adequate haematological status during pregnancy. Int. j. med. 4 (4): 749-755. doi: 10.5958/2319-5886.2015.00146.0.

Salhan S, Tripathi V, Singh R, Gaikwad HS (2012). Evaluation of hematological parameters in partial exchange and packed cell transfusion in treatment of severe anemia in pregnancy. Anemia. 2012: 608658. doi: 10.1155/2012/608658.

Savolainen H (1992). Tannin Content of Tea and Coffee. J Appl Toxicol. 12 (3): 191-192. doi: 10.10-02/jat.2550120307.

Sung ES, Choi CK, Kim NR, Kim SA, Shin M (2018). Association of Coffee and Tea with Ferritin: Data from the Korean National Health and Nutrition Examination Survey (IV and V). Chonnam Med J. 54 (3): 178-183. doi: 10.4068/cmj.2018.54.3.178.

Tadesse SE, Seid O, Mariam Y, Fekadu A, Wasihun Y, Endris K, Bitew A (2017). Determinants of anemia among pregnant mothers attending antenatal care in Dessie Town Health Facilities, Northern Central Ethiopia, Unmatched Case - Control Study. PloS One. 12 (3): e0173173. doi: 10.1371/journal.-pone.0173173.

Tolentino K, Friedman JF (2007). An update on anemia in less developed countries. Am J Trop Med Hyg. 77 (1): 44–51.

Tulu BD, Atomssa EM, Mengist HM (2019). Determinants of anemia among pregnant women attending antenatal care in Horo Guduru Wollega Zone, West Ethiopia: Unmatched Case-Control Study. PloS One. 14 (10): e0224514. doi: 10.1371/journal.-pone.0224514.

Weldekidan F, Kote M, Girma M, Boti N, Gultie T (2018). Determinants of anemia among pregnant women attending antenatal clinic in Public Health Facilities at Durame Town: Unmatched Case Control Study. Anemia. 2018: 8938307. doi: 10.1155/-2018/8938307.

WHO (2015). The Global Prevalence of Anaemia in 2011. Retrieved in https://apps.who.int/iris/bitstream/handle/10665/177094/9789241564960_eng.pdf.

WHO (2014). Global Nutrition Targets 2025: Policy Brief Series. Retrieved in https://-www.who.int/publications/i/item/WHO-NMH-NHD-14.2.

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.21

EFFECT OF WORKING IN THE HEALTH SECTOR ON THE SLEEP QUALITY DURING THE COVID-19 PANDEMIC

Monarisa[1)], Silfina Indriani[1)], Helmanis Suci[2)], Febry Handiny[3)], Gusni Rahma[3)]

[1)]Study Program of Midwifery, Institute of Health Science Alifah, Padang
[2)]Study Program of Nursing, Institute of Health Science Alifah, Padang
[3)]Study Program of Public Health, Institute of Health Science Alifah, Padang

ABSTRACT

Background: The COVID-19 pandemic has had a major impact on people's lives, especially health workers. A study in Kupang City reported that 45.45% of health workers experienced poor sleep quality during the COVID-19 pandemic. Lack of sleep has a detrimental effect on the immune response and can increase susceptibility to COVID-19 infection. This study aimed to determine effect of working in the health sector on the sleep quality during the COVID-19 pandemic.
Subjects and Method: This was a cross-sectional study. A sample of 140 subjects from the general population was selected for this study. The dependent variable was sleep quality. The independent variable was employment status. Sleep quality was measured by the Pirtzburg Sleep Quality Index (PSQI) questionnaire. The data were analyzed using chi-square and simple logistic regression.
Results: The proportion of poor sleep quality among the health workers was 52.86%, and in the non-health workers was 31.43%, and this difference was statistically significant (p= 0.027). Working in the health sector was associated with decreased with the sleep quality (OR= 2.24; 95% CI= 1.10 to 4.51; p= 0.027).
Conclusion: Working in the health sector is associated with decreased with the sleep quality during the COVID-19 pandemic.

Keywords: COVID-19, sleep quality, health workers

Correspondence:
Monarisa. Study Program of Midwifery, Institute of Health Science Alifah, Padang. Jl. Khatib Sulaiman No. 52b Padang West Sumatera. Email: monarisa85@gmail.com. Mobile: 082217599394.

BACKGROUND

Corona Virus Diseases 2019 (Covid-19) caused by the corona virus (SARS-CoV-2) has infected almost all countries in the world. The World Health Organization (WHO) declared the COVID-19 outbreak a pandemic in March 2020 due to the high number of cases and the very fast and widespread transmission. The Covid-19 pandemic is an international health emergency marked by an increase in positive cases every day. Based on the latest data obtained on October 14, 2021 from (WHO, 2021) Covid-19 cases in the world reached 239 million cases and in Indonesia as many as 4.2 million cases. Meanwhile, the Covid-19 case in West Sumatra, reports from (West Sumatra Provincial Government, 2021) were 88,613 positive cases, of which the highest cases were in Padang City with 42,125 cases.

Covid-19 has caused a global health crisis with the number of people infected and dying every day

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.22

increasing. Various countries have tried to control its spread by applying the basic principles of social distancing. In Indonesia, it is known as PSBB (Large-Scale Social Restrictions) and is currently changing to PPKM (Enforcement of Restrictions on Community Activities). In addition, health protocols must also be applied in daily life such as washing hands with soap, wearing masks and maintaining a distance which is useful for deciding the spread of the virus. Information that appears on social media and has not been confirmed has its own impact on the community and health workers (Karlinda et al., 2021).

The Covid-19 pandemic has had a huge impact on people's lives. According to (Wang et al., 2020) the losses caused by the Covid-19 pandemic are physical health disorders, social and economic disorders, and mental health disorders. These disturbances are not only felt by the community, but also experienced by health workers. During the Covid-19 pandemic, health workers at hospitals and other health facilities will continue to provide services to patients as usual with all the risks involved. This is especially true for health workers who are directly involved in handling Covid-19 positive patients. This has its own psychological impact on health workers. Psychological impacts that occur on health workers include high anxiety, fear, insomnia, stress and depression, and decreased sleep quality (Stelnicki et al., 2020).

Several studies have shown a high rate of poor sleep quality among health workers during the COVID-19 pandemic. Research in Kupang by (Bessie et al., 2021) reported that 45.54% of nurses experienced poor sleep quality and a study in Temanggung found that 37.1% of nurses had poor quality sleep. bad sleep. Sleep quality according to (Purnamasari et al., 2021) can be influenced by several factors, namely age, environment, activity fatigue, drug use and stress. If one of the sleep needs is not met, then indirectly someone will be said to have poor sleep quality. As you get older, you get less sleep and get tired easily, and can trigger psychological problems that result in a decrease in sleep quality. The female sex has psychology and emotions that are more sensitive and sensitive, so it is easy to stress which results in sleep disturbances. During the pandemic, people who work as health workers will have excessive working time and the use of Personal Protective Equipment (PPE) while on duty can reduce the performance of officers due to fatigue at work.

Sleep is a basic need for humans, and during sleep the body rests and the organs and functions of the body regenerate. For human physiological needs, sufficient quantity and quality of sleep is needed. The effects of decreased sleep quality and disturbed sleep patterns are physical disturbances such as increased heart metabolism such as hypertension, type 2 diabetes mellitus, obesity and other cardiovascular diseases (St-Onge et al., 2016). In addition, decreased sleep quality can also cause physical weakness and a weakened immune system (Pappa et al., 2020). Lack of sleep has a detrimental effect on the immune response and can lead to increased

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.22

susceptibility to COVID-19 infection and yet. The purpose of this study was to determine the factors that most influence the quality of people's sleep during the Covid-19 pandemic in Padang City.

SUBJECTS AND METHOD

1. Study Design

This research was conducted using an analytical observational design with a cross sectional study design with a predictive model.

2. Population and Sample

The population in the study were all health workers who directly handle Covid-19 patients at the Covid-19 referral hospital, namely Dr M Djamil Hospital, Padang City and Dr Rasidin Padang Hospital and the general public who work other than health workers (non-health workers). The research sample was taken by purposive sampling, obtained as many as 140 respondents who met the inclusion and exclusion criteria. The research was conducted in the city of Padang.

3. Operational Definition of Variable

The operational definition of sleep quality is poor sleep quality, namely score >5 and good sleep quality score 5, work status is divided into two categories (health workers and non-health workers). Age is grouped into two age categories < 35 Years and 35 Years and Gender is categorized into male and female.

4. Variable

The independent variables in the study are age, gender and work status and the dependent variable is sleep quality.

5. Instrument

Data was collected using the Maritz-burg Sleep Quality Index (PSQI) questionnaire to measure the sleep quality of the respondents.

6. Data Analysis

Univariate data analysis, bivariate analysis was carried out using chi square test and multivariate analysis using logistic regression test.

7. Research Ethics

This research has received ethical approval from the Ethics Committee of the Central General Hospital Dr M Djamil Padang Number 385/KEPK-/2021 September 21, 2021.

RESULTS

Based on Table 1, it is known that the total respondents were 140 respondents. Based on age, most of the respondents were 35 years old or older (50.71%). Half of the respondents are female (57.14%), work as health workers (50%), and had poor sleep quality (42.14%).

Table 1. Frequency Distribution of the Study Subjects

Characteristics	Category	Frequency	Percentage
Age	< 35 years	69	49.29%
	≥ 35 years	71	50.71%
Gender	Male	60	42.86%
	Female	80	57.14%
Working status	Health Personnel	70	50%
	Non Health Personnel	70	50%
Sleep Quality	Poor	59	42.14%
	Good	81	57.86%

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.22

Table 2 shows that the proportion of poor sleep quality is more common in health workers (52.86%) and respondents aged 35 years or older (52.11%) and female (48.75%). The results of the analysis showed that work status and age were related to sleep quality ($p<0.05$) and there was no significant relationship between gender and respondent's sleep quality with p= 0.098.

Table 2. Relationship of Age, Gender, Occupation, and Sleep Quality

Variable	Sleep Quality				Total		OR	p
	Poor		Good					
	N	%	N	%	N	%		
Working Status								
Health Personnel	37	52.86%	33	47.14%	70	100%	2.45	0.017
Non Health Personnel	22	31.43%	48	68.57%	70	100%		
Age								
≥ 35 years	37	52.11%	34	47.89%	71	100%	2.32	0.024
< 35 years	22	31.88%	47	68.12%	69	100%		
Gender								
Male	20	33.33%	40	66.67%	60	100%	1.90	0.098
Female	39	48.75%	41	51.25%	80	100%		

Table 3. Multivariate Analysis of Factors Affecting Sleep Quality

Independent Variables	aOR	95% CI		p
		Lower limit	Upper limit	
Working Status	2.24	1.10	4.52	0.025
Age	2.11	1.04	4.26	0.037

Based on Table 3, the final model of multivariate analysis using logistic regression showed that the variables related to sleep quality were work status and age. However, the variable that has the most influence on sleep quality is work status with a POR of 2.24 (95% CI 1.10 – 4.51), meaning that health workers have a 2.24 times chance of experiencing poor sleep quality compared to non-health workers during the Covid-19 pandemic.

DISCUSSION

In this study, the proportion of poor sleep quality was mostly found in health workers, around 52.86%. This result is higher when compared to a study conducted (Kalinda et al., 2021) which found poor sleep quality in nurses of around 37.1% and a study (Bessie et al., 2021) which reported that 45.45% of nurses experienced poor sleep quality. bad.

However, the results of this study are lower when compared to the study (Tu et al., 2020) in China which found 60% of health workers who treat Covid-19 patients directly experience poor sleep quality. Occupational status is related to sleep quality. In this study, the POR was 2.24 (95% CI 1.10 to 4.51). Health workers are 2.24 times more likely to experience poor sleep quality compared to the general public (non-health workers).

This result is in line with a study in Spain on sleep characteristics by (Martin et al., 2020) which found that health workers had a 3.01 times risk of experiencing poor sleep quality

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.22

compared to non-health workers. Based on research (Wang et al., 2020), health workers who treat Covid-19 patients directly have a 2.97 times risk of experiencing sleep disorders.

The psychological impact caused by the Covid-19 pandemic, especially for health workers, is the occurrence of disturbances in sleep patterns or a decrease in sleep quality.

Sleep is an unconscious state in which the individual's perception and reaction to the environment decreases or disappears and can be awakened again with sufficient sensory and stimulus. In addition, sleep is also said to be a state of relative unconsciousness, not just a state of complete serenity without activity, but is a repetitive sequence of cycles (Mubarak et al., 2015).

Sleep is a repetitive state, where changes in the state of consciousness occur during a certain period (Potter & Perry, 2011). A person who experiences a sleep pattern disorder will show major and minor symptoms and signs such as subjectively complaining of difficulty sleeping, complaining of being awake often, complaining of not being satisfied with sleep, complaining of changing sleep patterns, and complaining of insufficient rest, complaining of decreased ability to move, the presence of blackness in the area. around the eyes, the conjunctiva looks red, and the face looks sleepy (Mubarak et al., 2015).

According to (Martin et al., 2020) health workers who are directly involved in handling COVID-19 patients show higher sleep disturbances than non-health workers. In addition, poor sleep quality can lead to decreased performance of health workers and risk to patient safety (Kalinda et al., 2021). Based on (Potter & Perry, 2011) several factors related to sleep quality are health status, psychological stress, physical activity, nutrition, environment, lifestyle, and use of drugs. Research conducted (Rehman et al., 2021) states that the factors that cause health workers to experience poor sleep quality are depression, stress and excessive anxiety while on duty dealing with Covid-19 patients. Based on (Zhan et al., 2020) sleep disturbances in nurses are caused by negative experiences related to COVID-19 such as family, friends, relatives who are seriously ill or die from the disease, anxiety about the possibility of being exposed to COVID-19 while working with patients. positive , and exhausted with a heavier workload during the pandemic.

In this study, respondents had poor sleep quality at the age of 35 years or older. This is in line with research conducted (Kalinda et al., 2021) which found that someone who was more than 40 years old experienced a decrease in sleep quality. Based on (Kazemi et al., 2015) elderly people have high sleep disturbances such as frequent awakenings and the intensity of going to the bathroom more often at night. As a person's age increases, the quality of sleep decreases. In this study, many health workers aged 35 years or older could increase the risk for experiencing sleep disorders. In addition, officers who are directly involved in handling Covid-19 patients must use Personal Protective Equipment (PPE) and treat patients in

https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.22

closed rooms so that they have the risk of lack of fluids and fatigue due to the use of hazmat. Physical conditions that are too tired can lead to a decrease in sleep quality (Kalinda et al., 2021).

The limitation of the research on the use of a cross sectional design has a weakness because there is no clear temporal time relationship. Not all risk factors for sleep quality can be studied such as anxiety, depression and stress. Sleep quality can be influenced by several factors. This quality can indicate the individual's ability to sleep and get the amount of rest according to his needs. This study shows that work status affects a person's sleep quality. A person who works as a health worker has a 2.24 times chance of experiencing poor sleep quality compared to the community (non-health workers). Health workers as the front line must have good sleep quality in order to provide the best service to the community. For this reason, the fulfillment of the needs for health workers must be considered by the hospital, such as eliminating anxiety that they can contract Covid-19 while on duty by providing complete PPE while on duty, fulfilling nutritional and vitamin needs, as well as setting working hours so that health workers can have adequate rest time. enough to minimize fatigue in health workers, so that the quality of sleep can be good.

AUTHOR CONTRIBUTION

MR and SI designed the research concept framework. HS and FH conducted a literature search, SI and HS coordinated data collection. GR conducted data analysis and created tables, MR and FH wrote the first draft of the manuscript. All authors wrote, reviewed and edited the final manuscript.

FUNDING AND SPONSORHIP

This research was funded by a grant from the Ministry of Education and Culture.

ACKNOWLEDGEMENT

The authors would like to thank all respondents in this study and to Dr M Djamil Hospital Padang and dr. Rasidin Padang Hospital who have given permission to collect research data and to the Ministry of Education and Culture who has provided support in the form of research funds and to STIKes Alifah Padang who has facilitated in carry out the Tridharma of Higher Education.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Bessie VA, Buntoro IF, Damabik EMB (2021). Hubungan tingkat stres dengan kualitas tidur pada mahasiswa semester VII Di Fakultas (The relationship between stress levels and sleep quality in semester VII Students at the Faculty). Cendana Medical Journal. 21(1): 17–23. https://-doi.org/https://doi.org/10.355-08/cmj.v9i1.4928.

Karlinda L, Aini F, Wakhid A (2021). Gambaran Kualitas Tidur Perawat Pasien Covid-19 Setelah Satu Tahun Pandemi Covid-19. Jurnal Ilmu Keperawatan. 4(3): 646–652.

Kazemi M, Hosieni F, Rezaeian M, Fasihih T, Akbary A (2015). Factors associated with quality of sleep of nurses at Rafsanjan University of Medical Sciences, Iran, in 2013. Journal of Occupational Health and Epidemiology. 4(1); 26–33. https://doi.org/10.18869/acadpub.johe.4.1.26.

Martin HSA, Parra Serrano J, Diaz Cambriles T, Arias-Arias EM, Muñoz-Méndez J, del-Yerro-Álvarez MJ, González-Sánchez, M (2020). Sleep characteristics in health workers exposed to the COVID-19 pandemic. Sleep Medicine. 75; 388–394. https://doi.org/10.1016/j.sleep.2020.08.013

Mubara, Iqbal W, Indrawati L, Susanto J (2015). Salemba Medika. Buku Ajar Ilmu Keperawatan Dasar.

Pappa S, Ntella V, Giannakas T, Giannakoulis VG, Papoutsi E, Katsaounou P (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. Brain, Behavior and Immunity. 88: 901–907. https://doi.org/10.1016/j.bbi.2020.05.026.

Pemprov Sumbar. (2021). Data Pantauan COVID-19 Provinsi Sumatera Barat (West Sumatra Province COVID-19 Monitoring Data). https://corona.sumbarprov.go.id/.

Potter PA, Perry (2011). Fundamental Of Nursing: Consep. Proses and Practice (7th ed.). EGC.

Purnamasari F, Andriani R, Marsiwi, (2021). Hubungan Tingkat Kecemasan Dengan Kualitas Tidur Perawat Pada Masa Pandemi Covid – 19 (The Relationship between Anxiety Levels and Nurses' Sleep Quality During the Covid-19 Pandemic). Jurnal Ilmiah Kesehatan Keris Husada, 5(01): 5–17. http://www.ojs.akperkerishusada.ac.id/index.php/akperkeris/article/view/27.

Rehman U, Shahnawaz MG, Khan NH, Kharshiing KD, Khursheed M, Gupta K, Kashyap D, Uniyal R (2021). Depression, Anxiety and Stress Among Indians in Times of Covid-19 Lockdown. Community Mental Health Journal. 57(1); 42–48. https://doi.org/10.1007/s10597-020-00664-x.

St-Onge, MP, Grandner MA., Brown D, Conroy MB, Jean-Louis G, Coons M, Bhatt DL (2016). Sleep Duration and Quality: Impact on Lifestyle Behaviors and Cardiometabolic Health: A Scientific Statement from the American Heart Association. Circulation. 134(18). e367–e386. https://doi.org/10.1161/CIR.0000000000000444.

Stelnicki AM, Carleton RN, Reichert C (2020). Nurses Mental Health and Well-Being: COVID-19 Impacts. The Canadian Journal of Nursing Research = Revue Canadienne de Recherche En Sciences Infirmieres, 52(3), 237–239. https://doi.org/10.1177/0844562120931623.

Tu ZH, He JW, Zhou N (2020). Sleep quality and mood symptoms in

conscripted frontline nurse in Wuhan, China during COVID-19 outbreak: A cross-sectional study. Medicine, 99(26); e20769. https://doi.org/10.1097/MD.0000000000020769.

Wang S, Xie L, Xu Y, Yu S, Yao B, Xiang D (2020). Sleep disturbances among medical workers during the outbreak of COVID-2019. Occupational Medicine. 70(5). 364–369. https://doi.org/10.1093/occmed/kqaa074.

WHO (2021). WHO Coronavirus (COVID-19) Dashboard. https://covid19.who.int/?gclid=Cj0KCQjwqp-LBhDQARIsAO0a6aI-AmAH0fUC3TayPOZZn1lo9eemw199ePGAUMcSdA2SPFGDSbpq-CYaAooiEALw_wcB.

Zhan Y, Liu Y, Liu H, Li M, Shen Y, Gui L, Zhang J, Luo Z, Tao X, Yu J (2020). Factors associated with insomnia among Chinese frontline nurses fighting against COVID-19 in Wuhan: A cross-sectional survey. Journal of Nursing Management, 28(7), 1525–1535. https://doi.org/10.1111/jonm.13094.

RELATIONSHIP BETWEEN SOCIO-DEMOGRAPHIC FACTORS AND PERCEPTION OF THE NATIONAL HEALTH INSURANCE PARTICIPATION IN PANDAN HEALTH CENTER, CENTRAL TAPANULI, INDONESIA

Faisal

School of Health Polytechnics Medan, Tapanuli Tengah

ABSTRACT

Background: Increasing participation in the national health insurance is an indicator of universal coverage. According to the national health insurance roadmap, it is expected that people who have not been enrolled in the national health insurance will immediately register as participants. The coverage of national health insurance participation was low in the working area of Pandan Health Center, Central Tapanuli. This study aimed to determine the relationship between the socio-demographic factors and perception of the national health insurance participation at Pandan Health Center, Central Tapanuli.
Subjects and Method: A cross-sectional study was conducted at Pandan Health Center, Central Tapanuli, from February to May 2018. A sample of 100 families of national health insurance participants was selected in this study. The dependent variable was national health insurance participation. The independent variables were perceived benefit and perceived barrier. Data were analyzed using logistic regression.
Results: Perceived benefit increased the participation in national health insurance, and were statistically significant (aOR= 13.52; 95% CI= 1.60 to 114.05; p= 0.017). Perceived barrier decreased the participation in national health insurance, and were statistically significant (aOR= 0.37; 95% CI= 0.01 to 0.51; p= 0.008).
Conclusion: Perceived benefit increases and perceived barrier decreases the participation of national health insurance.

Keywords: sociodemography, perception, participation, national health insurance.

Correspondence:
Faisal. Health Polytechnics Medan. Jl. AR. Surbakti Sihaporas Nauli Village, Pandan District, Central Tapanuli, Indonesia. Email: faisaltapteng@gmail.com. Mobile: +62813-70055454.

BACKGROUND

The National Health Insurance is a program from the Government of the Republic of Indonesia in the form of social protection guarantees for the community in order to obtain health care benefits and protection in meeting basic needs in the health sector. The guarantee is given to everyone who has paid dues or to participants who are Contribution Assistance Recipients whose contributions are paid by the government. Health insurance in the National Social Security System, is implemented on the principle of social insurance with mandatory participation for all Indonesians, which requires public participation in the form of paying health insurance contributions fairly based on the participants' financial capacity (UU RI, 2004).

The Social Security Administration as the implementing agency has carried out various activities to accelerate the National Health Insurance roadmap process so that universal

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.01

coverage can be achieved. Socialization in various mass media about benefits, payment methods, the amount of dues that can be chosen according to ability, has been carried out, but the expected results that there will be an increase in membership independently have not been seen clearly (Hermawati, 2013).

Many studies both foreign and local state that factors related to community participation in social security participation include age, gender, knowledge, education, ethnicity, and chronic diseases suffered. However, not many have investigated how community participation Social security participation is influenced by sociodemographic factors (age, education and income) and perceptions (perceptions of vulnerability to disease, perceptions of the severity of the impact felt if sick, perceptions of threats to health problems, perceptions of the benefits of the National Health Insurance program, and perceptions of obstacles that might be experienced). As a participant in the National Health Insurance program (Widhiastuti, 2015).

Based on the above background, the formulation of the problem in this study is what are the sociodemographic factors (age, education and income), perceptions (perceptions of disease susceptibility, perceptions of the severity of the impact felt if sick, perceptions of threats to health problems, perceptions of the benefits of the National Health Insurance program, and perceptions of obstacles that may be experienced as National Health Insurance participants) relate to the independent participation of the National Health Insurance program.

The purpose of this study was to determine the relationship between socio-demographic factors (age, education and income) and perceptions (perceived susceptibility, perceived severity, perceived threats, perceived benefits, and perceived barrier) with National Health Insurance participation independently in the community in the working area of the Pandan Health Center, Pandan District, Central Tapanuli Regency. The research hypothesis is that there is a relationship between sociodemographic factors and perceptions of National Health Insurance participation independently in the community in the working area of Pandan Health Center.

SUBJECTS AND METHOD

1. Study Design

This cross-sectional study was conducted at Pandan Health Center, Central Tapanuli, Indonesia, from February to May 2018.

2. Population and Sample

The population in this study were all heads of families who lived and settled at Pandan Health Center, Central Tapanuli, Indonesia, as many as 6,484 families (*BPS Tapanuli Tengah*, 2017) and the sample was the head of the family from the community in the Pandan Community Health Center area of independent National Health Insurance participants. and heads of families who are not National Health Insurance participants as many as 100 families and are willing to participate as subjects by signing informed consent.

3. Study Variables

The dependent variable is national health insurance participation. The

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.01

independent variables of this study were socio-demographic (age, education and income) and perceptions (perceptions of disease susceptibility, perceptions of the severity of the impact felt if sick, perceptions of threats to health problems, perceptions of the benefits of the National Health Insurance program, and perceptions of obstacles that might be experienced as National Health Insurance participants).

4. Operational Definition of Variable

Age is the age of the subject calculated from the date of birth to the time of the study expressed in years and measured by interviews. Age was categorized as adults (<45 years) and elderly (≥45 years).

Education is the last formal education of the subject. Education is categorized into low (below high school) and higher education (above high school).

Income is the average amount of family income in one month that is measured. Income is categorized into <UMR (< Rp. 2,052,157) and UMR (≥ Rp. 2,052,157).

Perception of vulnerability is the view of the head of the household evaluating the types of health problems that may threaten health with positive (score > 62.5%) and negative (score < 62.5%).

Severity perception is the view of the head of the family about the severity of the health problems faced if a family member is sick with positive (score > 62.5%) and negative (score < 62.5%).

Threat perception is the view of the head of the family about the perceived threat if a family member has a health problem with positive (score >62.5%) and negative (score <62.5%).

Perception of benefits is the view of the head of the family about the benefits of participating in the national health insurance program, with positive measurement results (score >62.5%) and negative (score < 62.5%).

Perception of barriers is the view of the head of the family about the obstacles that might be obtained if they participate in the national health insurance program with positive (answer score > 62.5%) and negative (answer score < 62.5%).

5. Study Instrument

The instrument used in this study is a questionnaire that has been tested for validity and reliability.

6. Data Analysis

Data analysis used was bivariate test with chi-square and multivariable test with logistic regression test.

RESULTS

1. Sample Characteristics

Based on Table 1 shows that most of the subjects are elderly as many as 60 people (60%), with a high level of formal education as many as 85 people (85%), and the majority earning >minimum wage which is Rp 2,052,157.

Based on Table 2 shows that almost all subjects have a positive perception of disease susceptibility (98%), the severity of the impact felt if sick (88%), and the perception of the benefits of the national health insurance program (80%), except for the perception of threats to health problems (52%). This finding is expected to increase the chances of people's desire to become participants in the national

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.01

health insurance independently. This possibility is also reinforced by the finding that the perception of barriers that may be experienced as participants in the national health insurance is negative (88%).

Table 1. Sample Characteristics by Socio-Demographic

Sample Characteristics	n	%
Age		
Adult (> 45 years old)	40	40
Elderly (≥ 45 years old)	60	60
Education		
Low (< SHS)	15	15
High (≥ SHS)	85	85
Income		
< minimum wage (<Rp 2,052,157)	11	11
≥ minimum wage (≥Rp 2,052,157)	89	89

Table 2. Study Subjects' Perceptions toward National Health Insurance

Subject Perception	n	%
Vulnerability Perception		
Positive	98	98
Negative	2	2
Severity Perception		
Positive	88	88
Negative	12	12
Threat Perception		
Positive	52	52
Negative	48	48
Benefits Perception		
Positive	80	80
Negative	20	20
Perception Barriers		
Positive	12	12
Negative	88	88

Table 3. Type of National Health Insurance Participation

National Health Insurance Participation	n	%
Independent National Health Insurance participants	37	37
Not an Independent national health insurance Participant	63	63

Based on Table 3, it can be seen that the majority of subjects were not participants in the national health insurance independently as many as 63 people (63%).

2. Bivariate Analysis

Based on Table 4 shows that the variables perceived benefits (OR= 15.55; 95% CI= 0.46 to 0.72; p= 0.001) and perceived barriers (OR= 11.30; 95% CI= 0.07 to 0.86; p = 0.001) increased the chances of participating. Participation in national health insurance independently in the working area of Pandan Health Center, and this result is statistically significant. The results of the bivariate test obtained 3 variables that had a p value of <0.25 which were used as candidates for the multivariate test.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.01

Table. 4 Bivariate analysis of socio-demographic factors and National Health Insurance membership independently

Independent Variable	National Health Insurance Fidelity		OR	95% CI		p
	Participant	Not participant		Lower limit	Upper Limit	
Age						
≥ 45 years old	23	37	1.15	0.70	1.28	0.899
< 45 years old	14	26				
Education						
High	30	55	0.62	0.41	1.40	0.582
Low	7	8				
Income						
≥ minimum wage	35	54	2.92	0.54	2.03	0.205
< minimum wage	2	9				
Vulnerability Perception						
Positive	37	61	0.38	0.33	0.72	0.529
Negative	0	2				
Severity Perception						
Positive	34	54	1.89	0.57	3.28	0.527
Negative	3	9				
Threat Perception						
Positive	22	30	1.61	1.13	2.35	0.349
Negative	15	33				
Benefits Perception						
Positive	36	44	15.55	0.46	16.72	0.001
Negative	1	19				
Perception Barriers						
Positive	10	2	11.30	8.07	12.85	0.001
Negative	27	61				

Table 5. Multivariate analysis of socio-demographic factors and National Health Insurance membership independently

Variable	aOR	95% CI		p
		Lower limit	Upper limit	
Income	2.83	0.54	14.90	0.221
Benefits Perception	13.52	1.60	114.05	0.017
Obstacle perception	12.71	1.97	82.01	0.008
N observation= 100				
-2 log likelihood= 102.51				
Negelkerke R^2= 0.35%				

Based on Table 5 shows that perceived benefits (aOR= 13.52; 95% CI= 1.60 to 114.05; p= 0.017) and perceived barriers (aOR= 12.71; 95% CI= 1.79 to 82.01; p = 0.008) increase the chances of participating national health insurance, and this result is statistically significant.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.01

DISCUSSION

1. The relationship between age and national health insurance participation

These results indicate that age increases people's participation in national health insurance, but this result is statistically non significant (OR= 1.15; 95% CI = 0.70 to 1.28; p= 0.889). This is in line with Sakinah (2014) which states that age is not related to public awareness of health insurance. Another similar research was conducted by Afifi (2009). This study is not in line with Gani's (2014), which states that age is related to health risks so that it can trigger inner awareness to participate in health insurance participation. Sampling in this study was carried out based on community visits to the health center, so that there was no significant difference in health risk between subjects aged > 45 years and < 45 years, where they experienced more low health risks.

2. The relationship between education level and national health insurance participation

The results of this study indicate that higher education reduces people's participation in national health insurance, and this result is not statistically significant (OR= 0.62; 95% CI= 0.41 to 1.40; p= 0.582). Hermawati (2013) and Wijaya (2013) research shows that the higher a person's education, the higher the awareness of participating in health insurance. The level of education affects the individual's awareness of planning and controlling actions to understand the risks to his health. The higher the level of education, the more knowledge will increase and the need for health services will also increase. This will increase the desire to become a participant in health insurance.

3. The relationship between income and national health insurance participation

The results showed that high incomes increased people's participation in national health insurance, but this result was not statistically significant (OR= 2.92; 95% CI= 0.54 to 2.03; p= 0.205). This is different from the results of Afifi's research in Sakinah (2014) and Gunistiyo (2006) which show that high incomes have an effect on awareness of health insurance participation, and vice versa.

Djuhaeni et al. (2010) also show that informal workers have the ability and willingness to participate in funding their health. Those with low incomes will meet their daily basic needs before deciding to become participants in health insurance. The researcher's assumption is because the National Health Insurance program is a social health insurance, where participation is mandatory for all Indonesian people in meeting basic needs for proper health. The implementation of this program has been adapted to the economic capacity of the people without distinguishing the socio-demographic factors of the community.

4. The relationship between perceptions of vulnerability and national health insurance participation

The results showed that the perception of vulnerability decreased people's participation in national health insurance, and this result was not statistically significant (OR= 0.38; 95% CI =

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.01

0.33 to 0.724; p= 0.72). The results of this study are in line with Calvocoressi et al. (2004) which states that women who have a high susceptibility have less awareness to carry out a mammography screening program compared to women who have a low perception of susceptibility. The results of this study are not in line with Sarafino's (2006) research on the Health Belief Model (HBM) which states that individuals' perceptions of the possibility of experiencing health problems will affect their behavior to seek treatment or prevention. The level of vulnerability is also influenced by the level of perceived threat to health problems experienced.

5. The relationship between perceived severity and national health insurance participation

The results showed that the perception of severity increased people's participation in the national health insurance, but this result was not statistically significant (OR= 1.89; 95% CI= 0.57 to 3.28; p= 0.527). Based on the Health Belief Model in Sarafino (2006), states that individuals begin to evaluate every type of problem that may develop and can worsen their health. This means that the individual's perception of the possibility of being exposed to health problems will affect behavior, especially to prevent or seek treatment. Individuals who feel they have severe health problems will be faster to take action for treatment. The researcher assumes that this may be due to the policy of the local government that frees the cost of health services at the Puskesmas for all residents of Central Tapanuli Regency and free of charge for health services at the General Hospital owned by the Regional Government for the poor.

6. The relationship between perceptions of threats and national health insurance participation

The results showed that the perception of threat increased people's participation in national health insurance, but this result was not statistically significant (OR= 1.61; 95% CI= 1.13 to 2.35; p= 0.349). Based on the Health Belief Model, the perception of threats to health problems is one component of this theory which is directly related to the tendency of people to perform health behaviors, namely to have an influence on participation (Dalinjong and Laar, 2012; Gaqavu and Mash, 2019).

7. The relationship between perceived benefit and National Health Insurance participation

The results showed that the perception of benefits increased the community in participating in national health insurance, and this result was not statistically significant (OR= 15.55; 95% CI= 0.46 to 16.72; p= 0.001). This is in accordance with the results of research on the motivation for independent national health insurance participation in Surakarta City which states that 80% of subjects are aware of the benefits of the importance of health in life and as many as 86% stated participation in national health insurance so that their health is guaranteed (Tiaraningrum, 2014).

8. The relationship between perceived barrier and national health insurance participation

The results showed that perceptions of barriers increased people's participa-

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.01

tion in national health insurance, and this result was not statistically significant (OR= 11.30; 95% CI = 8.07 to 12.85; p= 0.001). The results of this study are in accordance with research conducted by Ari and Astiti (2014) which states that there is a relationship between the role of individual perceptions of insurance and the health belief model in the decision-making process using life insurance. According to the Health Belief Model in Sarafino (2006) where the occurrence of behavioral changes in the subject is influenced by the belief in the perceived barriers. Negative perception of obstacles will encourage changes in the subject's behavior. These changes are supported by the discovery of positive perceptions of threat, perception of vulnerability and perception of severity and the success of socialization received by the subject.

9. Risk factors for participation in national health insurance

The results showed that perceived benefits (aOR= 13.52; 95% CI= 1.60 to 114.05; p= 0.017) and perceived barriers (aOR= 12.71; 95% CI= 1.79 to 82.01; p= 0.008) increased the chances of participating in health insurance coverage. nationally, and this result is statistically significant. The results of this study are in line with Gamelia and Wijayanti (2013), which states that the perception of benefits has an effect of 2.94 times to encourage someone to carry out preventive behavior well.

Due to the limitations of the researcher, not all variables related to national health insurance participation can be independently investigated in this study, so it is hoped that further research will examine other variables related to national health insurance participation independently in the community atPandan Health Center, Central Tapanuli. This study recommends the Regional Government of Central Tapanuli Regency to make efforts that can change public perceptions of the benefits of the national health insurance program.

AUTHOR CONTRIBUTION

Faisal is the only researcher in determining the topic, searching, collecting data, reviewing documents, and analyzing.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSHORSHIP

This study is self-funded.

ACKNOWLEDGMENT

We are very grateful to the database provider Google Scholar.

REFERENCES

Afifi A (2009). Faktor-faktor yang berhubungan dengan kepemilikan asuransi komersial khususnya pada mahasiswa S2 fakultas kesehatan masyarakat Universitas Indonesia (Factors related to ownership of commercial insurance, especially in Masters students from the Faculty of Public Health, University of Indonesia). Skripsi: Tidak diterbitkan. Depok: Universitas Indonesia.

Ari IAGRP, Astiti DP (2014). Peran persepsi individu terhadap

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.01

asuransi dan model kepercayaan kesehatan dalam pengambilan keputusan menggunakan asuransi jiwa (The role of individual perceptions of insurance and health belief models in decision making using life insurance). J Psikologi Udayana. 1(2): 381-388. https://doi.org/10.-24843/JPU.2014.v01.i02.p17.

Calvacoressi L, Kasl SV, Lee CH, Storal M, Claus EB, Jones BA (2010). A prospective study of perceived susceptibility to breast cancer and nonadherence to mammography screening guidelines in african american and white women ages 40 to 79 years. Cancer Epidemiol Biomakers Prev. 13(1): 2096-2105. PMID: 15598767.

Dalinjong PA, Laar AS (2012). The national health insurance scheme: perceptions and experiences of health care providers and clients in two districts of Ghana. Health Econ Rev. 2: 13. https://doi.org/10.1186/2191-1991-2-13.

Djuhaeni H, Gondodiputro S, Setiawati EP (2010). Potential of Community Participation for Health Insurance Implementation to Achieve Universal Coverage in Bandung Municapility. Journal of Health Services Management. 13(03): 140-145.

Gaqavu MM, Mash R (2019) Exploring the beliefs and attitudes of private general practitioners towards national health insurance in Cape Town, South Africa. Afr J Primary Health Care Family Med. 11(1): 102-108. https://doi.org/10.108-0/20786190.2019.1596665.

Gamelia E, Wijayanti SPM (2013). Persepsi, peluang aksi, dan informasi serta perilaku pencegahan malaria. Jurnal Kesehatan Masyarakat Nasional. 7(8): 349-352. http://dx.doi.org/10.21109/-kesmas.v7i8.20.

Gani Y (2014). Hubungan pengetahuan, sikap dan perilaku terhadap kejadian IMS pada ibu rumah tangga di Kota Bukittinggi Provinsi Sumatera Barat pada tahun 2014 (The relationship of knowledge, attitudes and behavior to the incidence of STIs among housewives in Bukittinggi City, West Sumatra Province in 2014). Kebidanan Komunitas: FKM UI.

Gunistiy, Subekti (2006). Tingkat kesadaran masyarakat Tegal berasuransi (The level of awareness of the people with insurance). Jurnal Universitas Pascasakti Tegal. 2(3): 1-6. http://repository.upstegal.ac.id/id/eprint/3632.

Hermawati S (2013). Pengaruh gender, tingkat pendidikan dan usia terhadap kesadaran berasuransi pada masyarakat Indonesia (The influence of gender, education level and age on insurance awareness in Indonesian society). Jurnal Asuransi dan Manajemen Risiko. 1(1): 1- 17. Retrieved from: https://www.e-jurnal.com/2016-/03/pengaruh-gender-tingkat-pendidikan-dan.html.

Sakinah U, Wijasa IGK, Wiharto M (2013). Faktor-faktor yang berhubungan dengan kesadaran masyarakat kelurahan poris Gaga Tangerang dalam berasuransi kesehatan (Factors related to

public awareness of the village of Poris Gaga, Tangerang in health insurance). E-ijurnal.esaunggul.-ac.id. Retrieved from: http://-ejurnal.esaunggul.ac.id/index.-php/Formil/article/view/880.

Sarafino EP, Smith TW (2010). Health Psychology Biopsychosocial Interactions. Seventh Edition. New York: John Wiley & Sons, Inc.

Tapanuli Tengah BPS (2017). Kecamatan pandan dlam angka (Pandan District in numbers). https://-tapanulitengahkab.bps.go.id. Accessed in March 2018.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.01

ASSOCIATIONS BETWEEN MATERNAL KNOWLEDGE OF NUTRITION, SOCIO ECONOMIC, AND CHILD UNDERWEIGHT IN DRY LAND ISLANDS

Anna Henny Talahatu[1)], Ribka Limbu[1)], Jakoba Daud Niga[2)]

[1)]Faculty of Public Health, Universitas Nusa Cendana
[2)]Faculty of Social and Political Sciences, Universitas Nusa Cendana

ABSTRACT

Background: The problem of food security depends on food availability, food access, and food utilization. Community access is also a factor in food insecurity along with the high poverty rate of an area. The village of Bokong is one of the villages with the majority of poor families. This causes people's purchasing power to food and access to infrastructure to be still lacking. This study aimed to determine the relationship between family socio-economic factors and nutritional status of children under five.
Subjects and Method: This was a cross-sectional study conducted in Kupang, East Nusa Tenggara. A sample of 39 poor households was selected randomly. The dependent variable was nutrition status. The independent variables were education, family size, food cost expenditure, and non food cost expenditure. The data were analyzed using OR and chi-square.
Results: Extended family (OR= 9.69; 95% CI= 0.99 to 46.44; p= 0.020) was associated with an increased risk of underweight. Higher education level (OR= 0.14; 95% CI= 0.01 to 0.93; p= 0.016), higher food expenditure (OR= 0.12; 95% CI= 0.12 to 0.75; p= 0.070), higher non-food expenditure (OR= 0.18; 95% CI= 0.02 to 1.15.; p= 0.035) were associated with a reduced risk of underweight.
Conclusion: Extended family increases the risk of underweight. Higher education, higher food expenditure, and higher non-food expenditure reduce the risk of underweight.

Keywords: socio-economic, nutritional knowledge, underweight, children

Correspondence:
Anna Henny Talahatu. Faculty of Public Health, Universitas Undana, Kupang, East Nusa Tenggara. Email: annatalahatu@staf.undana.ac.id. Mobile: +62 85214252858.

BACKGROUND

Nutritional problems occur as a result of nutritional imbalance that enters a person's body, so that malnutrition and over nutrition can occur, both of these problems can result in poor health status. Most of the population below the poverty line are unable to meet food needs with sufficient quantity and quality of nutritional norms. As a result, some family members in poor households experience growth and intelligence disorders (especially children), and have low work productivity and health status. living with non-biological parents significantly increased risk of stunting. Emphasis should be placed on current immunization, prolonging exclusive breastfeeding, and improving access to nutrient-rich foods among adopted children and their families via community-based nutrition interventions (Bloss et al., 2004). Thus this population group in general will experience malnutrition or malnutrition which will result in the low quality of human resources to be able to indulge

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.02

in development in general and increase income in particular.

The factor that plays a role in determining one's health status is the socioeconomic level (Department of Nutrition and Public Health, 2014). The socioeconomic level includes education, income, and employment which are indirect causes of nutritional problems (Arisman, 2010). Nutritional problems are generally caused by economic problems, lack of food, poor environmental quality. The results of reports from the Baumata Health Center on nutritional problems of children under five in Bokong village each year, among others, in 2014 the prevalence of very thin by 3.15% and thin by 20.13%, then in 2015 decreased to a very thin prevalence of 10, 12% and thin by 10.12%. The data in 2016 was very thin by 3.16% and thin by 3%. Data in 2017 was very thin by 7.26% and thin by 28.63% (Profil Puskesmas Baumata, 2017).

The nutritional problems of children under five in the village of Bokong are classified as not good, because most people in the village of Bokong work as farm farmers In general, managed agricultural land is classified as good due to the availability of sufficiently smooth water and fertile soils producing crops such as maize, tubers, vegetables, coconuts, and bananas. The results of the fields they harvest 2 times a year are expected to help the family economy. The distance from the village of Bokong to the city is not too far, but due to inadequate transportation access making it difficult for farmers to bring their produce to sell to the city, so that family income and food and non-food needs of each family member becomes low and the number of family members is increasing will affect the level of needs of each household. Based on the description above, This study aimed to determine the relationship between family socioeconomic factors and nutritional status of children under five. At the level of the household, Growth rate of consumption, Food also reflects levels. Income or purchasing power homeladders (Arida et al., 2015).

SUBJECTS AND METHOD

1. Study Design

This was a cross-sectional study conducted in Kupang, East Nusa Tenggara. The study assessed social economic connections and health nutrition knowledge with the incidence of undernourishment in infants being carried out simultaneously.

2. Population and Sample

Samples in this study were among the little toddlers who live in the village buttocks. The type of sample in this study is a probability sample, where every subject in the population has the same chance to be chosen or not to be selected as a research sample (Sastroasmoro & Ismael, 2008 dalam Siswanto et al., 2013). The drawing-side sample technique using the simple random sampling method, so that all members or units of the population have the same opportunity to be selected as samples. 46 Family included 39 under five years old. The total sample used in this study is 39 children under the age of five. The way of collecting samples on this research is by casting member of the population according to the size of the samples and considering the inclusion criteria as well as the mothers and toddlers who live in the village

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.02

buttocks at least 1 year old and mothers with a under five years old child.

3. Study variable

The dependent variable was nutrition status. The independent variables were education, family size, family income, occupation, food cost expenditure, non food cost expenditure, and mother nutritional knowledge.

4. Definition Operational of Variable

Nutrition status was the status of a nutriment is an illustration of the state of nutritional underage of a poor family determined by an anthropromethеistic measure using the BB/U formula.

Education was a successful level of formal education with the mother.

Family size was the number of family members who lived under the same roof and ate from the same kitchen and became the family's care (in Rupiahs).

Food cost expenditure we per capita expenditure on food that all household members consume in a month on total cash income.

Non food cost expenditure was per capita expenditure not on food that all household members consume in a month on total cash income.

5. Study Instruments

Primary data is data obtained directly from the respondents through interviews, the instrument used is the use of a questionnaire. There is data obtained from respondents in the family characteristic data that includes work, the number of family members, education, age and expense; Family food available; Consumption patterns; The characteristics of infants who include their age, gender, weight, height and nutritional status. As for the data under five yearso old height is obtained by measuring a under five yearso old 's height using microtoice. A secondary data includes the number of under five yearso old and nutritional status at Puskesmas Baumata in 2019. The intrument used was microtoice and questionnaires.

Microtoise validation and religious testing instruments are carefully calibrated to ensure that the level of validity of the measurement is in use. The validity test of the questionnaires is done by using the original corrected correlation through SPSS and obtained the original corrected correlation on each question with a value of 5% is greater than product product. Microtoice reliability tests were performed with a double-gauge repetition to ensure trustworthy and more accurate data. The validity test results, and valid points of matter are then assessed. Test results show that the value of cronbach's alpha on each variable with a 5% significance value has a greater value than what is currently a product at the r table(in Rupiahs) moment so all the questions are said to be confident.

6. Data Analysis

The data analysis used isa univariate analysis, followed by a computerized bivariate analysis. Univariate analysis aims to explain or describe the characteristics of each research variable. The statistical test used was Chi Square to the significant extent usedIt's 95% with 5% prosperity. Condition The chi square test is met, if nothing a cell that values less than 5 and less percentage is no more than 20% so Ho denied is accepted. It means both variables There is a connection. All analysis was done in SPSS version 16.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.02

7. Research Ethics

The study has picked up ethical merit from the ethical research commission, the public health Faculty Of University Nusa Cendana with the number: 201-9946.

RESULTS

1. Social Economic Characteristic

some children have an elementary school education level (72%). children from large families (79%), with a low average family income (77%). Most of the mothers are housewives (92.31%), with low food expenditure (69%) and low non-food expenditure (74%). mothers have sufficient knowledge about nutrition (33%). (Table 1).

Most children's status is normal in Bokong Village, Taebanu District (51%) (Table 2).

Extended family (OR= 9.69; 95% CI= 0.99 to 46.44; p= 0.020) was associated with an increased risk of underweight. Higher education level (OR= 0.14; 95% CI= 0.01 to 0.93; p= 0.016), higher food expenditure (OR= 0.12; 95% CI= 0.12 to 0.75; p= 0.070), higher non-food expenditure (OR= 0.18; 95% CI= 0.02 to 1.15.; p= 0.035) were associated with a reduced risk of underweight (Table 3).

Table 1. Distribution Five Years old based on Family Charactheristic

Variables	Frequency (N)	Percentage (%)
Education (years)		
Elementer school	28	72
Junior high School	8	21
High School	3	7
Family size		
Small	8	21
Large	31	79
Family Income		
Low	30	77
High	9	33
Occupation		
Working	3	7.69
Housewife/ Non-Working	36	92.31
Food Cost expenditure		
Low	27	69
High	12	31
Non-Food Cost expenditure		
Low	29	74
High	10	26
Mother Nutrional Knowledge		
Severe	12	26
Enough	17	33
Good	10	51

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.02

Table 2. Distribution of Child's Nutritional Status

Nutritional Status	Frequency (N)	Percentage (%)
Severe Under Nutrition	6	26
Under Nutrition	13	33
Normal	20	51

Table 3. Correlation between Family Socioeconomic anf Child Nutritional Status

Variables	Severe Under Nutrition	Under Nutrition	Normal	OR	CI95%	p
	n (%)	n (%)	n (%)			
Education						
Elementer School	11 (14.4)	10 (8.6)	7 (5.0)			
Junior high School	6 (4.1)	2 (2.5)	0 (1.4)			
High School	3 (1.5)	0 (0.9)	0 (0.5)	0.14	0.01-0.93	0.016
Family Size						
Small	7 (4.1)	1 (2.5)	0 (1.4)			
Large	13 (15.9)	11 (9.5)	7 (5.6)	9.69	0.99-46.44	0.020
Food Cost Expenditure						
Low	10 (13.8)	11 (8.3)	6 (4.8)			
High	10 (6.2)	1 (3.7)	7 (7.0)	0.12	0.12-0.75	0.016
Non-Food Cost Expenditure						
Low	12 (14.9)	11 (8.9)	6 (5.2)	0.18	0.02-1.15	0.035
High	8 (5.1)	1 (3.1)	1 (1.8)			

DISCUSSION

1. Correlation between education and child's nutritional status

Based on social economic conditions, a high percentage of a mother's education is low in ds (72%), a low education will affect a family's ability to understand the importance of both food and nutrition properly. Statistical test results show that there is a correlation between education and nutrition status ($p < 0.05$), higher education may lower the risk of undernourishment to small children in the village of toddler (OR = 0.14). Toddlers with scant, minuscule nutritional status are spread in low maternal education of 14.4 percent and 8.6%. This corresponds with a study by Aramico et al. (2013) that there is a relationship between mother's education and nutrition status (OR= 4.06; p= 0.001), there is a relationship between father's education and nutrition status (OR= 3.37; p= 0.001).

2. Correlation between family size and Child's nutritional status

Large families are many members of families that consist of fathers, mothers, children and other household members who live together and live off of equal resource management. Large families on the average are rated larger families (> 5) family members in one household. A large number of family members will affect meeting food needs that may not be enough to meet the

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.02

needs of all family members but may provide only part of the needs of family members. Large families with the highest number of members listed in the big category have very thin children under five years of very thin nutritional status 15, 9% and skinnier (9.5%). The greater number of family members, the better the quality of life score of the subject based on the acquisition of physical role and PCS. This means that the greater number of family members does not share the amount of time and limit the subject to work/activities the physical (Puspa et al., 2020).

3. Correlation between food cost expenditure and child's nutritional status

The income of the family head is measured by the amount of income or income that is proxted or approached by spending and stated in the two categories is high, if the amount of income is rp 1,000,000/month. Tobacco use in LMICs may have a negative influence on investment in human capital development. Addressing the tobacco use problem in LMICs could benefit not only the health and economic well-being of smokers and their immediate families but also long-run economic development at a societal level (Do and Bautista, 2015; Keino et al. (2014).

Determinants of stunting and overweight among young children and adole. Income obtained from commercial plants or other increased income efforts have not been raised to purchase high-quality food or foodstuffs. Income levels help determine what kind of food to buy. Economic factors are key to nutritional status. The reality of nutrition is multicomplex, as not only economic factors play a role but other factors play a role. A dominant factor connecting with the nutritional status of rural children is the type of father and mother's work (Devi, 2010). Low panagn discharging indicates that the status of undernourished children at very thin (138%) and lean (8.3%). High food resistance can reduce the risk of inadequate nutrition in the islands dry land area in this region of taebenu district in which OR= 0.12 ($p< 0.05$). Also, children at the highest wealth index or middle had a lower risk of stunting or wasting and underweighting, respecttively. Children who belong to households with no water systems and to households with no flush toilet at higher risk from stunting and underweighting, respecttively (Sonini, 2015).

4. Correlation between non-food cost expenditure and child's nutritional status

Because of the elasticity in demand for food in general, the elasticity to non-food needs is relatively high. This is clearly seen in people whose food consumption levels have reached saturated levels, so that increased revenue is used to meet needs instead of food, while saving or saving of the remainder may be investation. Our results indicated that economic development cannot solve all nutritional problems and comprehensive national developmental strategies should be considered to combat malnutrition. However, no association was observed between illiteracy rate and prevalence of stunting and underweight, and there was no correlation between GDP per capita, illiteracy rate, average family size and anaemia prevalence (Wu et al., 2015).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.02

Low - food spending can lower the risk of inadequate nutrition incident to poor nutrition (OR= 0.018; p <0.05), results from studies indicate that low food expenditure is a poor nutrition case (extremely thin) 149% and skinny 8.9%. Low family income levels, and coupled with the consumption of cigarettes in poor families would incriminate the family in providing child nutritional needs. That it is necessary for parents especially for fathers to be able to limit the expenditure of cigarettes and the smoking habits so that children can obtain needed nutrition and child growth can be optimal (Oktaviasar et al., 2012). Socio-economic factors, family income, occupation status, food expenditure, and non-food expenditure have a significant relationship with nutritional status. Mother's nutritional knowledge about nutritional status has a relationship with the nutritional status of children under five. Direct factors related to nutritional status are the types of staple foods consumed with low correlation rates and the direction of positive relationships. Indirect factors related to nutriational status are large families with low correlation rates and the direction of positive relationships and maternal education with low correlation rates and negative relationship directions.

AUTHOR CONTRIBUTION

Anna H Talahatu. Ribka Limbu, Jakoba D niga. contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript.

CONFLICT OF INTEREST

The authors have no conflict of interest in this study**.**

FUNDING AND SPONSORSHIP

The researcher would like to thank the research team with the title of The Correlation betwen Sosio economic and Nutritional Knowledge with Malnutrition Status Of under Five Years Old Children in Dry Lands Islands to the research team that had given permission to conduct research in Taebenu District and helped us to accomplish this study.

ACKNOWLEDGMENT

The Authors thanks to LPPM University of Nusa Cendana for their support in presenting this paper.

REFERENCES

Al-Sonini NAA (2015). The effect of socio-economic factors on the health indicators in Yemen. J Nat Sci Res 5(13):140–146.

Aramico B, Sudargo T, Susilo J (2013). Hubungan sosial ekonomi, pola asuh, pola makan dengan stunting pada siswa sekolah dasar di kecamatan lut tawar, kabupaten aceh tengah. Indonesian J Nutr Diet. 1(3): 121–30.

Arida A, Sofyan, fadhiela K (2015). Analisis ketahanan pangan rumah tangga berdasarkan proprosi pengeluaran dan konsumsi energi (studi kasus pada rumah tangga petani peserta program desa mandiri pangan di kecamatan Indrapuri Kabupaten Aceh Besar). Agrisep. 16(1): 20-34.

Bloss E, Wainaina F, Bailey RC (2004). Prevalence and predictors of un-

derweight, stunting, and wasting among children aged 5 and under in western Kenya. J Trop Pediatr. 50(5): 260–70. doi: 10.1093/tropej/50.5.260.

Devi M (2010). Analisis faktor-faktor yang berpengaruh terhadap status gizi balita di pedesaan. Jurnal Teknologi dan Kejuruan. 33: 183-192. DOI: http://dx.doi.org/10.17977/tk.v33i2.3054

Do YK, Bautista MA (2015). Tobacco use and household expenditures on food, education, and healthcare in low and middle-income countries: A multilevel analysis. BMC Public Health. 15 (1098): 1-11. doi: 10.1186/s12889-015-2423-9.

Keino S, Plasqui G, Ettyang G, van den Borne B (2014). Determinants of stunting and overweight among young children and adolescents in sub-Saharan Africa. Food Nutr Bull. 35(2): 167–78. doi: 10.1177/-156482651403500203.

Lestari W, Rezeki SHI, Siregar DM, Manggabara S (2018). Faktor Yang Berhubungan dengan Kejadian Stunting Pada Anak Sekolah Dasar Negeri 014610 Sei Renggas Kecamatan Kisaran Barat Kabupaten Asahan. Jurnal Dunia Gizi (JDG). 1(1). https://doi.org/10.33085/jdg-.v1i1.2926.

Ministry of Health Republic of Indonesia (2013). Laporan Hasil Riset Kesehatan Dasar.

Ministry of Health Republic of Indonesia (2018). Laporan Hasil Riset Kesehatan Dasar.

Murti B (2011). Validitas dan reliabilitas pengukuran. Matrikulasi program studi doktoral fakultas kedokteran. Surakarta: Universitas Negeri Sebelas Maret.

Notoatmodjo S (2012). Metodologi penelitian kesehatan. Jakarta: Rineka Cipta.

Oktaviasari I, Muniroh DD, Lailatul (2012). Hubungan antara besar pengeluaran keluarga untuk rokok dengan status gizi balita pada keluarga miskin. IJPH. 9(1): 10–18. Retrieved from: http://repository.unair.ac.id/id/eprint/24243

Puspa AR, Anwar F, Khomsan A (2020). Socioeconomic characteristics, nutritional status, health status, and quality of life among tea plantation workers in Pangalengan, West Java, Indonesia. Gizi Pangan. 15-(2): 91. https://doi.org/10.25182/-jgp.2020.15 .2.91-100.

Sulistyowati HN, Sinaga BM, Novindra N (2017). Impacts of government and household expenditure on human development index. Jurnal Ekonomi dan Kebijakan. 10(2): 412–428. http://dx.doi.org/10.15-294/jejak.v10i2.11305.

Wu L, Yang Z, Yin S, Zhu M, Gao H (2015). The relationship between socioeconomic development and malnutrition in children younger than 5 years in China during the period 1990 to 2010. Asia Pac J Clin Nutr. 24(4): 665–73. doi: 10.-6133/apjcn.2015.24.4.24.

THE RELATIONSHIP BETWEEN COMPLETENESS OF MEDICAL RECORD INFORMATION AND ACCURACY OF THE MAIN DIAGNOSTIC CODE WITH HEALTH SOCIAL SECURITY ADMINISTRATION CLAIM APPROVAL

Tiara Nadya Putrianda[1)], Yanti Harjono[2)], Tuty Rizkianti[3)]

[1)]Study Program in Medicine, Faculty of Medicine,
Universitas Pembangunan Nasional Veteran Jakarta
[2)]Department of Public Health Science, Faculty of Medicine,
Universitas Pembangunan Nasional Veteran Jakarta
[3)]Department of Clinical Pathology, Faculty of Medicine,
Universitas Pembangunan Nasional Veteran Jakarta

ABSTRACT

Background: In healthcare, data incompleteness could trigger medical errors during the course of care and hinder further analysis. When incomplete data emerges at the point of care, this could impact accurate diagnosis of a patient's condition. Another major factor in maintaining patient records and obtaining proper insurance reimbursement is the accuracy of medical coding. When a claim is coded accurately, it lets the insurance payer know the particular illness or injury and the method of treatment that is necessary. This study aimed to determine the relationship between completeness of medical record information and accuracy of the main diagnostic code with Health Social Security Administration claim approval.
Subjects and Method: This was a cross-sectional study conducted at Depok Hospital, West Java, from June to July 2017. A sample of 56 inpatient medical records were selected for this study. The dependent variable was Health Social Security Administration claim approval. The independent variables were completeness of medical record information and accuracy of the main diagnostic code. The study instrument was a checklist and ICD-10 book volumes 1, 2, and 3. The bivariate analysis with Odds Ratio and chi-square was employed to analyze the data.
Results: Completeness of medical record information (OR= 53.75; 95% CI= 2.67 to 1,083; p= 0.001) and accuracy of the main diagnostic code (OR= 12.16; 95% CI= 2.84 to 52.11; p= 0.001) were positively associated with claim approval by the Health Social Security Administration.
Conclusion: Completeness of medical record information and accuracy of the diagnostic code are positively associated with claim approval by the Health Social Security Administration.

Keywords: completeness, accuracy, diagnosis code, medical record information, claim approval, Health Social Security Administration.

Correspondence:
Tiara Nadya Putrianda. Study Program in Medicine, Faculty of Medicine, Universitas Pembangunan Nasional Veteran, Jakarta. Jl. RS Fatmawati, Pondok Labu, South Jakarta 12450. Email: tiaranadya7596@gmail.com. Mobile: 087877354369.

BACKGROUND

Along with the enactment of Law Number 40 of 2004 concerning the National Social Security System it is stated that the principle of implementing the National Health Insurance (NHI) is equity in obtaining access to

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

health services as well as being effective and efficient in its operation.

The government is promoting the implementation of the JKN program organized by the Health Social Security Implementing Agency (BPJS). The JKN program is an implementation of Law no. 36 of 2009 which states that everyone has the same rights in obtaining access to resources in the health sector and obtaining safe, quality, and affordable health services at puskesmas, hospitals, or other health care facilities.

To achieve the principles of effective and efficient JKN implementation, BPJS Kesehatan as the health insurance provider will pay the cost of patient health services to Advanced Health Facilities (FKTL) using the INA CBG's package system. This means that the determination of the amount of financing for health services for SJSN patients in hospitals uses the INA CBG's package system. The determination of the amount of financing (tariff) for health services is in accordance with Circular Letter Number: IR.01.01/I.1/6401/2013 of 2013 concerning the implementation of INA CBG's Version 4.0. The accuracy of coding the diagnosis in the medical record and INA CBG's software depends on the executor who handles the medical record and will determine the cost of health services that must be claimed.

In the process of collecting claims for national health insurance, the billing is submitted to the BPJS. Submission of financing is required for the requirements of claims submitted to verifiers. According to the Regulation of the Minister of Health of the Republic of Indonesia number 36 of 2015 claims are requests for payment of health service fees by health facilities to BPJS. In a claim, a verification process is carried out against the requirements for submitting a claim which is the basis for collecting verification fees. The verification process is carried out by the BPJS Health verifier after receiving the claim file from the health facility then the file will be verified by the membership and service administration, then goes through the INA-CBGs software verification according to ICD-10 and ICD-9CM, then the claim submission form is submitted to BPJS Health for approval. claim and make payments.

In the BPJS claim verification process, it turns out that there are many obstacles that occur, one of which is the rejection of the file by the verifier. According to Tri (2016), out of 138 medical records, 63 files were not approved and 75 files were approved at Sukoharjo Hospital. This refusal occurred due to several factors according to Permenkes No. 28 of 2014 matters that affect BPJS claims, namely the claim file is incomplete, the contents of the file are not appropriate and the file submission time is too long. According to Irmawati's research (2016) the cause of returning claim files is mostly due to incomplete claim files as many as 36 files (36%) and inappropriate health services as many as 41 files (42%) resulting in rejection which leads to delays in the BPJS claim payment process. at health facilities.

Completeness of files for inpatients includes completeness of medical record information that must be completed and signed by the doctor

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

in charge. Inappropriate health services are often caused by discrepancies between claim sheets and medical resumes such as diagnostic codes and actions that are not in accordance with ICD-10 and 9CM (Directorate of Services, 2014).

According to Izzah's research (2016), out of 44 medical records, the Odds Ratio value obtained is 9, meaning that the correct obstetric diagnosis code has a 9 times chance of smooth BPJS claims compared to the incorrect obstetric diagnosis code and according to Noviasari (2016) obtained OR= 5.40; p< 0.001 means that a complete medical resume has a 5.40 times chance of smooth claims compared to an incomplete medical resume. The accuracy of the diagnosis code and the completeness of medical record information can be the basis for approval of the verification fee billing by National Health Insurance to the health facilities.

According to a preliminary survey conducted by the author at the Depok Regional General Hospital (RSUD) there were 13 (32.5%) of 40 BPJS inpatient claims in May 2017 that were not approved due to inappropriate health services and incomplete files and 20 50%) claim files are pending and must be returned to be completed or repaired and only 7 (17.5%) claim files are approved, this has an impact on the cashflow of Depok Regional Hospital operating costs which is hampered. Therefore, Depok Regional Hospital as a Class B Hospital is the FKTL that the author chose as the research site.

This shows that there are obstacles in the claim process by the BPJS so that it can hinder the payment of claims to health facilities. Therefore, the authors are interested in conducting research that aims to determine the relationship between the completeness of medical record information and the accuracy of the main diagnostic code with the approval of BPJS claims at the Depok Hospital.

SUBJECTS AND METHOD

1. Study Design

This study was conducted using a cross-sectional design. The study was conducted at the Depok Hospital from June to July 2017.

2. Population and Sample

The population in this study were all medical records of inpatients from June to July 2017 at the Depok Hospital. The research sample was 56 medical record documents of inpatients from June to July 2017 at the Depok Hospital. Sampling was carried out using the proportional sample method.

3. Variable

The dependent variable is the approval of BPJS Health claims. The independent variables are the completeness of medical record information and the accuracy of the main diagnostic codes.

4. Operational Definition of Variable

a. National health insurance (BPJS) claim

Definition: Claim approval is if the claim submission requirements are accepted by the BPJS verifier. Measurement scale: Categorical

b. Complete medical record information

Definition: is a file that contains records and documents about the

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

patient's identity, examination, treatment, actions and other services that have been provided to the patient.
Measurement scale: Categorical

c. Main diagnostic code setting

Definition: Accuracy in giving a diagnosis code based on ICD-10 by a coder (coder) on a medical record file by examining the results of a diagnosis that has been written by a doctor
Measurement scale: Categorical

5. Instrument

The research instruments are checklists and ICD-10 volumes 1, 2, and 3 books.

6. Data Analysis

Bivariate analysis was performed using chi-square.

RESULTS

Of the 56 respondents, there were 11 (19.6%) patients in the obstetrics and gynecology polyclinic, all of which were treated in class 3, 9 (16.1%) patients in the surgical polyclinic who were treated in class 3, 9 (16.1%) patients in the internal medicine clinic. (14.3%) were treated in class 3 and 1 (1.8%) patients in class 2, 18 (32.1) patients in the pediatric outpatient clinic all of which were treated in class 3, 6 (10.7%) patients in the ophthalmology clinic with 3 (5.4%) patients in grades 2 and 3 (5.4%) patients in grade 3 and 3 (5.4%) patients in the neurology department who were all treated in grade 3.

The population of Depok City Hospital patients who use BPJS health is the largest in pediatric polyclinic with 18 (32.1%) patients followed by obstetrics and gynecology poly with 11 (19.6%) patients and the number of patients being treated in class 3 is greater, namely 52 (92.6) %) patients compared to class 2 which consisted of 4 (7.1%) patients. Characteristics of respondents can be seen in Table 1.

Table 1. Characteristics of Respondents

Characteristics	Nursing Class Category			
	Class 2		Class 3	
	N	%	N	%
Obstetrics and Gynecology Polyclinic	0	0	11	19.6
Surgical Poly	0	0	9	16.1
Internal Medicine	1	1.8	8	14.3
Children's Poly	0	0	18	32.1
Eye Clinic	3	5.4	3	5.4
Neurology	0	0	3	5.4

Table 2. Proportion of Completeness of Medical Record Information

Completeness of Medical Record Information	Frequency	Percentage
Complete	51	91.1
Incomplete	5	8.9

Based on the research, the completeness of medical record information with complete status was 51 (91.1%), while incomplete was 5 (8.9%).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

Table 3. Proportion of Accuracy of Diagnostic Code

Diagnostic Code Accuracy	Frequency	Percentage
Accurate	44	78.6
Inaccurate	12	21.4

Based on the research, it was found that the accuracy of the diagnosis code with accurate status was 44 (78.6%), while it was not accurate as much as 12 (21.4%).

Table 4. Proportion of BPJS Claim Approval

BPJS Claim Approval	Frequency	Percentage
Approved	44	78.6
Not approved	12	21.4

Based on the research, it was found that the approval of BPJS claims with approved status was 44 (78.6%), while 12 (21.4%) were not approved.

Table 5. Relationship of Completeness of Medical Record Information to BPJS Claim Approval

Completeness of Medical Record Information	BPJS Claim Approval				OR	95% CI	p
	Approved		Not Approved				
	N	%	N	%			
Complete	43	84.3	8	15.7	53.75	2.67 to 1.08	0.001
Incomplete	0	0	5	100			

Based on table 5, completeness of complete medical record information increased BPJS claim approval by 53.75 times compared to incomplete medical record information (OR= 53.57; 95% CI= 2.67 to 1.083; p <0.001).

Table 6 Relationship between the Accuracy of the Diagnostic Code and the Approval of BPJS Claims

Diagnostic Code Accuracy	BPJS Claim Approval				OR	95% CI	p
	Approved		Not approved				
	N	%	N	%			
Accurate	38	88.4	5	11.6	12.16	2.84 to 52.11	0.001
Inaccurate	5	38.5	8	61.5			

Based on table 6, the accuracy of an accurate diagnosis code can increase BPJS claim approval by 12.16 times compared to the accuracy of an inaccurate diagnosis code (OR=12.16; 95% CI= 2.84 to 52.11; p<0.001).

DISCUSSION

1. Completeness of Medical Record Information

The completeness of the information in question is the completeness of the medical record document in terms of the completeness of the medical record document in the form of a diagnosis, action or procedure if any, as well as

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

examination results that are useful to support diagnosis enforcement (Ulfah, 2011).

Inpatient medical record documents according to the Regulation of the Minister of Health of the Republic of Indonesia Number 269/Menkes/-Per/III/2008 are said to be complete with the condition that if there is a patient identity, date and time, anamnesis results, including at least complaints and disease history, results of physical examination and medical support, diagnosis, management plan, treatment and/or action, approval of action if needed, clinical observation notes and treatment results, discharge summary, name and signature of the doctor, dentist, or certain health workers who provide health services , other services performed by certain health workers.

Based on this study, the results showed that from a total of 56 medical record samples, medical records with complete information were greater than the number of incomplete medical record information, namely 51 medical records or 91.1% while incomplete medical records were 5 or 8.9%. Incomplete medical records were caused because the supporting examinations to establish the diagnosis were not written down and 2 other medical records because they did not include the actions that had been given.

The results of this study are in line with Tri (2016) researching the relationship between the completeness of medical record information and the approval of BPJS claims at the Sukoharjo District Hospital which stated that the highest incompleteness was in the resume summary sheet, as many as 63 (46%) medical record documents were not filled out completely and on the summary sheet of discharged patients there are 10 (7%) medical record documents which are also incompletely filled out.

Medical records play an important role in the claim process because medical records are one of the requirements for the completeness of the claim file. Incomplete files will have an impact on hospital finances and late payments have an impact on hospital operational activities. This is as stated in Kusairi's research (2013) which states that the causes of incomplete files are matters related to the administrative process, the understanding and performance of officers regarding the completeness of the claim file is still lacking, Standard Operating Procedures do not exist and the evaluation of the implementation of the Jamkesmas program has not been implemented. .

Based on this study, completeness cannot be assessed only from the final diagnosis and signature of the doctor in charge, but also from the actions that have been given during treatment such as sectio cecaria or appendictomy which must be recorded medically and supporting examinations that must be carried out such as the Widal test to confirm the diagnosis. diagnosis of typhoid fever, if there are no examination results that support the diagnosis, the diagnosis given by the doctor is invalid. According to Meilina (2013) this is a verification requirement that proof of payment for services is accompanied by proof of examination, supporting

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

evidence, evidence of medical action (if there is an operation or procedure), proof of diagnosis stating the name of the doctor.

From the results of the discussion above, several steps can be taken to overcome the incomplete contents of medical record documents such as medical record documents for patients who are allowed to go home, nurses can remind doctors to complete diagnoses and actions or operations in medical record documents before medical record documents are returned to the medical record room and doctors or the nurse attaches the results of the supporting examinations that have been given to the patient.

2. Main Diagnostic Code Accuracy

Accuracy is the process of processing medical records that are correct, complete and in accordance with applicable regulations. The accuracy of the code is very necessary so that the information generated from the code can be accounted for and describes the quality that has occurred, the code resulting from the diagnosis and procedure must be precise. Therefore, coding officers need to attend training related to the procedure for determining the right code (Anggraini, 2013). The accuracy of the diagnostic code is the suitability of the diagnostic code determined by the coding officer with the diagnosis in the patient's medical record in accordance with the ICD-10 rules.

Based on 56 samples taken, there were 44 medical records that were accurate diagnosis codes with a percentage of 78.6% while an inaccurate diagnostic code was 12 medical records with a percentage of 21.4%. From the results of this study, there were still inaccuracies in coding the diagnosis caused by several factors such as the number of coders only 2 people so that the workload was greater, coders often only looked at ICD-10 volume 3, namely the alphabetical list index without referring to volume 1 to determine the code and re-checking the tabulation list and errors in determining the final code, namely determining the severity level because it will determine the cost rate, determining the severity of a disease is determined by the doctor in charge based on the main diagnosis and complications experienced by the patient, such determination which may result in delays in payment. Therefore, the completeness of the medical record document is very necessary in order to determine the correct diagnosis code.

Accuracy is the process of processing medical records that are correct, complete and in accordance with applicable regulations. The accuracy of the code is very necessary so that the information generated from the code can be accounted for and describes the quality that has occurred, the code resulting from the diagnosis and procedure must be precise. Therefore, coding officers need to attend training related to the procedure for determining the right code (Anggraini, 2013). The accuracy of the diagnostic code is the suitability of the diagnostic code determined by the coding officer with the diagnosis in the patient's medical record in accordance with the ICD-10 rules.

Based on 56 samples taken, there were 44 medical records that were

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

accurate diagnosis codes with a percentage of 78.6% while an inaccurate diagnostic code was 12 medical records with a percentage of 21.4%. From the results of this study, there were still inaccuracies in coding the diagnosis caused by several factors such as the number of coders only 2 people so that the workload was greater, coders often only looked at ICD-10 volume 3, namely the alphabetical list index without referring to volume 1 to determine the code and re-checking the tabulation list and errors in determining the final code, namely determining the severity level because it will determine the cost rate, determining the severity of a disease is determined by the doctor in charge based on the main diagnosis and complications experienced by the patient, such determination which may result in delays in payment. Therefore, the completeness of the medical record document is very necessary in order to determine the correct diagnosis code.

3. BPJS Claim Approval

INA-CBGs or Indonesian Case Base Group's is an application that is used to submit BPJS claims by health service providers (PPK) such as hospitals, health centers or medical centers (Juknis BPJS).

A claim is a request from one or two parties who have a bond so that their rights are fulfilled. One of the two parties who have the bond will submit a claim to the other party in accordance with the agreement or policy provisions agreed upon by the two parties (Ilyas, 2006).

The proportion of approvals for BPJS patient claims at the Depok City Hospital showed that the majority were approved, namely 44 claims (78.6%). The BPJS claim approval process begins when the hospital submits the BPJS claim file to the BPJS Health verifier. The claim data submitted by the hospital includes a summary file (ressume), attachment sheet supporting results, Participant Eligibility Letter (SEP), treatment order, photocopy of BPJS card, photocopy of ID card, photocopy of KK, and summary of the patient returning home. Based on research conducted by Linda (2016), it was stated that the results of the analysis of the completeness of the claim requirements file contained several incomplete requirements files, namely individual patient reports with an incomplete percentage of 84%. Supporting reports with an incomplete percentage of 18% and a photocopy of the BPJS card with a percentage of 7% incompleteness. Statistical test p-value <0.05 which states that there is a relationship between incomplete files and BPJS claim returns.

The data submitted by the hospital is then verified by the BPJS Health verifier by analyzing the completeness of the files and the financing recognized by the BPJS. Based on the analysis of the completeness of the file and the patient's financing, it is then decided that the BPJS claim is approved or not. The claim process has several stages of claiming starting from the functional service unit/service installation to the medical record unit and then processed by the coder and then forwarded to an independent verifier for verification. the existence of an action or examination of the patient

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

whose bill was requested to BPJS. The BPJS claim process is carried out based on the verification flow determined based on the BPJS Claim Verification technical instructions. In line with the results of Estri's research (2017), according to data from the Financing Guarantee Installation for Hospital X, there is a difference between the value of the submission and the value of the realization of claims which tends to increase, from Rp. 8,830,200 in February to Rp. 950,858,100 in June 2016. This difference is caused by the lack of verification files that need to be fixed. This resulted in a delay in the funds that fell for the hospital. Funds that should have been completed in 2 stages experienced a prolongation which was marked by a decrease in the third stage of funds.

The disease diagnosis code according to ICD-10 and medical record information are the basis for determining the amount of fees that must be paid by BPJS Health to health facilities, if there is an error in the medical record information that causes an error in the diagnosis code will cause a difference in claim rates, will later be checked by the BPJS verifier if it is not approved it will have a direct impact on the operation of the health facility.

4. The Relationship Between Complete Medical Record Information With BPJS Claim Approval

Based on this study, the results showed that from a total of 56 samples, there were 5 (100%) medical records whose information was incomplete with BPJS claims not being approved, the omission of the final diagnosis and the actions that had been given were the cause of incomplete medical record information and this would have an impact in the coding system, where a final diagnosis is needed and also the actions that have been given to provide a disease diagnosis code. A total of 43 (84.3%) medical records with complete information showed that most of them had filled out medical records according to the SOP.

In accordance with Ulfah's research (2011) using a statistical test with a chi-square test with $p = 0.003$ it shows a significant relationship between the completeness of medical record documents and the approval of Jamkesmas claims with the INA CBGs system. These results support that the completeness of medical record information is related to BPJS claim approval

The final result that tries to see whether there is a relationship between the completeness of medical record information and the approval of BPJS claims shows that there is a relationship between them, with a result of $p<0.001$.

Completeness of information represents the completeness and accuracy of the data submitted by the hospital to the information files required by BPJS. Service Recapitulation All data must be written in full to speed up the claim process and as an archive document at the hospital. Incompleteness in filling out medical record status has a direct impact on the proposal for submitting health facility claims to BPJS Health so that it has an impact on delays in BPJS Health claims.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

The relationship between completeness of information and submission of BPJS Health claims as stated in Molanda's research (2015) regarding the analysis of BPJS Health claim submissions at RSUD Dr. Sam Ratulangi Tondano, concluded that the submission of BPJS health claims in the recapitulation of services has not been carried out in a comprehensive and integrated manner, filling and recording of medical record status for completeness of claim documents submitted to medical records officers, there is no coordination and teamwork between implementing nurses and medical record officers . This study also shows that the obstacles that occur in the patient data recapitulation have an impact on the delay in BPJS Health claims at Dr. RSUD. Sam Ratulangi Tondano.

Patient document files are a very important factor in BPJS claims. Completeness of the patient refers to the accuracy of providing guarantees by BPJS. BPJS claims officers must check the completeness of patient information to ensure that the assistance provided is right on target, namely BPJS participants and the financing is in accordance with the specifications or types of care covered by BPJS. The filing of medical record documents should be researched and completed in accordance with the examination, action and treatment that has been given to the patient because the supporting results can affect the increase in BPJS claim rates.

This is in accordance with Tri's research (2016) on the relationship between completeness of information and approval of BPJS claims at Sukoharjo District Hospital. In 2016, the results of the analysis showed that there was a significant relationship between completeness of information and approval of BPJS patient claims at Sukoharjo Hospital (p= 0.001). Research shows that there is a relationship between completeness of information and approval of BPJS patient claims at Sukoharjo Hospital.

5. The Relationship Between The Accuracy Of The Main Diagnostic Code According To ICD-10 With BPJS Claims Approval

Based on 56 samples taken, there were 8 (61.5%) samples that had inaccurate diagnostic codes with BPJS claims not being approved. Although only a small part of the sample is inaccurate, but it has a large enough impact if it continues, the inaccuracy of the diagnosis code will affect the data and report information as well as the accuracy of INA-CBG's rates used as BPJS claim payment methods.

As in Andi's research (2016) From the results of the chi-square test, it is known that the p value is 0.004 < 0.05, then Ho is rejected, meaning that there is a relationship between the accuracy of the obstetric diagnosis code on the smoothness of BPJS claims at Sawerigading Hospital, Palopo City, South Sulawesi. The incorrect diagnosis code can affect the smoothness of BPJS claims.

In this study, the results of p <0.001 showed that there was a relationship between the accuracy of the diagnosis code and the approval of BPJS claims. Inaccurate diagnostic codes can be a problem because BPJS Health claims cannot be paid because

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

they violate the provisions set by BPJS Health. In this case, if the coder officer incorrectly coded the disease, the amount of the claim payment will also be different. As in Adhani's research (2016) the inaccuracy of the coding results for diagnosis and medical treatment produced by inpatient coders, the percentage of coding accuracy is only 74.67% while the coding inaccuracy reaches 25.33% which affects the process of claiming health care costs. Health service tariffs that are lower than they should be will certainly harm the hospital, on the other hand, if the tariff is higher than the INA-CBGs disease tariff provisions, it will be detrimental to BPJS organizers and patients.

If this happens continuously and for a long time, then the further impact that will be seen is a decrease in hospital income because the hospital becomes a loss. Therefore, so that the BPJS Health claim system can be guaranteed by the Depok City Hospital as a Class C Hospital, it must ensure that the information contained in the medical record is complete and the disease diagnosis code written is correct and accurate in accordance with ICD-10 so that claims are expected BPJS Health at the Depok City Hospital can be approved and paid on time so that the operations and revenues of the Depok City Hospital are not disrupted.

This is in accordance with the research of Widyaningrum (2015) which states that there is a significant relationship between the accuracy of the selection of diagnoses and the main diagnostic code for medical record documents with financing with a significant value of 0.001 and $p < a$ (0.05).

AUTHOR CONTRIBUTION

All of the authors contributed to writing and revising the article, gave final approval of the version to be published and agreed to be accountable for all aspects of the work.

ACKNOWLEDGMENT

The authors would like to thank the medical record RSUD Depok division for their cooperation.

FUNDING AND SPONSORSHIP

The authors have not received any financial support for this article.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

REFERENCES

Direktorat Pelayanan (2014). Petunjuk Teknis Verifikasi Klaim Badan Penyelenggara Jaminan Sosial Kesehatan, Direktorat Pelayanan Kesehatan, Jakarta (Technical Instructions for Verification of Claims for Health Social Security Administering Body, Directorate of Health Services, Jakarta). Retrieved from: http://bpjs-kesehatan.go.id/bpjs/dmdocuments/Petunjuk%20Teknis%20Verifikasi%20Klaim_REV.pdf. Diakses pada 6 Mei 2016.

Irmawati, Sugiharto, Susanto E, Astrianingrum M (2016). Faktor-faktor Penyebab Pengembalian Berkas Klaim Rawat Inap Oleh Verifikator BPJS Kesehatan di

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

RSUD Tugurejo (Factors causing return of inpatient claim files by BPJS Health Verifier at Tugurejo Hospital). E-jurnal Poltekkes Semarang. Retrieved from: http://rmik.poltekkessmg.ac.-id/wp-content/uploads/2017/-02/Faktor-Faktor-Penyebab-Pengembalian-Berkas-Klaim-Rawat-Inap-Ole.pdf. Accessed April 2017.

Izzah A (2014). Hubungan Ketepatan Kode Diagnosa Obstetric Terhadap Kelancaran Klaim BPJS Di RSUD Sawerigading Kota Palopo Sulawesi Selatan (The Relationship between the Accuracy of the Obstetric Diagnostic Code and the Smoothness of BPJS Claims at Sawerigading Hospital, Palopo City, South Sulawesi). E-jurnal Esa Unggul. Retrieved from: http://digilib.esaunggul.ac.id-/UEU-Undergraduate-201434-018/8006. Accessed April 2017.

Kementerian Kesehatan, Pemerintah RI (2014). Peraturan Menteri Kesehatan Republik Indonesia Nomor 28 Tahun 2014 Tentang Pedoman Pelaksanaan Program Jaminan Kesehatan Nasional (Regulation of the Minister of Health of the Republic of Indonesia Number 28 of 2014 concerning Guidelines for the Implementation of the National Health Insurance Program). Direktorat Jendral Pelayanan Kesehatan, Jakarta.

Kementerian Kesehatan, Pemerintah RI (2015) Peraturan Menteri Kesehatan Republik Indonesia Nomor 36 Tahun 2015 Tentang Pencegahan Kecurangan (Fraud) pada Pelaksanaan Program Jaminan Kesehatan Nasional, Direktorat Jendral Pelayanan Kesehatan, Jakarta (Regulation of the Minister of Health of the Republic of Indonesia Number 36 of 2015 concerning Prevention of Fraud in the Implementation of the National Health Insurance Program, Directorate General of Health Services, Jakarta).

Malonda D (2015). Analisis Pengajuan Klaim Badan Penyelenggara Jaminan Sosial (BPJS) Kesehatan di RSUD Dr. Sam Ratulangi Tondano (Analysis of the Claim Submission of the Health Social Security Administering Body (BPJS) at Dr Sam Ratulangi Hospital Tondano). E-journal Universitas Samratulangi. https://-ejournal.unsrat.ac.id/index.php-/jikmu/article/view/7852. Accessed February 2018.

Megawati L, Pratiwi RD (2016). Faktor-Faktor Penyebab Pengembalian Berkas Persyaratan Klaim BPJS Pasien Rawat Inap di RS PKU Muhammadiyah Yogyakarta (Factors Causing the Return of the BPJS Claim Requirements Files for Inpatients at PKU Muhammadiyah Hospital Yogyakarta). Jurnal UGM. Retrieved from: https:-//jurnal.ugm.ac.id/jkesvo/article/view/27476. Accessed February 2018.

Noviasari T, Sugiarsi S, Kusumawati Y (2016). Hubungan Kelengkapan Informasi Dengan Persetujuan Klaim BPJS di RSUD Kabupaten

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

Sukoharjo Tahun 2016 (Relationship of Completeness of Information with BPJS Claim Approval at Sukoharjo District Hospital in 2016). Jurnal UMS. Retrieved from: https://eprints-.ums.ac.id/45726/. Accessed January 2018.

Pradani A, Lelonowati, Sujianto (2017). Keterlambatan Pengumpulan Berkas Verifikasi Klaim BPJS di RS X: Apa Akar Masalah dan Solusinya? (Delay in Collecting BPJS Claim Verification Files at Hospital X: What is the Root of the Problem and the Solution?). Jurnal UMY. Retrieved from: http://journal.umy.ac.id/index.-php/mrs. Accessed January 2018.

Swarjana IK (2012). Metodologi penelitian kesehatan, ANDI, Yogyakarta (Health research methodology, ANDI, Yogyakarta). Retrieved from: https://books-.google.co.id/books?id=NOkOS2V7vVcC&printsec=frontcover&hl=id#v=onepage&q&f=false. Diakses 10 Mei 2017.

Ulfah SM, Kresnowati L, Ernawati D (2011). Hubungan Kelengkapan Dokumen Rekam Medis Terhadap Persetujuan Klaim Jamkesmas Oleh Verifikator Dengan Sistem INA CBGs Periode Triwulan IV Tahun 2011 di RSI Sultan Agung (The Relation of Completeness of Medical Record Documents to Approval of Jamkesmas Claims by Verifiers with the INA CBGs System for the Fourth Quarter of 2011 at RSI Sultan Agung). Repository UDINUS. Retrieved from: http://eprints.dinus.ac.id/7739/. Diakses 22 April 2017.

Indonesia (2004). Undang-Undang RI Nomor 40 Tahun 2004 tentang Sistem Jaminan Sosial Nasional, Sekretariat Negara, Jakarta (RI Law Number 40 of 2004 concerning the National Social Security System, State Secretariat, Jakarta). Retrieved from: http:-//www.sjdih.depkeu.go.id/full-text/2004/40TAHUN2004UU.htm. Accessed April 2016.

Indonesia. (2009). Undang-undang RI Nomor 36 Tahun 2009 tentang program Jaminan Kesehatan Nasional, Sekretariat Negara, Jakarta (RI Law Number 36 Year 2009 concerning the National Health Insurance program, State Secretariat, Jakarta). Retrieved from: http://www.depkes.go.id-/resources/download/general/UU%20Nomor%2036%20Tahun2%20009%20tentang%20Kesehatan.pdf. Diakses 17 Juni 2017.

Windari A, Kristijono (2016). Analisis Ketepatan Koding yang Dihasilkan Koder Di RSUD Ungaran (Analysis of Coding Accuracy Generated by Coders at Ungaran Hospital). E-Journal Poltekkes. Retrieved from: http://ejour-nal.poltekkes-smg.ac.id/ojs/-index.php/jrk. Accessed January 2018.

Widyaningrum, L (2016). Ketepatan Reseleksi Diagnosa Dan Kode Utama Berdasarkan Aturan Morbiditas Pembiayaan Jaminan Kesehatan INA-CBGs (Accuracy of Selection of Diagnosis and Main Code Based on

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

Morbidity Rules for Health Insurance Financing INA-CBGs). Jurnal Manajemen Informasi Kesehatan. Retrieved from: http://jmiki.aptirmik.or.id/-index.php/jmiki/article/view/81. Accessed May 2017.

WHO (2004). International Statistical Classification of Disease and Related Health Problems Tenth Revision Volume 2 second edition. Family of International Classification, Tokyo. Retrieved from: http://www.who.int/classifications/icd/ICD10Volume2_en_2010.pdf. Accessed June 2017.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.03

ECONOMIC IMPACT ON PUBLIC AWARENESS OF HEALTH PROTOCOLS IMPLEMENTATION DURING COVID-19 PANDEMIC IN HUTA MANCUK, NORTH SUMATERA, INDONESIA

Sondang Sidabutar, Nur Masdalifah, Putri Ayu Ningsih

Universitas Efarina, Pematang Siantar, North Sumatera, Indonesia

ABSTRACT

Background: Coronavirus curbs on the economy and society continue to have a shocking impact on human development. A pandemic can cause economic disruption in different ways. It is also caused human behavioral changes, such as fear-induced aversion to places of work and public gatherings and implementation of COVID-19 prevention behavior. This study aimed to investigate the economic impact on public awareness of health protocols implementation during the covid-19 pandemic.
Subjects and Method: This cross-sectional study was conducted at Huta Mancuk in North Sumatera, Indonesia. A number of 83 study subjects was selected by systematic random sampling. The dependent variable was public awareness. The independent variable was economic impact. The data were collected by questionnaire and analyzed by t-test.
Results: Economic condiction during the COVID-19 pandemic was significantly affected public awareness in implementing health protocols (p= 0.003). Conclusion: Economic condiction during the COVID-19 pandemic is significantly affected public awareness in implementing health protocols.

Keywords: COVID-19, economic impact, public awareness, health protocol

Correspondence:
Sondang Sidabutar. Universitas Efarina, Pematang Siantar, North Sumatera. Jl. Pdt. J. Wismar Saragih 1, Pematang Siantar, North Sumatera, Indonesia. Email: sondang_sidabutar73@yahoo.com. Mobile: 082131821795.

BACKGROUND

Coronaviruses are a group of viruses that can cause disease in animals and humans. A new type of coronavirus discovered, Severe Acute Respiratory Syndrome Corona Virus (SARS-COV-2), caused COVID-19. The World Health Organization (WHO) has declared the coronavirus outbreak (covid-19) as a public health emergency troubling the world. Then COVID-19 was declared a global pandemic by WHO. The rapid and widespread spread caused the determination of this pandemic status to areas far from the outbreak's center (WHO, 2020).

The economy is the most important factor in human life. Economic needs are closely related to everyday life. To meet their needs such as eating, drinking, clothing, shelter, and others require a strong economy. The state is required to regulate policies regarding the Indonesian economy. It is required to guarantee the economy of the Indonesian people because economic factors are very important factors in human life. Besides the economy is the most important factor in human life, these economic factors are also a supporting factor for national development because the economic growth of

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.04

a good country can increase national development (Hanoatubun, 2020).

The economy in the Asia Pacific will experience a prolonged decline due to the wider spread of this pandemic in various parts of the world. Countries threatened with a recession due to this pandemic include Australia, Hong Kong, Singapore, Japan, South Korea, and Thailand. In 2020, economic growth in China was predicted to decline to 4.8%, from 5.7% initially. Tourism sector countries such as Hong Kong, Singapore, Thailand, and Vietnam, which are countries that contribute 10% of Gross Domestic Product (GDP), will certainly experience economic impacts due to this pandemic (Burhanuddin & Abdi, 2020)

The economic impact of this pandemic has occurred in several countries significantly. Apart from China, South Korea will also experience countries affected by the economy. The Ginseng State's economic growth, originally projected to grow in the first quarter of 2.1%, will experience a decline of about 0.4 percentage points. The economic growth of Thailand and Taiwan is also predicted to experience the lowest economic growth in almost half a decade which reached 0.2% and 1.3% in the current quarter. Meanwhile, the Director of the World Bank predicts that the Indonesian economy is expected to weaken below 5% in the first quarter of 2020.

In 2020, COVID-19 became a very big concern for the Indonesian people. Many losses caused by this pandemic have impacted the Indonesian economy. After experiencing a rapid increase in cases, the government made a policy to deal with the COVID-19 pandemic, enacting the PSBB as stated in Government Regulation No. 21 of 2020. With the PSBB, all activities normally carried out were forced to stop. All industrial and office sectors activities were forced to stop operating temporarily. In addition, the education sector, public services, all places of worship, shopping centers, restaurants, and tourism places also experience the same thing (Misno et al., 2020). This social or physical distancing influences a decrease in overall economic activity (Iskandar et al., 2020).

This significant increase in sufferers is associated with community non-compliance and undiscipline. A number of studies show that community compliance with the prevention and control of COVID-19 is still low. There is an assumption that the disease is a common cold were factors of age influence the non-compliance, education, work status, and psychological aspects that play a role in non-compliance, which include personal traits, stress reactions, psychological well-being (Sari and Atiqoh, 2020; Triyaningsih, 2020; Fadli et al., 2020; Wulandari et al., 2020; Abdul et al., 2020).

Public awareness is the main key in breaking the chain of spreading this deadly infectious disease. Whatever the concept is carried out, such as wearing masks, social distancing, and others. If people cannot be disciplined and have high awareness, it will never work. The local government must have a firm strategy so that the local community can obey the appeals issued. So

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.04

that there is a public awareness and they understand the dangers of COVID-19, it is necessary to carry out continuous socialization in all regions (Syafrida, 2020).

SUBJECTS AND METHOD

1. Study Design

This research design is quantitative research with a cross-sectional approach, where the measurement, observation, and observation of independent and dependent variable data are carried out only once and simultaneously.

2. Population and Sample

The population is aged 18-50 years, totaling 503 people in Huta Mancuk. The researcher uses a systematic random sampling technique, a statistical method that involves selecting elements from a sampling frame. The most common form of systematic sampling is the probability-equal method. Each k element in the frame is selected, where k, the sampling interval (sometimes known as a jump is calculated as k = N/n. The number of samples required is 83 of 503 people in the study's target population.

3. Study Variables

The dependent variable was public awareness. The independent variable was economic impact.

4. Study Instruments

The questionnaire is a data collection instrument in this study by circulating a list of questions to respondents to obtain information on responses or things known in writing.

5. Data Analysis

The data were collected by questionnaire and analyzed by t-test.

6. Research Ethics

In this study, research ethics have been considered: informed consent, anonymity, and confidentiality.

RESULTS

Nagori Mancuk is about 2,491 people, consisting of 1,291 male residents and 1200 female residents. All of these residents are included in 799 families. With the following details

Table 1. Population Distribution by Gender in Nagori Mancuk

Gender	Frequence	Percentage
Male	1,291	50.4%
Female	1,200	49.6%

Source: Nagori Mancuk Data, 2021

Based on the data in table 1. above, the total male population is 1,291 people, and the female population is 1,200.

The most widely held belief in Islam and the second-largest community belief in the Christian community, followed by Catholicism and other religions.

Table 2. Population Distribution by Belief in Nagori Mancuk

Religion	Frequence	Percentage
Islam	2,247	89.9
Kristen	233	9.6
Katolik	11	0.45
Buddha	0	0
Hindu	0	0
Kong Hu Cu	0	0

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.04

Based on table 2. above, the distribution of the population based on belief in Nagori Mancuk is indeed the most dominant religion is Islam with 2,247 people, Christianity with 233 people, and Catholicism with 11 people.

Judging from the type of livelyhood of the people of Nagori Mancuk, most of the people live as farmers. Apart from farming rice, Nagori Mancuk also farms corn, sweet potatoes, and other hard crops. Perennials planted are candlenut, rubber, coconut, and oil palm. Usually, many people who grow rice also grow other perennials or other food crops. The people's livelyhood as farmers too influenced by the natural conditions of Nagori Mancuk, whose land is very suitable for agricultural activities. In addition to soil fertility, the availability of a large land area is also a factor why most Nagori Mancuk residents work as farmers.

Apart from farming, the people of Nagori Mancuk work as farmers. The livestock business carried out by the residents of Nagori Mancuk is raising cattle, goats, poultry, and pigs. Similar to the above, the residents of Nagori Mancuk also have a dual profession besides farming. The residents also have pets as a backup source of income.

Table 3. Population Distribution by Type of Work in Nagori Mancuk

Profession	Frequence	Percentage
Farmer	403	76.7
Entrepreneur	82	15.6
Civil Servant	5	0.95
Trader	22	4.19
Indonesian national army	1	0.19
Private Midwife	2	0.38
BUMN Retirees	10	1.90

Based on table 3, the distribution of the population based on livelyhoods in Nagori Mancuk is indeed the most dominant population who work as farmers. In addition, the second largest livelihood is self-employment, followed by Traders, BUMN Retirees, Civil Servants, Private Midwives, and Indonesian national army.

The economy is the most important factor in human life. Economic needs are closely related to everyday life. Meeting their needs such as eating, drinking, clothing, housing, and others requires a strong economy. The impact of COVID-19 has affected the people's economy in Huta Mancuk. Rural communities live in a subsystem economy, namely an economy where the community meets their needs based on the production and services they develop and produce themselves, which generally come from rice fields, plantations, fields, and ponds. Farmers in Huta Mancuk are experiencing a decline in yields and are finding it difficult to buy increasingly expensive fertilizers and pesticides. Farmers carry out the process of planting rice until harvest takes three months. So that people in Huta Mancuk look for side jobs such as looking for palm oil seeds brooms, selling online, and selling fried foods to meet their daily needs. In Huta Mancuk, an oyster mushroom

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.04

business is produced by the Nagori-Owned Enterprise (Bumnag) to generate income. In addition, during the economic downturn, Huta Mancuk received social assistance from the government through the village head intermediary.

Table 4. Distribution by Variable

Variable	Mean	SD	Minimum	Maximum
Economic impact	3.33	0.83	0	5
Public awareness	8.88	1.59	5	10

Based on Table 4, from the results of the five items of the economic impact questionnaire and ten items of public awareness that have been distributed with a rating scale if the answer is Yes= 1 and No= 0. It is known that the 83 economic impact respondents had an average of 3.33% and public awareness had an average value of 8.88%.

Table 5. Testing of Health Protocol Characteristics in Huta Mancuk

Health Protocol	Frequence	Percentage
Wearing a Mask	77	92.8
Washing hands	8	94.0
Keep the distance	73	88.0
Not Traveling	72	86.7
Reduced Mobility	77	92.8

Based on Table 5, the health protocol for wearing masks has 92.8%, washing hands is 94.0%, keeping distance 88.0%, not traveling 86.7%, and reducing mobility 92.8%. Thus, the health protocol in Huta Mancuk is good.

a. Sample Characteristics

Characteristics of respondents are a variety of backgrounds owned by the respondents themselves. This characteristic is to see the respondent's background in this study. The respondent's background is focused on gender, age, and occupation. The results obtained are:

Table 6. Testing of Gender Characteristics in Huta Mancuk

Gender	Frequency	Percent
Male	44	53
Female	39	47

Based on Table 6, this study used 83 samples from the Huta Mancuk community. From the selected sample, when viewed in terms of gender, the overall sample was male as much as 53% and the rest female as much 47%. This shows that women mostly do it among the people of Huta Mancuk.

Table 7. Testing of Age Characteristics in Huta Mancuk

Age (years)	Frequence	Percentage
18-25	23	27.7
26-35	19	22.9
36-50	41	49.4

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.04

The results of the analysis in Table 7 illustrate that from the sample taken as many as 83 respondents in the Huta Mancuk community, it turns out that in terms of age, there are three groupings and the most taken care at the age of 36-50 years as much as 49.4%, then 18-25 years as much as 27.7% and the last one from the age of 26-35 years as much as 22.9%.

Table 8. Testing of Job Characteristics in Huta Mancuk

Profession	Frequence	Percentage
Does not work	15	18.1
Farmer	21	25.3
entrepreneur	14	16.9
Housewife	21	25.3
College student	12	145

The results of the analysis in Table 8 illustrate that from the sample taken as many as 83 respondents in the Huta Mancuk community, it turns out that in terms of work, there are five groupings, and the most taken are the work of Farmers and Housewives as much as 25.3%, then those who do not 18.1% work, 16.9% self-employed and 14.5% students.

Classic Assumption Test

This test is carried out to see if the data used has deviation from the classical assumptions or not. In the assumption test, three tests are used, namely normality test, linearity test, and heteroscedasticity test. The results of the three tests used are:

Normality test

The normality test is used to test whether, in the regression model, the confounding or residual variables have a normal distribution. The normality test method that can be used to test residual normality is the Kolmogorov-Smirnov (KS).

Table 9. Normality Test Test

Kolmogorov e- Smirnov	p	Description
0.259	<0.001	<0.05 Not normally distributed

Table 9 shows that the data is not normally distributed (p<0.001).

1. Linearity Test

The linearity test aims to determine whether two variables have a linear relationship or not significantly. Table 10 showed that the relationship between economic impact and public awareness is linear.

Table 10. Linearity Test Test

Sum of squares	Mean square	p	F
15.82	3.95	0.137	1.803

Table 11. Heteroscedasticity Test Test

Variable	T	p	Description
economic impact	-2.74	0.008	Heteroscedasticity
Public awareness	-9.13	<0.00	Heteroscedasticity

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.04

Table 11 was the result of Glejser test. It found that the economic impact and public awareness had heteroscedasticity.

Significant test (t-Test)

This test aims to determine the effect of the independent variables individually in explaining the variation of the dependent variable.

Table 12. Testing t-test

R	p	Criteria	Description
3.115	0.003	<0.05	Have effect

Based on table 12, it can be reported that the economic impact has a positive and significant effect on public awareness.

Simultaneous Test (F Test)

Simultaneous test (F test) shows that all independent variables consisting of economic impact have a simultaneous effect on the public awareness.

Table 13. Simultaneous Test Test (Test F)

F	p	Criteria	Description
9.71	0.003	<0.05	Have effect

Table 13 shows that economic impact has a significant simultaneous effect on public awareness.

a. Coefficient of Determination (R^2)

The determinant coefficient (R^2) value is used to measure how far the model can explain the dependent variables, namely public awareness.

Table 14. Coefficient of Correlation and Coefficient of Determination

R	R square	Adjusted R Square	SE
0.327a	0.11	9.6%	1.15

Table 14 it can be seen that the results of the calculation obtained a value of R^2 = 0.096 which means 9.6% of public awareness is affected by the economic impact. While the remaining 90.4% is influenced by other variables outside the model studied.

DISCUSSION

COVID-19 has had many impacts in various sectors, one of which is the economic sector. The increasingly widespread spread of COVID-19 will prolong the period of the fall of the Southeast Asian economy, including Indonesia (Estro, 2020).

Economic activity is one of the population activities driven by certain motives to meet the needs of life for themselves and their families by utilizing the environment (biotic, abiotic, and social). Objects used to meet human needs are divided into goods and services. Goods are all objects in physical form that are useful for meeting human needs, while services are objects in non-physical forms useful for meeting human needs. In general, economic activities are grouped into the main activities of production, distribution, and consumption. (Crayonpedia, 2009 in Lubis, 2014). The economic impact

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.04

has a very large influence on the decline in income from work, and it is difficult to finance daily needs.

Public awareness is a feeling of knowing and understanding what has been done or owned by someone to make community life that runs according to existing norms to achieve a change for the better during the COVID-19 pandemic. The government issues regulations in implementing health protocols such as (wearing masks, washing hands, maintaining a distance of 1 meter, not traveling, and reducing mobility). To implement and implement health protocols, public awareness is needed in dealing with the spread of the COVID-19 virus.

Measurement of the economic impact and public awareness can be done through interviews or questionnaires asking about the material's content to be measured from research subjects or respondents (Notoatmodjo, 2012).

Based on the questionnaire results with 83 respondents, the rating scale is answering Yes= 1 and No= 0. The economic impact has an average value of 3.33%. It can be seen that the answers to the questionnaire results are still relatively low because the results of the questionnaires answered are in accordance with the actual situation during the COVID-19 pandemic, which has an impact on the decline in the community's economy.

Based on the questionnaire results with 83 respondents, the rating scale is answering Yes = 1 and No = 0. Public awareness has an average value of 8.88%. It can be seen that the answers to the questionnaire results are still relatively high because the results of the questionnaires answered are in accordance with the understanding of the theory of health protocols. However, the action/ action of implementing health protocols in daily life does not exist during the COVID-19 pandemic. The health protocol of wearing masks had 92.8%, washing hands 94.0%, keeping distance 88.0%, not traveling 86.7%, and reducing mobility 92.8%. Thus, the health protocol in Huta Mancuk is very good.

Based on the SPSS test, it is known that the value (p= 0.003; 0.050), Ha (alternative hypothesis), is accepted because the p-value is 0.05, so Ho is rejected. Thus, this conclusion is the economic impact on public awareness in the application of health protocols at Huta Mancuk in 2021.

This is the same as the previous research by Rosiady in his research on the Impact of the COVID-19 Pandemic on the Community Economy in West Nusa Tenggara where based on the results obtained. This study shows that this pandemic significantly affects people's lives, both those with civil servants and civil servants backgrounds: non-civil servants and those who live in rural and urban areas.

In Arnaz Anggoro Saputro's research, his research on Analysis of the Impact of the Covid-19 Pandemic on Public Awareness in the Application of Health Protocols was based on the results obtained that most of the people have implemented health

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.04

protocols such as wearing masks, implementing social distancing or physical distancing and applying to cough and sneezing etiquette. Well. The research data results obtained that 52.3 percent of participants did not wash their hands, and 56.9 percent did not bring hand sanitizer when traveling.

The same is true for the current research on the community in Huta Mancuk, Huta Bayu Raja District, Simalungun Regency. The study results resulted in a p-value of 0.05 so that these results had a statistically significant impact on the economic impact of public awareness in the application of health protocols. This is the same as the previous research by Rosiady in his research on the Impact of the COVID-19 Pandemic on the Community Economy in West Nusa Tenggara where based on the results obtained. This study shows that this pandemic significantly affects people's lives, both those with civil servants and civil servants backgrounds: non-civil servants and those who live in rural and urban areas.

Based on research conducted on the impact economics on public awareness in the application health protocol in Huta Mancuk in 2021 then, can concluded that the state of the COVID-19 pandemic gave influence on the decline in the economy of the community, around 8.88% of those who implement health protocols in their daily life did not exist during the COVID-19 pandemic, the impact of the economic impact on public awareness in implementing health protocols in Huta Mancuk in 2021. Thus, it is expected to provide broad education and knowledge to the public regarding the analysis of the economic impact on public awareness in the application of health protocols in Huta Mancuk Year 2021.

AUTHOR CONTRIBUTION

Conduct research, enter journals, and revise journals.

FUNDING AND SPONSORSHIP

The University funded this research as part of the tri dharma of higher education.

ACKNOWLEDGEMENT

We would like to thank the relevant parties in Huta Mancuk who have supported the implementation of this research.

CONFLICT OF INTEREST

No conflict of interest was found.

REFERENCES

Anies (2020). COVID-19. Seluk Beluk COVID-19 yang wajib di Baca (The ins and outs of COVID-19 that must be read). Pkk Yogyakarta: Arruzz Media.

Elgaputra RR, Sakti EYA, Widyandri DB, Azhari AR, Renatta C, Rainasya K, Madani KS, Gitawangi SV, Faradita, Pradyanti SA, Musta'ina S (2020). Implementasi Sosialisasi Covid-19 dalam meningkatkan kesadaran masyarakat terhadap protokol kesehatan di Kota Jakarta (Implementation of COVID-19 socialization in increasing public awareness of health protocols in the city of Jakarta). Jurnal Layanan Kesehatan. 4:

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.04

423-433. doi: 10.20473/jlm.v4i-2.2020.423-433

Fang, Widiyant (2019). Cara Uji Heteroskedastisitas dan Uji Gleser (Method of Heteroscedasticity Test and Glacier Test). Message posted to http://youtu.be/GrPz-nz0jMVM.

Liviana PH, Suwoso RH, Febrianto T, Kushindarto D, Aziz F (2020). Dampak COVID-19 bagi perkonomian masyarakat desa (The impact of COVID-19 on the economy of rural communities). Indonesian Journal of Nursing and Health Sciences.1(1);37-48.

Meryati A, Nurhamdi M, Apriliani S, Abdurohman D, Sawukir S (2020). Meningkatkan kesadaran masyarakat mengenai pentingnya penerapan protokol kesehatan sebagai upaya memutus mata rantai penyebaran COVID-19 di Kelurahan Ciputat (Increasing Public Awareness Regarding the Importance of Implementing Health Protocols as an Effort to Break the Chain of Spread of COVID-19 in Ciputat Village). Dedikasi PKM. 2(2);169-174.

Muhammad, Iman, (2010). Pemanfaatan SPSS dalam Penelitian Bidang Kesehatan dan Umum (Utilization of SPSS in Health and General Research). Bandung: Citapustaka Media Medis.

Notoatmojo, Soekidjo (2012). Ilmu kesehatan masyarakat, prinsip-prinsip dasar (Public Health Science, Basic Principles). Jakarta: P.T. Asdi Mahasatya.

Notoatmojo, Soekidjo (2017). Metodologi penelitian kesehatan (Health Research Methodology). Jakarta: Rineka Cipta.

Nugrahani, Wulan, Andari (2021). Total kasus aktif di seluruh dunia lebih dari 11,4 Juta (Total Active Cases Worldwide Over 11.4 Million). https://www.tribunnews.-com/corona/2021/06/22/update-corona-global-22-juni-2021-siang-total-kasus-aktif-di-seluruh-dunia-lebih-dari-114-juta.di akses pada tanggal 15 Juni 2021.

Pinasti, Ayu, Dea, Faura (2020). Analisis dampak pandemi COVID-19 terhadap kesadaran masyarakat dalam penerapan protokol Kesehatan (Analysis of the impact of the COVID-19 pandemic on public awareness in implementing health protocols). Wellness and Healthy Magazine. 2.2: 237-249.

Raharjo, Sahid (2017). Uji T dan Uji F dalam Regresi Berganda dengan SPSS Lengkap (T-Test and F-Test in Multiple Regression with Full SPSS). Message posted. http://youtu.be/70YkRGcAk10.

Rosidah A, Khasanah BA, Kayyis R, (2020). Meningkatkan kesadaran masyarakat terhadap pencegahan COVID-19 melalui video edukasi penerapan protokol kesehatan (Increasing Public Awareness of COVID-19 Prevention Through Educational Videos on the Implementation of Health Protocols). Jurnal Ilmiah Pengabdian kepada Masyarakat. 4(2): 414-419. doi: 10.25077/logista.-4.2.414-419.2020

Rozali, Akhmad (2019). Uji linearitas deviation from linearity SPSS (Deviation Linearity Test From SPSS Line Linearity). Message

posted to http://youtu.be/iEtpk-A1cqil.

Rozali, Akhmad (2019). Uji normalitas kolmogorov smirnov SPSS (Kolmogorov Smirnov SPSS. Normality Test). Message posted to. http://youtu.be/h8xc8VH7Wpk.

Saputro AA, Saputra YD, Prasetyo GB (2020). Analisis dampak pandemi COVID-19 terhadap kesadaran masyarakat dalam penerapan protokol kesehatan (Analysis of the Impact of the Covid-19 Pandemic on Public Awareness in the Implementation of Health Protocols). 3(2): 81-82. doi: 10.29408/porkes.v3i2.2865

Stefanny J, Pangoempia, Grance EC, Korompis, Adistri A, Rumayar (2021). Analisis pengaruh pandemi COVID-19 terhadap pelayanan kesehatan di Puskesmas Ranotana Weri dan Puskesmas Teling Atas Kota Manado (Analysis of the impact of the COVID-19 pandemic on health services at the Ranotana Weri Health Center and Teling Atas Health Center Manado City). Jurnal Kesmas. 10(1);40-49.

Sugiyono (2018). Metode Penelitian Kuantitatif, Kualitatif, dan R&D (Quantitative, Qualitative, and R&D Research Methods). Bandung: Alfabeta.

Swaesti, Eista (2020). buku pedoman pencegahan dan penanganan virus corona (corona virus prevention and handling Handbook). Jogjakarta: Javalitera.

Yamali, Fakhrul R (2020). Dampak COVID-19 terhadap ekonomi Indonesia (Impact of COVID-19 on the Indonesian Economy). Journal of economics and business. ISSN 2597-9929.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.04

SERVICES OF LOCAL COMMUNITY SERVICE AGENCY AND ITS CORRELATION WITH JOB SATISFACTION OF EMPLOYEES IN KLAMBU HEALTH CENTER, GROBOGAN, CENTRAL JAVA

Ahmad Farid, Tri Widodo,
Yuli Setyaningrum, Imam Maturidi

Hospital Administration, Universitas Muhammadiyah Kudus, Central Java

ABSTRACT

Background: Local Community Service Agency (LCSA) services are one of the financial compensations given to employees in Community Health Center. The provision of compensation can lead to employee dissatisfaction if in its implementation it is not based on fairness and feasibility. This study aimed to determine the relationship between the distribution of services and job satisfaction of employees at the Klambu Community Health Center, Grobogan, Central Java.
Subjects and Method: A cross-sectional study was carried out in Klambu Community Health Center, Grobogan, Central Java, in September 2019. A sample of 41 employee was selected by random sampling. The dependent variable was employee satisfaction. The independent variable was services of LCSA. The data were collected by a questionnaire and analyzed by Fisher exact test.
Results: 41 of 70 employee completed the questionnaire (58.35%). There was a correlation between employee satisfaction and services of LCSA ($p< 0.001$).
Conclusion: Employee satisfaction is positively correlated with services of LCSA.

Keywords: Local community service agency, satisfaction, employee.

Correspondence:
Ahmad Farid. Hospital Administration, Universitas Muhammadiyah Kudus. Jl. Ganesha No. 1, Kudus, Central Java. Email: ahmadfarid@umkudus.co.id. Mobile: +62 82311672017.

BACKGROUND

Public health center as the spearhead of health services is a supporter of the successful implementation of the national health program in Indonesia. Public health center are at the basic level of a health organization where health workers work together to achieve health development goals. Therefore, Indonesia always strives to improve development in the health sector that is comprehensive and sustainable through health facilities at Puskesmas and Hospitals as well as other health service institutions, both government and private. Public health center is a first-level health service effort by prioritizing promotive and preventive efforts, without reducing the curative function to improve public health status (Kemenkes, 2014).

The service distribution system for the variable types of workforce and positions is awarded with points, namely 150 points for medical staff, 100 pharmacists or nursing staff (Ners), 60 points for health workers equivalent to S1/D4, non-health workers with a minimum D3 level, health workers equivalent D3, or health workers below D3 with more than 10 years of service with 40 points, health workers below D3 with 25 points and non-health workers below D3 with 15

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.05

points. The points given to medical personnel with paramedics, other health workers and non-health workers have a fairly high range.

Based on research conducted, the number of patient visits each month varies, this affects service acceptance. The distribution of services in accordance with the Regulation of the Minister of Health Number 28 of 2014 at the Klambu Health Center, Grobogan Regency causes different employee perceptions. This is because giving points to each variable causes differences in the services obtained by different employees which cannot provide satisfaction to all employees and are not proportional to the employee's workload. Officers do this because the community must receive services, especially in an emergency.

Based on a preliminary survey conducted on 10 non-PNS nurse subjects in the field conducted by conducting interviews, they said that the provision of services in accordance with the Minister of Health Regulation, Number. 28 of 2014 did not provide justice for workers at the Puskesmas. The rights they receive do not match the performance they have done. Paramedics complained that the distribution of services was mostly provided to medical personnel, while the work of medical personnel was mostly carried out by paramedics. The paramedics said they would reduce or even refuse to take on the work of medical personnel and would carry out their duties to the extent of their responsibilities as paramedics.

Therefore, this study aimed to determine the relationship between the distribution of services and job satisfaction of employees at the Klambu Community Health Center, Grobogan, Central Java.

SUBJECTS AND METHOD

1. Study Design

This was cross-sectional study, conducted at Klambu Health Center, Grobogan, Central Java, on September 2019.

2. Population and Sample

The population in this study were employees of the Klambu Health Center, Grobogan, Central Java in September 2019. A total 41 employees of the Klambu Health Center were selected using random sampling technique.

3. Study Variables

The dependent variable was employees statisfaction. The independent variables were distribution of services.

4. Operational Definition of Variables

Employees statisfaction is the subjects perception of his work which is a positive statement derived from estimates of work and work experience. The measuring instrument is the questionnaire, the measuring results are appropriate if the total score is 51-100% and is not appropriate if the total score is 50% with an ordinal scale.

Distribution of services Subjects perception of health services received in return for his work. The data were collected using a set of questionnaires.

5. Instruments

The data is in the form of primary and secondary data. Primary data were obtained using questionnaire filled out by research subjects. Secondary data were obtained from Klambu Health Center

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.05

namely data on the number of employees.

6. Data Analysis

Univariate analysis was carried out to see the frequency distribution of the research subjects. While bivariate analysis was cariied out to see the correlation between distribution of services and job satisfaction of employees at the Klambu Community Health Center.

RESULTS

1. Univariate analysis

Table 1 showed the subjects who stated that they were not suitable and were not satisfied were as many as 24 people (58.5%), while the subjects who stated that they were in accordance with the distribution of services and were satisfied were 17 people (41.5%).

Table 1. Univariate analysis (dichotomous data)

Variables	Categories	Frequency (n)	Percentage (%)
Service distribution	Inappropriate	24	58.5
	Appropriate	17	41.5
Job statisfaction	Inappropriate	24	58.5
	Appropriate	17	41.5

2. Bivariate analysis

Table 2. showed the results of bivariate analysis using Fisher exact, it can be seen that there is a relationship between service distribution and employee job satisfaction (p<0.001)

Table 2. the correlation between services distribution with job statisfaction.

Services distribution	Job statisfaction				Total		p
	Inappropriate		Appropriate				
	n	%	n	%	n	%	
Inappropriate	24	58.5	0	0	24	58.5	
Appropriate	0	0	17	41.5	17	41.5	<0.001
Total	24	58.5	17	41.5	41	100	

DISCUSSION

The provision of incentives or services is to increase motivation, job satisfaction and employee performance. Incentives are a means of motivation in the form of incentives or incentives that are deliberately given to employees so that a greater enthusiasm arises in them to excel for the organization (Wayan, 2015).

A study by Candra (2012), there is a relationship between compensation and job satisfaction of nurses at PKU Muhammadiyah Hospital Yogyakarta. This is also supported by the results of his research which states that there is a positive relationship between the provision of incentives, both in the form of money and in the form of social security, with employee job satisfaction, although the relationship is only moderate and weak, namely the descriptive statistical results of the questionnaire answers from 41 subjects. 24 subjects (58.5%), and 17 subjects (41.5%).

Job satisfaction of employees of the Klambu Public Health Center in Grobogan Regency. Based on the results of the study, most of the

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.05

respondents or as many as 24 people (58.5%) stated they were not satisfied, this can be seen based on the majority of the answers to research questionnaire questions in the answer to answer category no, which was shown as many as 23 respondents (56.1%) answered questions about the work they were doing. not in accordance with practical and easy-to-implement procedures/ rules/ procedures, while 33 respondents (80.5%) answered yes, who felt that busy work did not have the opportunity to play a role in society.

Wuryanto, 2010 stated that job satisfaction is a manifestation of employyee perceptions which are reflected in attitudes and focused on employee behavior at work. The results of this study are in line with research by Novalia (2008), in Candra (2012) there is a positive relationship with the results of p <0.05. With a moderate relationship (r= 0.596) between compensation and job satisfaction of nurses in Indrasari Rengat Hospital, Riau Province. This shows the direction of a positive relationship which means the greater the compensation received, the higher the job satisfaction.

This research is strengthened by Wayan (2015) on the relationship between the distribution system of national health insurance services and the job satisfaction of puskesmas employees in Karangasem Regency, showing that the results of the bivariate test have a relationship between the distribution system of JKN services and the job satisfaction of Puskesmas employees.

From the research results obtained, that the service has a positive relationship with job satisfaction. The services provided in accordance with the expectations and responsibilities of employees are closely related to the level of employee job satisfaction. Service distribution system can be seen from optimal performance. Employees who are satisfied with the provision of these services produce optimal work. With the right service, employees have a good level of job satisfaction. The limitations of this study are that the measurement used in this study is in the form of a questionnaire, the study would be better if accompanied by in-depth interviews.

The generalization of the results of this study is limited to the population where the study was conducted, which is limited to employees at the Klambu Public Health Center, Grobogan Regency. Researchers only reveal one variable, so it is necessary to add other variables, such as relationships with superiors, co-workers (workers).

AUTHOR CONTRIBUTION

Ahmad Farid as the main researcher who coordinates the research, carries out all stages of the research, presents the results of research analysis and completes research papers. Tri Widodo plays a role in developing the research framework and processing research data. Yuli Setyaningrum contributed to the preparation of research papers. Imam Mathuridi plays a role in developing ideas, research designs, and research hypotheses.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.05

FUNDING AND SPONSORSHIP

This research was funded by the Universitas Muhammadiyah Kudus.

ACKNOWLEDGMENT

Our gratitude to the rector of the Universitas Muhammadiyah Kudus who has facilitated this activity, all lecturers and all employees who have been willing to become the object of research.

REFERENCES

Chandra B, Widyastuti P (2012). Pengantar Kesehatan Lingkungan (Introduction to Environmental Health). Jakarta: Penerbit Buku Kedokteran. Cet 2012. Jakarta: EGC, 2006.

Selin D (2011). Hubungan Insentif dengan Kinerja Berdasarkan Indikator Kualitas Kerja dan Kedisiplinan Perawat di Ruang Rawat Inap RSUD Lakipadada Kecamatan Malale Utara Kabupaten Tana Toraja Propinsi Sulawesi Selatan (The Relationship between Incentives and Performance Based on Indicators of Work Quality and Discipline of Nurses in the Inpatient Room at the Lakipadada Hospital, North Malale District, Tana Toraja Regency, South Sulawesi Province.). Retrieved: https://lib.ui.ac.id/file?file=digital/201612/20440773.Debora%20Selin.pdf

Kemenkes RI (2014). Profil Kesehatan Indonesia Tahun 2014 (Indonesia Health Profile 2014) . Jakarta: Kementerian Kesehatan RI

Hendrayani NWA (2015). Hubungan Sistem Pembagian Jasa Pelayanan Jaminan Kesehatan Nasional dengan Kepuasan Kerja Pegawai Puskesmas di Kabupaten Karangasem (The Relationship between the National Health Insurance Service Distribution System and the Job Satisfaction of Public Health Center Employees in Karangasem Regency).

Notoatmodjo S (2013). Metodologi Penelitian Kesehatan (Health Research Methodology). Jakarta: Rineke Cipta, 2013.

Rosmita N (2012). Pengaruh Sistem Pembagian Jasa Medik terhadap Kepuasan Kerja Perawat Pelaksana di RSUD Dr. H. YulIddin Away Tapaktuan (the effect of the Medical Service Distribution System on the Job Satisfaction of the Nurse Practitioner at Dr. Hospital. H. YulIddin Away Tapaksir). Retrieved at: https://-123dok.com/document/qokm7-nmypengaruhpembagianterhadapkepuasanperawatpelaksanayulidintapaktuan.

Peraturan Menteri Kesehatan RI (2016). Penggunaan Dana kapitasi jaminan kesehatan untuk jasa pelayanan kesehatan dan dukungan biaya operasional pada fasilitas kesehatan tingkat pertama milik pemerintah daerah (Use of health insurance capitation funds for health services and operational cost support at first level health facilities owned by local governments).

Ruslan (2013). Pengaruh Penerapan Badan Layanan Umum Daerah (BLUD) terhadap Kinerja Pegawai Administrasi di RSUD Blangpidie Aceh Barat Daya (The Influence of the Implementation

of the Regional Public Service Agency (BLUD) on the Performance of Administrative Employees at Blangpidie Hospital, Aceh Barat Daya).

Robbins S, Timothy A, Judge (2008). Perilaku Organisasi (Organisational Behavior) Jakarta: Penerbit Salemba Empat.

Wibowo (2010). Manajemen Kinerja, edisi ketiga (Performance Management, third edition). Jakarta: Rajawali, Pres

Wuryanto A (2010). Prinsip pendekatan metode Teknik strategi dan pembelajaran (Principles of method approach Strategy and learning techniques) Jakarta: Penerbit Salemba Empat.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.05

DIFFERENCE IN THE EFFECTS OF PREDICTORS FOR ONE-DAY CARE UTILIZATION BETWEEN THALASEMIA ANDCHEMOTHERAPY SERVICES AT ADAM MALIK GENERAL HOSPITAL, MEDAN

Emma Pintamalem Br Tarigan

Faculty of Public Health, Universitas Sumatera Utara

ABSTRACT

Background: One of the innovations for a hospital to compete with others is to offer a one day care. This study aimed to analyze the differences in the effects of hospital status, accessibility, experience, and confidence, on the utilization of one day care between the thalassemia and the chemotherapy services at Haji Adam Malik General Hospital in Medan.
Subjects and Method: This was a cross-sectional study conducted at Haji Adam Malik General Hospital in Medan. A total of 80 patients was selected, consisting of 40 patients who used or did not use the one-day care in the chemotherapy unit and 40 patients who used or did not use the one-day care in the thalassemia unit. The patients were classified as using the one-day care if using it at least three times. The dependent variable was utilization of one-day care either at the thalassemia or chemotherapy unit. The independent variables were hospital status, accessibility, experience, and confidence. Data were analyzed by discriminant analysis.
Results: There was a statistically significant difference in the effects of hospital status ($p < 0.001$) and experience ($p < 0.001$) on the decision to use one day care in the thalassemia unit and the chemotherapy unit. However, there was no statistically significant difference in the effects of accessibility ($p= 0.127$) and confidence ($p= 0.180$) on the decision to use one day care in the thalassemia unit and the chemotherapy unit.
Conclusion: The effects of hospital status and experience on the decision to use the one-day care were significantly different in the thalassemia unit and the chemotherapy unit. But there is no difference in the effects of accessibility and confidence on the decision to use one day care in the thalassemia unit and the chemotherapy unit.

Keywords: utilization of one day care, thalassemia, chemotherapy, discriminant analysis.

Correspondence:
Emma Pintamalem br Tarigan, Faculty of Public Health, Universitas Sumatera Utara. Email: emma.pintamalem@gmail.com. Mobile: +628126377701.

BACKGROUND

One of the hospital innovations to compete with others is to offer one day care. Initially, the one day care product was only in the form of minor surgery, then it developed into chemotherapy services, dialysis (haemodialysis), thalassemia, blood transfusions, ring pairs and others. The rapid development of sophisticated medical technology allows the implementation of one day care (Wolper, 2011). One day care is able to reduce costs, time, reduce long queues due to limited space and suppress neglected patients, patients are protected from various nosocomial infections that arise from hospitals, thereby increasing patient comfort.

Several hospitals in Medan, North Sumatra, provide similar services (chemotherapy, dialysis/haemodialysis,

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.06

ring insertion/catheterization). Reduction of similar services can actually provide benefits to the health care system (Wolper, 2011). This kind of service gives patients the opportunity to choose the one day care chemotherapy product they want to use. But it can also reduce the performance of the health care system. For example, hospitals continue to serve and diagnose patients who are not in accordance with the hospital's capabilities but do not refer patients who should be referred to higher referral hospitals because the facilities and infrastructure do not actually support services to patients. Resulting in an increase in service costs that must be charged to patients/BPJS, especially for cases of chronic disease.

Cancer and thalassemia are non-communicable diseases (PTM). According to Basic Health Research, the prevalence of cancer or oncology increased from 1.4‰ (in 2013) to 1.8‰ (in 2018); The trend of cases of blood disorders/thalassemia in Indonesia increased from 4,896 people in 2012 to 9,028 people in 2018 with the prevalence of thalassemia carriers reaching around 3.8% of the entire population.

RSUP H. Adam Malik is a Teaching Hospital, National Referral (specialist and subspecialty services) and Class A, which is technically under the Directorate of Health Services of the Ministry of Health of the Republic of Indonesia, with the status of a Public Service Agency. Oncology service is one of the superior services at H. Adam Malik Hospital, where in the last five years there have been ups and downs in the trend of visitors to H. Adam Malik Hospital; 7,422 patients (2015), 6,610 patients (2016), 3,786 patients (2017), 4,965 patients (2018), 4,265 patients (2019) and 1,728 patients (January to May 2020) were not directly proportional to the trend of prevalence of oncology (cancer) cases. Chemotherapy services were 1,219 (in 2019) from 4,265 (January to May 2020) the number of oncology patients. Could it be because of the existence of chemotherapy-like services at several hospitals in Medan that made oncology patients choose another hospital, or because of the status of the latest referral hospital, so the patient was not referred or because of the patient's insecurity to take advantage of one-day chemotherapy at H Adam Malik Hospital.

In contrast to the thalassemia service, where the visits of patients with blood disorders increased significantly before and after one day care for thalassemia at H Adam Malik Hospital, from the previous 11 patients to 50 patients. Thalassemia patients usually come repeatedly and the average patient is served in the last three years. The trend of patients increasing by 11 patients per year is 64 patients (in 2017); 79 patients (in 2018); 88 patients (in 2019); and an average of 107 patients (January to June 2020). There are differences in the pattern of visitor trends for the two groups of patients using one day care at H Adam Malik Hospital. This study aims to analyze the differences in the effect of hospital status, accessibility, experience, and self-confidence, on the utilization of one day care between thalassemia sufferers and chemotherapy services at Haji Adam Malik Hospital, Medan.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.06

SUBJECTS AND METHOD

1. Study Design

This study is a cross-sectional study at the Haji Adam Malik Central General Hospital Medan, North Sumatra, carried out from June to December 2020.

2. Population and Sample

A total of 80 patients were selected, consisting of 40 patients using or not using one-day care in the chemotherapy unit and 40 patients using or not using one-day care in the thalassemia unit. Patients were classified as using the one-day treatment if they used it at least three times. The sampling technique was carried out using purposive sampling.

3. Study Variable

The dependent variable is the use of one-day care in both the thalassemia and chemotherapy units. The independent variables are hospital status, accessibility, experience, and beliefs.

4. Operational Definition of Variables

Utilization of one day care is a group of chemotherapy patients and a group of ring plug patients who are users of care in a short (relatively short) period of not more than one day or 24 hours because of the ability of sophisticated medical technology which is the target group to be explained (Permenkes, 2009).).

Hospital status is an individual's perception of the position of the hospital in accordance with the real role that the hospital actually carries out in carrying out its functions according to its role (Bruce, 1992).

Accessibility is grouped into three categories, namely: (1) Physical accessibility includes physical access related to the distance of one day care users which can be calculated from travel time, distance traveled, type of transportation and conditions of one day care; (2) economic accessibility related to the individual's financial ability to access one day care; (3) Social accessibility includes non-physical and financial conditions that influence the decision to go to one day care (Eryando, 2006).

Experience is an event that is caught by the five senses and stored in memory. Experience can be obtained or felt when the event has just happened or has been going on for a long time. The experience that occurs can be given to anyone to use and become a guide and human learning (Notoatmodjo, 2012).

Belief is an individual's behavioral interest which is a function of belief, belief here is a normative belief, in the form of belief that the reference argues for utilizing one day care and motivation to comply with individual interests where behavioral interest will result in individual behavior taking action (Ajzen, 1991).

5. Instrument

The research instrument uses a questionnaire with a Likert scale technique, there are five categories, including: (1) Strongly agree (SS) = score 5; (2) Agree (S) = score 4; (3) Neutral (N) = score 3; (4) Disagree (TS) = score 2; (5) Strongly Disagree (STS) = score 1.

6. Data Analysis

Analysis of the data used is discriminant analysis. The objectives of the discriminant analysis were: to find out whether there was a clear difference between the thalassemia one day care patient group (0) and the chemo-

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.06

therapy one day care patient group (1). If there is a difference, to find out the independent variables that make the difference, and make a discriminant function or model.

RESULTS

1. Overview of H Adam Malik Hospital

H Adam Malik Hospital Medan is a general hospital owned by the central government which is technically under the Directorate General of Health Services, Ministry of Health of the Republic of Indonesia. As a Teaching Hospital (Decree of the Minister of Health No: 502/Menkes/SK/IX/1991, dated September 6, 1991), National Referral (basic specialist medical services, medical support specialists, specialist and sub-specialist medical services.), Class A (798 beds) and the management of the Public Service Agency (KMK No. 214/KMK.05/2009). Oncology services are the flagship service of H Adam Malik Hospital (PMK. 390, 2014) and since August 2016 H Adam Malik Hospital has started accepting thalassemia patients with one day care that requires two to three days of care. With one day care for thalassemia services are made easier; diagnostic services in clinical laboratories, blood transfusions, iron chelation therapy and other services in less than 24 hours.

2. Oncology and Thalassemia Services at H Adam Malik Hospital

The trend of visitors to oncology and thalassemia patients is different at H. Adam Malik Hospital from 2015 to 2019. Visitors to oncology patients have fluctuated in five years. Meanwhile, visitors to thalassemia patients tend to increase every year (Table 1).

Table 1. Trends of visitors to Oncology and Thalassemia Patients at H Adam Malik Hospital 2015-2019

Year	Chemotherapy	Thalassemia
2015	2121	0
2016	1889	0
2017	1073	64
2018	1419	79
2019	1219	88

Source: SIRS H Adam Malik Hospital in 2020

3. Characteristics of One Day Care Patients at H Adam Malik Hospital

The majority of 80 patients undergoing chemotherapy came from Outside the City-Madya Medan as many as 24 patients (30%), 31 patients (39%), female and 30 patients (38%) adults (Table 2).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.06

Table 2. Characteristics of the Thalassemia ODC group and the Chemotherapy ODC group

Patient Characteristics	Chemotherapy		Thalassemia	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Address				
City of Medan	12	15	20	25
Outside the city of Medan	24	30	20	25
Outside of North Sumatera	4	5	0	0
Gender				
Male	9	11.25	13	16.25
Female	31	38.75	27	33.75
Age				
Infant (0-1 year)	0	0	0	0
Kid (2-10 years)	2	2.5	12	15
Adolescent (11-19 years)	1	1.25	11	13.75
Adult (20-60 years)	30	37.5	17	21.25
Elderly (>60 years)	7	8.75	0	0

4. Results of Discriminant Analysis

There was a statistically significant difference in the effect of hospital status ($p < 0.001$) and experience ($p < 0.001$) on the decision to use one-day care in the thalassemia unit and chemotherapy unit. However, there was no statistically significant difference in the effects of accessibility ($p= 0.127$) and confidence ($p= 0.180$) on the decision to use one-day care in the thalassemia unit and chemotherapy unit (Table 3).

Table 3. Results of Discriminant Analysis of the influence of hospital status, accessibility, experience, and self-confidence, on the use of one day care between thalassemia sufferers and chemotherapy services at Haji Adam Malik Hospital Medan.

Variable	p
Hospital Status	<0.001
Experience	<0.001
Accessibility effect	0.127
Confidence	0.180

DISCUSSION

The results of this study indicate that there are differences in hospital status in the chemotherapy one day care group and the thalassemia one day care group. Hospital status does not automatically make patients make the same decisions in utilizing ODC services in both groups of ODC chemotherapy users and ODC thalassemia users.

Similar services that are also offered by several hospitals in Medan give patients and families the opportunity to choose a different hospital, but are limited by a tiered referral procedure, where the status of the hospital as a national referral hospital and the last

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.06

referral, makes differences between the two groups.

Trust in health services is more influenced by the quality of the doctor-patient relationship (Calnan et al., 2004) compared to hospital status. The doctor's input and advice has more influence on the patient's decision. In fact, most patients do not understand the relationship between hospital status and what the hospital can provide them with. The attitude of choosing is usually related to trust, the status of a hospital does not automatically make someone trust its service products.

There are differences in the experience of ODC in the chemotherapy ODC group and the thalassemia ODC group. Human experience and interaction with the environment is manifested in the form of knowledge, attitudes and actions in choosing and not choosing services. The image of government hospitals is still attached to the hearts of the people with their habits and ways of working that influence decisions in choosing services.

Thalassemia service is a service for disease with lifelong treatment, different from chemotherapy services. In chemotherapy patients, initially because of previous experience or the experience of those around them who gave advice that influenced their decision at the beginning, but because of the need for services and indeed as the final referral of the RSUP. H. Adam Malik was finally chosen to be used as a service option.

There was no difference in ODC accessibility in the chemotherapy ODC group and the thalassemia ODC group. As a national referral government hospital, patients whose entire treatment costs are covered by health insurance, the distance to the hospital in the two groups is relatively the same and there is no difference. According to the journal analysis of factors related to the use of health services for participants of national health insurance in the work area of the national health center in the work area of the Payakabung Health Center, Ogan Ilir Regency, it was stated that of the four variables that were significantly related to the utilization of health services, one of them was service accessibility. (Irawan, 2018).

There was no difference in belief in the quality of ODC in the chemotherapy ODC group and the thalassemia ODC group. According to the journal Factors of National Health Insurance Participants (JKN) Contribution Assistance Recipients (PBI) related to the utilization of health services in the Mandala Mekar Health Center Work area, Bandung City, there is no significant relationship between belief/trust in health services and the utilization of health services (Ultimate and Inayah, 2020). Because he suffered from a chronic disease and was referred to H Adam Malik Hospital, as the last referral, the two groups using ODC had to use ODC at H Adam Malik Hospital so that there was no difference between the two groups.

This study concludes that there is an effect of hospital status and experience on the decision to use one-day in the thalassemia unit and chemotherapy unit. However, there was no difference in the effect of accessibility and confidence on the decision to use one day care in the thalassemia unit and the chemotherapy unit. The limitation of this research is that it uses a questionnaire instrument so that the answers are

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.06

based on the subject's perception, so that there is a possibility of bias or discrepancy with the actual situation and contains an element of subjectivity.

AUTHOR CONTRIBUTION

Destanul Aulia who has helped review the results in this study.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGMENT

The author would like to thank Universitas Sumatera Utara.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Ajzen I (1991). The Theory of Planned Behavior, Organizational Behavior and Human Decision Processes. 50(2): 179-211

Bruce J, Cohen (1992). Sosiologi Suatu Pengatar (Sociology An Introduction). Jakarta: PT Rineka Cita 1992

Calnan M, Rowe R, Entwistle V (2006). Trust relations in health care; an agenda for future research. J Health Organ Manag. 20(5): 477-84. DOI: 1011108/14777260610-701830.

Eryando T (2006). Aksesibilitas kesehatan Maternal di Kabupaten Tanggerang (Maternal health accessibility in Tangerang Regency). Makara, kesehatan. 11(2): 76-73.

Irawan Bambang (2018). Analisis faktor-faktor yang berhubungan dengan pemanfaatan pelayanan kesehatan pada peserta jaminan kesehatan nasional di wilayah kerja puskesmas nasional di wilayah kerja puskesmas Payakabung, Kabupaten Ogan Ilir (Analysis of factors related to the utilization of health services for participants of national health insurance in the working area of the national health center in the work area of the Payakabung health center, Ogan Ilir Regency), Jurnal Ilmu Kesehatan Masyarakat. 9(3). DOI: https://doi.org/-10.26553/jikm.2018.9.3.189-197

Notoatmodjo S (2012). Promosi Kesehatan dan Perilaku Kesehatan (Health Promotion and Health Behavior), edisi revisi 2012 penerbit Rineka Cipta. Hal: 146-149

Pamungkas G, Inayah NN (2020). Faktor-faktor Peserta Jaminan Kesehatan Nasional (JKN) Penerima Bantuan Iuran (PBI) yang berhubungan dengan Pemanfaatan Pelayanan Kesehatan di Wilayah Kerja Puskemas Mandala Mekar Kota Bandung (The Factors of Participants in the National Health Insurance (JKN) Recipients of Contribution Assistance (PBI) related to the Utilization of Health Services in the Work Area of the Mandala Mekar Health Center, Bandung City). Jurnal sehat masada. 14(4). https://-doi.org/10.38037/jsm.v14i1.125.

Kemenkes RI. 2009. No: 138/MENKES/PB/I/2009, No: 12 tahun 2009 tentang Pedoman Tarif Pelayanan Kesehatan Bagi Peserta PT Askes (Persero) dan Anggota Keluarganya di Puskesmas, Balai

Kesehatan Masyarakat dan Rumah Sakit Daerah (No: 12 of 2009 concerning Guidelines for Health Service Tariffs for PT Askes (Persero) Participants and Their Family Members at Community Health Centers, Community Health Centers and Regional Hospitals)

Wolper, Lawrence F (2001). Administrasi layanan kesehatan prinsip, praktik, struktur dan penyampaian, edisi kedua (Health care administration principles, practice, structure and delivery, 2nd edition). New York: Buku Kedokteran.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.06

THE EFFECTS OF ECONOMIC GROWTH, MINIMUM WAGE, EDUCATION, AND HEALTH ON POVERTY IN KUDUS, CENTRAL JAVA

Muhammad Adhitya Wardhana, Nur Hayati, Heni Risnawati, Nabila Yuliani Kautsar

Department of Digital Business and Accounting, Faculty of Economics, Education and Law, Universitas Muhammadiyah Kudus, Central Java

ABSTRACT

Background: Poverty is a major problem from year to year for the central and local governments. Poverty makes the level of a government's economy not progress. This study aimed to analyze the effects of economic growth, education, health, and minimum wage on poverty in Kudus, Central Java.
Subjects and Method: A cross sectional study was conducted in Kudus, Central Java. The data were obtained from the Central Java Statistics Agency from 1996 to 2020. The dependent variable was poverty. The independent variables were economic growth, education, health, and minimum wage. The data were analyzed by a multiple linear regression.
Results: High economic growth (b= -0.18; 95% CI= -0.36 to -0.01; p= 0.014), higher education (b= -0.91; 95% CI= -1.58 to -0.28; p= 0.010), good health (b= -0.37; 95% CI= -0.49 to -0.25; p <0.001), and higher minimum wage (b= -1.35; 95% CI= -2.24 to -2.56; p= 0.018) were associated with decreased risk of poverty.
Conclusion: Economic growth, minimum wage, education, and health decrease the risk of poverty.

Keywords: economic growth, minimum wage, education, health.

Correspondence:
Muhammad Adhitya Wardhana, Universitas Muhammadiyah Kudus. Jl Ganesha, Purwosari, Kudus, Central Java. Email: Adhityawardhana@umkudus.ac.id. Mobile: +6285212392188.

BACKGROUND

Indonesia is a developing country, and has the main problem that the government focuses on, namely poverty. It is undeniable that it is the government's concern that must be resolved immediately. Poverty has a negative impact on the government, one of which can cause delays in Indonesia's development.

Kudus Regency is a district in Central Java Province which has a population of 849,184 people. In 2020, the number of poor people reached 64.24 thousand people (7.31 percent), an increase of 6.24 thousand people compared to the poor in 2019 which amounted to 58.00 thousand people (6.68 percent). In addition, the Poverty Line of the population of Kudus Regency also increased from Rp. 406.470 in 2019 to Rp. 429,666 in 2020 (Isknews, 02 December 2021).

In 2020, the population of Central Java, especially Kudus Regency, experienced an increase in poverty by 7.31 percent. This increase in poverty has occurred since the COVID-19 pandemic entered Indonesia in early 2020. Many workers were laid off

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.07

because companies had to reduce activities outside the home which could lead to increased transmission of COVID-19. This has had a tremendous impact, so that many people were laid off and resulted in a decrease in income (Kompas, 17 June 2021).

One of the efforts to overcome the level of poverty is through increasing income. For residents who work as workers, worker productivity can be increased through wages. The provincial minimum wage or commonly abbreviated as UMP is the minimum wage that applies to all districts/cities in one province. The UMP for each district/city in a province is the same. According to Kuncoro (2000), poverty occurs due to differences in the quality of human resources. Where low human resources mean low productivity, in turn wages are also low. To increase productivity, education can be one of the solutions in reducing the backwardness and backwardness of a region. High income will increase their consumption, and can avoid poverty.

In addition to the provincial minimum wage, the formal education undertaken by residents is also suspected as a cause of poverty. The average length of schooling in Kudus Regency always increases. Meanwhile, the average length of schooling fluctuated. The largest rate occurred in 2020, which increased by 8.75%. While the lowest rate occurred in 1996, which only increased by 6.0% (BPS Central Java.go.id).

Health is also a factor that affects the level of poverty. The life expectancy of the population of Kudu Regency is always increasing. Where the highest rate occurred in 2019 which was 76.5%. This is due to the Indonesian population who are starting to pay attention to health such as maintaining a healthy diet, exercising and avoiding habits that can cause disease. This increase in life expectancy is the impact of an improvement in public health status, including increased access and quality of health services.

Based on this background, this study was conducted to analyze the effect of economic growth, minimum wages, education and health on poverty in Kudus Regency.

SUBJECTS AND METHOD

1. Study Design

This research is a cross-sectional study conducted in Kudus Regency, Central Java Province.

2. Population and Sample

The number of population and samples in this study are economic growth rates, minimum wages, education, health and poverty in Kudus Regency whose data were obtained from the Central Java Statistics Agency from 1996 - 2020.

3. Variable

The dependent variable is poverty. The independent variables used in this study are economic growth, minimum wages, education, and health.

4. Operational Definition

Poverty is the inability from an economic, material and physical point of view to meet the basic needs of food and non-food which is measured by expenditure. The measure of poverty is using the poverty line (BPS, 2016).

Economic growth is the development of activities in the economy that causes goods and services produced in society to increase and the prosperity of society to increase. So economic growth

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.07

measures the achievement of the development of an economy from one period to another (Sukirno, 2011).

The minimum wage is a minimum standard used by entrepreneurs or industry players to provide wages to workers in their business or work environment.

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves and society (UU SIDIKNAS No. 20 2003).

Health is a resource that is owned by all humans and is not a life goal that needs to be achieved. Health is not focused on physically fit but includes a healthy soul where individuals can be tolerant and can accept differences (Robert, 2017).

5. Instrument

The instrument used in this study was through observation by collecting data from the Central Java Statistics Agency in 1996 –2020. The research data collection method was carried out by using various sources of literature review, books, articles and research journals.

6. Data Analysis

Univariate analysis was used to describe the characteristics of the subject. Bivariate analysis was performed using the chi-square test. Then proceed with multivariate multiple linear regression.

RESULTS

1. Sample Characteristics

Based on Table 1 shows that the variable economic growth has a mean value of 3.72 with a range from -3.53 to 8.39. The education variable has a mean value of 7.50 with a range from 6.00 to 8.75. The health variable has a mean value of 71.63 with a range from 64.80 to 76.50. The minimum wage variable has a mean value of 847,580.24 with a range from 252,000 to 2,290.995. The poverty variable has a mean value of 10.84 with a range from 6.68 to 15.33.

Table 1. Sample Characteristics

Variable	Mean	Median	Min.	Max.
Economy	3.72	11.92	-3.53	8.39
Education	7.50	2.75	6.00	8.75
Health	71.63	11.70	64.80	76.50
Minimum wage	847,580,24	2,038,995	252,000	2,290,995
Poverty	10.84	8.65	6.68	15.33

The economy has an effect on poverty, but it is not statistically significant (r= 0.24; p= 0.243). Education (r= -0.86 p < 0.001), health (r= 0.24; p= 0.243), and minimum wages (r= 0.24; p= 0.243) were associated with poverty and were statistically significant (Table 2).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.07

Table 2. Effect of Economy, Education, Health, Minimum Wage on Poverty

Variable	Poverty	
	r	p
Economy	0.24	0.243
Education	-0.86	<0.001
Health	-0.95	<0.001
Minimum wage	-0.88	<0.001

High economic growth (b= -0.18; 95% CI= -0.36 to -0.01; p= 0.014), higher education (b= -0.91; 95% CI= -1.58 to -0.28; p= 0.010), good health (b= -0.37; 95% CI= -0.49 to -0.25; p < 0.001), and a higher minimum wage (b= -1.35; 95% CI= -2.24 to -2.56; p= 0.018) was associated with decreased poverty risk (Table 3).

Table 3. Results of Linear Regression The Effect of Economy, Education, Health, Minimum Wage on Poverty

Independent variable	b	95% CI		p
		Lower limit	Upper limit	
Economy	-0.18	-0.36	-0.01	0.014
Education	-0.91	-1.58	-0.28	0.010
Health	-0.37	-0.49	-0.25	<0.001
Minimum wage	-1.35	-2.24	-2.56	0.018

DISCUSSION

1. The Effect of Economic Growth on Poverty

Economic growth from 1996 – 2020 fluctuated every year, until there was a decline in 2020 when COVID-19 hit all over the world and even the impact reached Kudus Regency with a decline of -3.53. This study shows that the results are significant, which means that economic growth has an effect on poverty. Thus, the higher the economic growth, the poverty rate will decrease, on the contrary if the economic growth decreases, the poverty level will increase.

The results of the study are in line with the results of previous studies that economic growth has a significant effect on poverty. The higher the level of economic growth in an area, the lower the poverty rate (Syafuridar 2017; Hidayat, 2018; Hertzmark and Chavez, 1976). However, this is not in line with previous research which showed that economic growth had no effect on poverty due to high economic growth, but it was not evenly distributed so that it did not reduce poverty (Pangiuk, 2018; Pahlawan and Yaumul, 2018; Araujo et al., 2017) .

2. The Effect of Education on Poverty

Education from 1996–2020 in Kudus Regency experienced a growth of 2.75%. This study shows that the results are significant, which means that education has an effect on poverty. In addition, the Kudus Regency education index is not far away from the education index in Central Java Province in 2020. This means that the Kudus Regency education level will have an influence on reducing poverty levels. By improving the quality and facilities of education, it

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.07

will form quality human resources that can have an impact on reducing poverty.

The results of the study are consistent with Pervez (2014) showing the results that education has a negative effect on poverty in Takalar Regency. Research from and Cloud et al. (2011) also found that education has a negative effect on poverty. This means that the higher the level of education it will reduce poverty. The existence of a high level of education will increase productivity in an area. In contrast to the results of research conducted by Rahman and Alamsyah in 2019, Suripto and Subayil (2020) that education does not have a significant effect on poverty.

3. The Effect of Health on Poverty

Health in 1996–2020 in Kudus Regency experienced a growth of 11.70%. This shows that the people of Kudus Regency are open about the importance of maintaining health. However, in recent times when COVID-19 hit the whole world, Kudus had a huge impact on this virus. Until the Central Java Health Office noted that the occupancy rate of the referral hospital for handling COVID-19 in Kudus Regency had reached 90%. This is due to a spike in COVID-19 cases in Kudus Regency, which currently has a red zone status (Kompas.com). This study shows that the results are significant, so that health has an effect on poverty. It can be interpreted that the higher the health rate will reduce the poverty rate, but it does not have a real impact on poverty reduction. One way to improve people's welfare is to improve their health status. Because improving health status is the main factor to build quality resources and improve the quality of human development in a region. So with a healthy body can do all positive activities so as to reduce poverty.

The results of this study support the study by Yuliani et al. (2019); Jajua and Kamal (2014) who show that health has an effect on poverty. The better the facilities and equitable health development, it will reduce poverty because people are more productive, if their health is guaranteed. However, it is different from the results of research conducted by Permana and Ariyani (2012) which shows that health has no effect on poverty.

4. Minimum Wage on Poverty

The Minimum Wage in 1996 – 2020 has increased every year, this is in line with the increase in inflation which continues to increase. So that the consumption power and the level of community needs also increase. This study shows a significant result, which means that the minimum wage has an effect on poverty. The higher the minimum wage can trigger a decrease in the poverty rate. This result is in accordance with the objectives of setting the minimum wage as stated by Kaufman (2000) and in the Regulation of the Minister of Manpower Number: Per-01/Men/1999 and the Manpower Act No. 13 of 2003, namely to improve the welfare of workers, so that they are free from poverty. The determination of a minimum wage that is close to the KHM (Minimum Living Needs) and above the poverty line is appropriate because it is able to reduce poverty levels in Central Java.

The results of the study are in line with Kuswantoro et al. (2016) show that the regional minimum wage has a significant influence on the poverty rate in the province of Banten. the same study was also conducted by Sari et al.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.07

(2021), the results show that the minimum wage has a significant negative effect on poverty in the province of Central Java. The higher the minimum wage, the lower the poverty rate.

The advice given for further research is that researchers are expected to do more comparisons between the two in the region to find out whether the poverty rate can affect the rate of economic growth, with the provision of an inappropriate minimum wage will also reduce the level of Education and Health in an area. And in the next research, it is expected to add the Digital Economy and Business variables, so that the research results obtained can be maximized and can add to the novelty of the research.

REFERENCES

Araujo, Andrade - Marinho J, Emerson - Campêlo, Lima G (2017). Economic growth and income concentration and their effects on poverty in Brazil. Cepal Review. 123: 34–53. https://doi.org/10.-18356/F61073EF-EN.

Awan M, Malik N, Sarwar H, Waqas M (2011). Impact of education on poverty reduction. Int J Acad Res. 3(1): 659–664. https://mpra.-ub.uni-muenchen.de/31826/.

Didu S, Fauzi F (2016). Pengaruh jumlah penduduk, pendidikan dan pertumbuhan ekonomi terhadap kemiskinan di Kabupaten Lebak (The influence of population, education and economic growth on poverty in Lebak Regency). Jurnal Ilmu Ekonomi. 6 (1): 1-16. http://dx.doi.org/10.35-448/jequ.v6i1.4199

Hertzmark E, Chavez A (1976). The effect of economic growth on nutrition. Ecol Food Nutr. 4(4): 257–259. https://doi.org/10.10-80/03670244.1976.9990437

Hidayat W (2018). The impact of Economic growth on income disparity and poverty. Iseth. 293–301.

Pahlawan PY, Ratna (2018). The effect of education level, unemployment rate and economic growth on poverty rate in Indonesia 2012-2017 Period. Journal of Maliksussaleh Public Economics. 01(02): 44–49.

Pangiuk A (2018). Kata kunci: pertumbuhan ekonomi, pengurangan kemiskinan, Jambi (Keywords: economic growth, poverty reduction, Jambi). 2(2): 44–66.

Pervez S (2014). Impact of agriculture growth on poverty : a co-integration analysis for Pakistan. JREIF. 3(4): 83–89.

Sari YA (2021). Pengaruh upah minimum tingkat penganguran terbuka Jawa Tengah (The effect of the minimum wage on the open unemployment rate in Central Java). 10(2): 121–130. http://-dx.doi.org/10.35906/je001.v10i2.785.

Safuridar (2017). Pengaruh pertumbuhan ekonomi terhadap kemiskinan di Kabupaten Aceh Timur (The effect of economic growth on poverty in East Aceh District). E Jurnal Ihtiyadh. 1(1). https://doi.org/10.32505/ihtiyath.v1i1.674

Pratomo DS, Saputra PMA (2011). Kebijakan upah minimum untuk perekonomian yang berkeadilan: tinjauan UUD 1945 (Minimum wage policy for a just economy: a review

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.07

of the 1945 Constitution). J Indones Applied Economics. 5(2),: 269-285. http://dx.doi.org/10.21776/ub/JIAE/2016/005.02.6

Simanjuntak PJ (2001). Pengantar ekonomi sumber daya manusia (Introduction to human resource economics). Jakarta: Lembaga Penerbit Fakultas Ekonomi UI.

Sugiyono (2016). Metode penelitian kuantitatif, kualitatif dan R&D (Quantitative, qualitative and R&D research methods). Bandung: PT. Alfabet.

Suripto, Subayil L (2020). Pengaruh tingkat pendidkan, penganggguran, pertumbuhan ekonomi dan indeks pembangunan manusia terhadap kemiskinan di Daerah Istimewa Yogyakarta Periode 2010-2017 (The effect of education level, unemployment, economic growth and human development index on poverty in the Special Region of Yogyakarta for the 2010-2017 period). Ilmiah Ekonomi Pembangunan. 1(2): 127–143.

Permana AY, Arianti F (2012). Analisis pengaruh PDRB, pengangguran, pendidikan, dan kesehatan terhadap kemiskinan Di Jawa Tengah Tahun 2004-2009 (Analysis of the influence of GRDP, unemployment, education, and health on poverty in Central Java in 2004-2009). Diponegoro Journal of economics (DJOE). 1(1): 25-32. Retrieved from: https://ejournal-3.undip.ac.id/index.php/jme/-article/view/128

Yuliani TW, Suprapto, Setyorini CT (2019). The effect of health and education facilities on poverty in 33 provinces in Indonesia (2012-2016 Periods). International Conference on Rural Development and Enterpreneurship. 5(1): 662–669. Retrieved from: http://-jp.feb.unsoed.ac.id/index.php/Icore/article/viewFile/1532-/1543

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.07

THE INFLUENCES OF AGE, TRAINING, AND WORK MOTIVATION ON WORK EXPERIENCE IN MATERNAL EMERGENCY MANAGEMENT IN THE NORTH KALIMANTAN BORDER AREAS

Ika Yulianti, Nenden Imah, Rahmi Padlilah

Department of Midwifery, University of Borneo Tarakan

ABSTRACT

Background: Maternal mortality rate (MMR) in the border areas was disproportionately high in Indonesia. MMR can be reduced with the experience of midwives in maternal emergency management. The hypothesis was that age, training, and work motivation were important factors that affected the experience of midwives. This study aimed to determine the effect of age, training, and work motivation on the experience of managing maternal emergencies among midwives working in the border areas.
Subjects and Method: This was a cross-sectional study conducted in North Kalimantan border areas. A sample of 105 midwives was selected for this study. The dependent variable was the experience of the midwife. The independent variables were age, training in maternal emergency, and work motivation. The data were collected by questionnaire, and analyzed using multiple logistic regression.
Results: Experience of midwives enhanced with age ≥ 35 years (OR= 1.88; 95% CI= 2.07 to 20.94; p= 0.001), training in maternal emergency (OR= 2:04; 95% CI= 2.09 to 28.39; p= 0.002), and higher work motivation (OR= 1.79; 95% CI= 1.93 to 18.72; p= 0.002).
Conclusion: A midwife's experience improves with age, training in maternal emergency, and work motivation.

Keywords: age, training, work motivation, experience, maternal emergency,

Correspondence:
Ika Yulianti. Department of Midwifery, University of Borneo Tarakan. Jl. Amal Lama No.1 Tarakan, North Kalimantan. Email: ikatamaevan@gmail.com. Mobile: 0811544003.

BACKGROUND

Maternal death according to (WHO) is death during pregnancy or within 42 days after termination of pregnancy, due to all causes related to or aggravated by pregnancy or its management, but not due to accident/injury.

The main causes of maternal death in Indonesia are hypertension in pregnancy and post-partum bleeding so that optimal management is needed to prevent maternal and infant mortality (Strategic Plan of the Ministry of Health, 2015). Several diseases that cause maternal death can be detected early and anticipated so that their manifestations will not get worse starting from pregnancy to the puerperium. However, other causes of maternal death are difficult to detect, even in women with heart disease, it is not recommended to get pregnant (Danu et al., 2015). The midwifery care management system is one of the factors that allegedly causes maternal death, especially in the detection of high risk pregnant women who are not optimal. The ability of the management and implementation of the MCH program is expected to provide the best service.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.08

Quality services are determined by the human resource (HR) factor. An important factor that needs to be considered is that the experience of the midwife is one of the benchmarks for the quality of these human resources. Experience related to handling maternal emergencies based on the main tasks of the midwife function, administrative and coaching activities that support the success of the tasks carried out is one of the factors that affect the performance of midwives (Kemenkes RI, 2013).

The factors that influence the experience and performance of midwives according to Sri (2014) are motivation, supervision and performance, while another opinion stated by Kusuma (2016) argues that leadership, number of human resources, work atmosphere and motivation also affect the performance of midwives so that they can increase the experience of midwives in emergency management. According to Sri (2014) explained that midwives who have good performance motivation provide good performance outcomes and tend to increase, and midwives with good motivation can improve performance because the effectiveness of performance depends on the motivation embedded in the soul so that it can reduce the incidence of morbidity and mortality in both mother and child. and child. Agustina (2014) argues that leadership style, work environment, incentives and skills have an effect on improving the performance and experience of midwives. Based on the data above, the researcher is interested in taking the title "The Influence of Age, Training and Work Motivation on Maternal Emergency Management at the North Kalimantan Border".

SUBJECTS AND METHOD

1. Study Design

This study is an observational analytic study with a cross-sectional design. The research was conducted in North Kalimantan in 2021.

2. Population and Sample

The population in this study were all midwives on the border of North Kalimantan. Sampling was done by using purposive sampling technique. The subjects used were 105 midwives on the border of North Kalimantan.

3. Variable

The dependent variable is the experience of the midwife. The independent variables are age, training, and work motivation.

4. Operational Definition of Variables

Midwife experience is the experience possessed by midwives in carrying out their duties in accordance with the responsibilities given to handling emergencies, with low and high categories.

Age is the age of the research subject at the time the research data was collected with categories <35 years and > 35 years.

Training is training that must be carried out to improve performance, one of which is for handling material emergencies

Work motivation is the whole process of giving motives or encouragement in work that can influence someone to take an action, with low and high categories.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.08

5. Data Analysis

Univariate analysis was conducted to see the frequency distribution and the percentage of the characteristics of the research subjects. Bivariate analysis was conducted to study the relationship between the experience of the midwife and the independent variable using the chi-square. Multivariate analysis was performed using multiple logistic regression.

6. Instrument

Overall variable data is measured using a questionnaire.

7. Research Ethics

Research ethics include research approval (informed consent), anonymity, confidentiality and ethical clearance. Research ethics number is No. 006/KEPK-FIKES UBT/VII/2021.

RESULTS

1. Sample Characteristics

The results of the study of the research subjects were 105 midwives on the border of North Kalimantan. The frequency distribution of the research subject characteristics shows that most respondents have an age of <35 years, namely 58 respondents or 55.2%, most of the respondents participated in the training, namely 80 respondents or 76.2%, most respondents have high work motivation, namely 58 respondents. or 55.2% and the last characteristic of most respondents with high pawn experience is 69 respondents or 65.7%.

Table 1. Sample characteristics (categorical data)

Characteristics	Category	Frequency (n)	Percentage (%)
Age	< 35 years	58	55.2
	≥ 35 years	47	44.8
Training	Not join	25	23.8
	Join	80	76.2
Working motivation	Good	51	48.6
	Low	47	44.8
Midwife experience	High	58	55.2
	Low	36	34.3
	High	69	65.7

1. Bivariate Analysis

The results of the bivariate analysis with the chi square test are as follows: Based on Table 2 shows that the analysis of the relationship between age and experience of the midwife with a p value < 0.001 and OR = 9.64. Midwives aged 35 years were 9.64 times more likely to have experience of a material emergency than midwives aged < 35 years. Analysis of the relationship between training and experience of midwives with p value = 0.002 and OR = 4.21,. Midwives who attended training were 4.21 times more likely to have experience in maternal emergencies compared to midwives who did not attend training.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.08

Table 2. Bivariate Analysis

Variable Group	Midwife experience				Total		OR	p
	Low		High					
	N	%	N	%	N	%		
Age								
< 35 years	31	53.4	27	46.6	58	100	9.64	<0.001
≥ 35 years	5	10.6	42	89.4	47	100		
Training								
Not joining	15	60.0	10	40.0	25	100	4.21	0.002
Joining	21	26.3	59	73.8	80	100		
Working motivation								
Low	26	55.3	21	44.7	47	100	5.94	<0.001
High	10	17.2	48	82.8	58	100		

2. Multivariate Analysis

Multivariate analysis was carried out by statistical tests using multiple logistic regression to determine the effect of age, training, work motivation and resources on the experience of midwives. The results of the multiple logistic regression test are shown in table 3 with the following details:

Table 3 Analysis of the effect of age, training, skills, leadership style, motivation and resources on the experience of midwives

Midwife Experience	OR	95% CI		p
		Lower Limit	Upper Limit	
Age	1.88	2.07	20.94	0.001
Training	2.04	2.09	28.39	0.002
Working motivation	1.79	1.93	18.72	0.002
N observation= 105				
-2 log likelihood= 92.57				
Nagelkerke R^2= 0.46				

The results of the multivariate analysis showed that there was an effect of age on the experience of the midwife. Midwives with age 35 years had a higher probability of having experience (OR=1.88; 95% CI=2.07 to 20.94; p=0.001).

The results of the multivariate analysis showed that there was an effect of training on the experience of the midwife. Midwives who participated in the training had a higher probability of having experience (OR= 2.04; 95% CI= 2.09 to 28.39; p= 0.002).

The results of the multivariate analysis showed that there was an effect of work motivation on the experience of the midwife. Midwives who received high work motivation had a higher probability of having experience (OR=1.79; 95% CI=1.93–18.72; p=0.002).

DISCUSSION

1. The influence of age on the experience of the midwife

Based on the results of the study showed that there was an effect of age on the experience of the midwife in the management of maternal emergencies. Health HR is a very important element and influences the improvement of all aspects of the health care system for all levels of society. The quality of human resources greatly

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.08

determines the success of a company programs, especially the program to accelerate the decline in maternal mortality. Midwives with good performance are more skilled and agile than midwives with less performance, due to more work experience, in addition to other basic things related to computerization capabilities in the reporting process (Hidayah et al., 2016).

Senior midwives have more diverse innovations in problem solving and are more competent in providing services. This is because it is supported by environmental conditions that provide opportunities for midwives to attend training and learn from the experience of more senior midwives (Adriansyah, 2017). Bleeding is the highest cause of maternal death. The experience of midwives in the management of bleeding prevention is one of the keys to success in reducing maternal mortality due to bleeding (Moucheraud et al., 2015).

2. The effect of training on the experience of midwives

The results showed that there was an effect of training on the experience of midwives in the management of maternal emergencies. Training is a form of non-formal education provided to midwives in order to increase knowledge and skills to improve competence in service delivery, in addition to increasing the awareness of midwives so that they can provide services in accordance with Standard Operating Procedures (SOP).

Knowledge can be increased by attending training. Training is a form of providing additional knowledge related to the knowledge, skills and attitudes of midwives in providing treatment to form the basis of performance so as to improve the skills and knowledge of midwives and to improve performance and performance in office or develop their potential (Longgupa, 2014). In line with this, the Silfia study (2020) shows that APN training is the most influential factor in the use of partographs in childbirth by midwives. The results of statistical tests obtained POR values of 37.7; 95%CI 12.1 to 60.2. This study suggests that midwives must have an APN certificate to be valid in carrying out services. Thus knowledge can be increased, one of which is by participating in training in this study, especially related to the use of mobile partographs so that early detection can occur if problems occur in the delivery process.

Midwives can make the right decisions in handling maternal emergencies. Productivity can increase if the duration of work and training is provided to support and increase knowledge, so that by providing training, especially related to handling maternal emergencies, it is expected to improve the performance and experience of midwives in handling maternal emergencies. The experience of midwives can support the skills and competencies of health workers in this research related to the experience of midwives in order to provide optimal and quality services according to standards (Iswanti et al., 2018). Skills in handling emergency maternal midwives affect the management of bleeding prevention (Nelissen et al., 2017). Skills in providing effective treatment

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.08

and good estimation of blood loss are important priorities that must be possessed by midwives for bleeding prevention management so that midwives (Vendittelli et al., 2016).

3. The influence of work motivation on the experience of midwives

The results showed that there was an effect of work motivation on the experience of the midwife. High work motivation can increase satisfaction, both from the leadership or workers. The need for work motivation is different for each worker, work motivation can be influenced by individual or environmental factors. Other staff members in the working community can affect work motivation, so the support of work partners is one factor that needs to be considered to increase work motivation (Letchworth et al., 2017).

Freeney and Fellenz (2013) explain that work motivation for health workers (doctors, nurses and midwives) is an important thing that must be grown. High motivation will affect the quality of service so that it can improve better performance. Work motivation is influenced by a good leadership style that can motivate health workers to work well. Thus, a leader with a democratic leadership style is needed in determining the priority of problems that occur so that midwives can work optimally and have an effect on increasing experience.

The leadership style in handling problems, one of which is prevention of bleeding, must focus on a planned decision-making process and receive input from members of workers who have collaborated in handling it, so that good relations between workers and leaders are needed so that bleeding problems can be resolved properly. Adequate health facilities and good management from the leadership are also important factors in supporting the successful management of postpartum hemorrhage (Colbourn et al., 2013; Akladios et al., 2014). Experience in handling health problems in a health organization is influenced by one of the ways in which leadership style with a good relationship between workers and leaders can improve skills so that workers have experience according to the problems at hand (Sánchez et al., 2018). The results showed that maternal emergencies at the border were influenced by age with p=0.034, training with p=0.040 and work motivation with p=0.016.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGEMENT

Ika Yulianti, the main researcher who played a role in collecting data, Nenden Imah who played a role in processing research data; Rahmi Padlilah, examines the conceptual framework and research methodology.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Adriansyah AA, Sjarif S (2016). Influence of motivation towads midwives' performance in achieving maternity coverage in health centers in South Konawe Regency, South east Sulawesi. Jurnal IKESMA, 12(2).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.08

Akladios CY, Sananes N, Gaudineau A, Boudier E, Langer B (2014). Secondary post partum hemorrhage. J Gynecol Obstet Biol Repro, 43(10): 1161–1169. doi: 10.1016/j.jgyn.2014.10.008.

Colbourn T, Nambiar B, Costello A. (2013). The impact of quality improvement at health facilities and community mobilisation by women's groups on birth outcomes: an effectivenessstudy in three Districts of Malawi. Int Health, 5(3):180-95. doi: 10.1093/inthealth/iht011

Fitzpatrick KE, Sellers S, Spark P, Kurinczuk JJ, Brocklehurst P, Knight M (2014). The management and outcomes of placenta accreta, increta and percreta in the UK: a population-based descriptive study. An International Journal of Obstetricts & Gynaecology, 121: 62 – 72. doi: 10.1111/1471-0528.12405.

Green L, Knight M, Seeney FM, Hopkinson C, Collins PW, Collis RE, Simpson NAB et al. (2015). The epidemiology and outcomes of women with postpartum haemorrhage requiring massive transfusion with eight or more units of red cells: a national cross-sectional study. An International Journal of Obstetricts & Gynaecology, 123(13). 2164 – 2170. doi: 10.1111/1471-0528-.13831.

Hidayah L, Handayani OWK, Indriyanti DR (2016). Pelayanan kesehatan maternal dalam akselerasi penerapan Maternal Mortality (Maternal health services in accelerating the implementation of Maternal Mortality). Public Health Perspective Journal, 1(1).

Kato C, Kataoka Y. (2017). Simulation training program for midwives to manage postpartum hemorrhage: a randomized controlled trial. Nurse Education Today, 51: 88–95. doi: 10.1016/j.nedt.2017.01.005

Kemenkes RI (2013). Buku saku pelayanan kesehatan ibu di fasilitas kesehatan dasar dan rujukan 1st ed (Pocket book of maternal health services in primary and referral health facilities 1st ed). Jakarta: Kementerian Kesehatan RI.

Kusuma R, Suparwati A, Asmita P (2016). Analisis faktor yang mempengaruhi kinerja bidan dalam pelayanan antenatal care di Puskesmas Kagok Kota Semarang (Analysis of factors that affect the performance of midwives in antenatal care services at the Kagok Health Center Semarang City). Jurnal Kesehatan Masyarakat FKM UNDIP, 4(4): 129-134. https://ejournal-3.undip.ac.id/index.php/jkm/-article/view/13950.

Letchworth PM, Duffy SP, Phillips D (2017). Improving non-technical skills (teamwork) in post-partum haemorrhage: A grouped randomised trial. European Journal of Obstetrics & Gynecology and Reproductive Biology, 217: 154–160. doi:10.1016/j.ejogrb.2017.-08.030.

Freeney D, Fellenz MR. (2013). Work engagement as a key driver of quality of care: a study with mid-

wives. Journal of Health Organization and Management, 27(3): 330-349. doi: 10.1108/-jhom-10-2012-0192.

Marcillac DF, Lecointre L, Guillaume A, Sananes N, Fritz G, Viville B, Boudier E et al. (2016). Maternal morbidity and mortality associated with conservative management for placenta morbidly adherent (accreta) diagnosed during pregnancy. Journal de Gynecologie Obst etrique et Biologie de la Reproduction, 45(8): 849 – 858. doi: 10.1016-/j.jgyn.2016.16.03.021.

Mbachu II, Udigwe GO, Ezeama CO, Eleje GU, Eke AC (2017). Effect of on-site training on the accuracy of blood loss estimation in a simulated obstetrics environment. International Journal of Gynecology & Obstetrics, 137(3): 345–349. doi:10.1002/ijgo.12-133.

Moucheraud C, Gass J, Lipsitz S, Spector J, Agrawal P, Hirschhorn LR, Gawande A, Kodkanyg B. (2015). Bedside availability of prepared oxytocin and rapid administration after delivery to prevent postpartum hemorrhage: an observational study in Karnataka, India. Global Health: Science and Practice, 3(2). 300-4. doi: 10.9745/GHSP-D-14-00-239.

Mutmainnah A UI, Johan H, Liyod SS (2017). Asuahan persalinan normal dan bayi baru lahir. Yogyakarta: CV ANDI OFFSET.

Nelissen E, Ersdal H, Mduma E, Evjen-Olsen B, Twisk J, Broerse J, Roosmalen JV, Stekelenburg J (2017). Clinical performance and patient outcomeafter simulation-based training inprevention and management of postpartum haemorrhage: an educational-intervention study in a low-resource setting. BMC Pregnancy and Childbirth, 17: 301. doi: 10.1186/s12884-017-1481-7.

Nyflot LT, Sandven I, Stray-Pedersen B, Pettersen S, Al-Zirqi I, Rosenberg M, Jacobsen AF, and Vangen S (2017). Risk factors for severe postpartum hemorrhage: a case-control study. BMC Pregnancy and Childbirth, 17: 17. doi: 10.1186/s12884-016-1217-0.

Oktarina M (2016). Buku ajar asuhan kebidanan persalinan dan bayi baru lahir (Textbook of maternity and newborn midwifery care), Yogyakarta: Deepublish.

Parant O, Guerby P, Bayoumeu F. (2014). Obstetric and anesthetic specificities in the management of a Postpartum Hemorrhage (PPH) associated with cesarean section. Journal de Gynecologie Obstetrique et Biologie de la Reproduction, 43(10): 1104 – 1122. doi: 10.1016/jjgyn. 2014-.10.004.

Sánchez M, Doyague MFM, Martínez YV, Everett M, Fuentes NS, Bogaert PV, Vassilev I et al. (2018). The importance of external contacts in job performance: a study in healthcare organizations using social network analysis pilar. Int J Environ Res Public Health, 15(1345). doi: 10.3390/ijerph15071345.

Simkin P, Whalley J, Keppler A (2012). Panduan lengkap kehamilan,

melahirkan & bayi (Complete guide to pregnancy, childbirth & babies). Jakarta: EGC.

Sri R, Kartasurya MI, Sriatmi A (2014). Faktor – faktor yang berhubungan dengan kinerja bidan dalam penggunaan skor “Poedji Rochjati” pada deteksi risiko ibu hamil (studi pada bidan praktek swasta di Kabupaten Gresik) (Factors related to the performance of midwives in the use of the "Poedji Rochjati" score on risk detection for pregnant women (study on private practice midwives in Gresik Regency)). Semarang. Jurnal Manajemen Kesehatan Indonesia Universitas Diponegoro.http://eprints.undip.ac.id/41276/1/Abstrak-_Umi_Aniroh_MKIA_Juli_2013.doc

Vendittelli F, Barasinski C, Pereira B, Lémery D, Hera (2016). Incidence of immediate postpartum hemorrhages in french maternity units: a prospective observational study (HERA study). BMC Pregnancy and Childbirth, 16: 242. doi: 10.1186/s12884-016-1008-7.

Yulianti E (2014). Faktor-faktor yang menpengaruhi kinerja bidan puskesmas dalam penanganan ibu hamil risiko tinggi di Kabupaten Pontianak tahun 2012 (Factors that affect the performance of midwives in health centers in handling high-risk pregnant women in Pontianak Regency in 2012). Jurnal Ilmiah Bidan, 2(1).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.08

ANALYSIS OF CHANGES IN GOVERNMENT POLICY CONCERNING POLYMERASE CHAIN REACTION TEST FOR COVID-19 ON THE DOMESTIC AIR TRAVEL

Naili Azizah, Trias Hernanda, Arina Novitasari, Aldimas Jimantoro

Department of Law, Universitas Muhamamdiyah Kudus, Central Java

ABSTRACT

Background: From October to November 2021, the government has issued three different polymerase chain reaction (PCR) test regulations in the forms of an instruction from the Minister of Home Affairs for air transportation passengers and circular letters from the Minister of Transportation. These changes trigger public opinion that there is inconsistency in government policies. This study aimed to analyze changes in the government policy on domestic air travel requirement, especially the PCR test.
Subjects and Method: This was a qualitative study. The study subjects were changes in government policy on PCR test requirement for domestic air travel. The data were collected by interview and document review.
Results: The policies issued by the government on COVID-19 control for the past two months (from October to November 2021) were not fully effective and had confused the community.
Conclusion: The government policies on COVID-19 control from October to November 2021 were not fully effective and have confused the community. Public policy should be the basis for solving problems that exist in society. Policies are expected to have clear objectives, be able to reduce problems, and have justice, certainty, and benefit for the community. Revision or changes to regulations are natural, but the substance of the revision needs to be reviewed, to minimize policy that cause public upheaval. The policy should be based on the facts and data in the field. It is recommended to map out the area based on the level of restriction enforcement on the community activities, particularly for the air travel.

Keywords: PCR test, domestic air travel, public policy, inconsistency, COVID-19 pandemic

Correspondence:
Naili Azizah. Department of Law, Universitas Muhammadiyah Kudus. Jl. Ganesha 1 Purwosari, Kudus, Central Java. Email: nailiazizah@umkudus.ac.id Mobile: +62 85600121733.

BACKGROUND

Currently, the world is still experiencing a pandemic, all countries take various policies to protect their people such as imposing international travel restrictions, bans on all foreign visitors and travel restrictions from various places. Likewise, what the Indonesian government has done, the policies implemented by the Indonesian government in order to suppress the rate of transmission of COVID-19, namely the establishment of large-scale social restrictions (PSBB), Perpu Number 1 of 2020 concerning state financial policies and financial stability, tourism stimulus, the formation of a committee handling COVID-19 and economic recovery, implementing

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.09

PPKM, implementing Pre-Employment Cards, sanctions for violators of health protocols to the implementation of domestic travel conditions for the community.

Realistic and appropriate policies are urgently needed to regulate the community so that the transmission rate can be suppressed massively. Policy or what is also called policy is closely related to planning, decision making and formulation, implementation of decisions, and evaluation of the impact of implementing decisions on public audiences who are the target or target of the policy (Marzali, 2012).

The names and policy formats for the application of restrictions on community mobility outside the home often change, starting from PSBB, transitional PSBB, Emergency PPKM to four-level PPKM (Kompas, 2021). In January 2021 through the Instruction of the Minister of Home Affairs Number 01 of 2021 concerning the Enforcement of Activity Restrictions for Control of the Spread of Coronavirus Disease 2019 (Covid-19) to prevent the spread of Covid-19 between regions.

During PPKM, the Government imposed a PCR (polymerase chain reaction) test as a condition for air travel in the domestic area. However, the requirements of the PCR test are fluid and cause public confusion. At least from October to November 2021, the government has issued three different polymerase chain reaction (PCR) testing regulations in the form of instructions from the Minister of Home Affairs for air transport passengers and a circular from the Minister of Transportation. As reported in the mass media, before the issuance of the Minister of Home Affairs Number 53 of 2020, prospective airplane passengers in the Java-Bali region who have received 2 doses of vaccine must attach the results of the rapid H-1 departure test, while PCR is intended for passengers who have only been once. vaccine. On October 18, 2021, the policy regarding the PCR test changed, namely the condition that Java-Bali flights must attach the results of a 2 X 24 hour PCR test even though they have had two vaccines. Rapid test results can no longer be used as a travel requirement for passengers who have been vaccinated twice (detik.com, 2021b).

In less than a month, the PCR test rules have changed again with the Minister of Home Affairs No. 55 of 2021 concerning Amendments to Inmendagri No. 53 of 2021 concerning the Enforcement of Restrictions on Community Activities at Level 3, Level 2, and Level 1 in the Java and Bali Regions (Inmendagri Number 55 Years). 2021) This Instruction from the Minister of Home Affairs was signed by Tito Karnavian on October 27, 2021. One of the rules that have changed is regarding the validity period of the PCR test requirements, to 3x24 hours.

The day after the Instruction of the Minister of Home Affairs was signed, on October 28, 2021, the Government again issued a new rule in Inmendagri Number 56 of 2021 concerning Amendments to Inmendagri Number 54 of 2021 concerning Instruction of the Minister of Home Affairs Number 54 of 2021 concerning Enforcement of Restrictions on

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.09

Community Activities Level 3, Level 2, and Level 1 and Optimizing the Command Post for Corona Virus Disease 2019 at the Village and Sub-District Levels to Control the Spread of Corona Virus Disease 2019 in Sumatra, Nusa Tenggara, Kalimantan, Sulawesi, Maluku, and Papua Regions. In the Minister of Home Affairs Number 56/2021 it is stated that prospective passengers must carry the requirements for the PCR test results (H-3) for aircraft entering/leaving the Java and Bali regions; In addition, aircraft between regions other than Java and Bali show PCR (H-3) or Antigen (H-1).

The change again occurred through the weekly government meeting discussing the PPKM meeting, namely the requirement to attach a PCR to air travel or the requirement to board a plane in Java and Bali no longer need to be a requirement to fly.

The strategy for changes that occur in a short time interval is an effort by the government to adjust the problems at hand, due to the changing conditions of the virus. (detik.com, 2021b). However, this effort actually raises public opinion that there is an inconsistency of the government in making policies, besides that the public also views that rapid changes are considered to have indicated that policies were made based on the influence of group interests in order to gain profits.

From this background, the researcher wants to discuss more deeply about how government policies related to PCR test requirements are changing when viewed with public policy theory.

SUBJECTS AND METHOD

1. Study Design

This research is a qualitative research. Data collection methods are interviews and literature studies by collecting data from government regulations, books, news media, and previous research journals.

2. Subjects

Changes in government policy on PCR test requirements for domestic air travel.

3. Data Analysis

Data analysis is an activity in research in the form of conducting a study on the results of data management. The data analysis used by the author in this research is to use descriptive properties. It aims to provide an overview of the subject and object of research.

Data collected from government regulations, books, news media, and research journals as well as data stated by respondents in writing will be studied by researchers and analyzed.

RESULTS

1. Policy Base on PCR Tests (Polymerase Chain Reaction)

The PCR/Swab test (Polymerase Chain Reaction) (Dr. Fadhli Rizal Makarim, 2020) is one of the molecular tests for all patients suspected of being infected with Covid-19. This test is a recommendation made by the World Health Organization (WHO). This test is used to detect disease by looking for traces of viral genetic material in collected samples. The samples collected were taken through a nose or throat swab technique (swab).

In the news on Gatra.com, the Director General of Health Services

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.09

(Dirjen Yankes) of the Ministry of Health (Kemenkes) Abdul Kadir explained that the government's basis for using the results of the Polymerase Chain Reaction (PCR) test as a condition for traveling by aircraft is because almost all airlines operate planes almost 90%, so that the social distancing system on airplanes is difficult to implement, therefore the solution applied is to require PCR test results (Farid, 2021). So the government issued a regulation regarding PCR requirements for prospective airplane passengers. There are at least 3 Instructions from the Minister of Home Affairs and a Circular from the Minister of Transportation regarding the PCR test. The following is a policy that regulates PCR requirements for prospective passengers using air transportation:

1. Minister of Home Affairs Number 53 of 2021

Several important points in the Instruction of the Minister of Home Affairs No. 53 of 2021 (Inmendagri No. 53/2021, 2021) which is the legal basis for implementing PPKM Level 3, Level 2, and Level 1 Corona Virus Disease 2019 in the Java and Bali Regions, while for outside Java and Bali outside Java-Bali it is stated in Minister of Internal Affairs Instruction Number 54 of 2021.

At the point of domestic travel requirements using air transportation:

a) domestic travelers using private cars, motorbikes and long-distance public transportation (airplanes, buses, ships and trains) must:
b) show a vaccine card (at least the first dose of vaccination);
c) showing PCR (H-2) for aircraft and Antigen (H-1) for modes of transportation of private cars, motorcycles, buses, trains and ships;

2. Minister of Home Affairs Number 55 of 2021 concerning Amendments to Minister of Home Affairs Number 53 of 2021 concerning Enforcement of Restrictions on Community Activities at Level 3, Level 2, and Level 1 in the Java and Bali Regions

Changes to the requirements for the PCR test are stated in Inmendagri No. 55/2021 (Inmendagri No. 55/2021, no date), namely domestic travelers using private cars, motorbikes and long-distance public transportation (airplanes, buses, ships and trains) must show:

a. PCR (H-3) for aircraft entering/ exiting the Java and Bali regions;
b. PCR (H-3) for aircraft between Java and Bali regions; or
c. Antigen (H-1) for private cars, motorcycles, buses, ships, and trains.

3. Minister of Home Affairs Number 56 of 2021

In the Minister of Home Affairs Number 56/2021 (Minister of Home Affairs, 2021) concerning Amendments to Inmendagri Number 54 of 2021 concerning Instructions of the Minister of Home Affairs Number 54 of 2021 concerning the Enforcement of Restrictions on Community Activities at Level 3, Level 2 and Level 1 and Optimizing the Command Post for Handling Corona Virus Disease 2019 at the Village and Sub-District Levels to Control the Spread of the 2019 Coronavirus Disease in the Sumatra,

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.09

Nusa Tenggara, Kalimantan, Sulawesi, Maluku and Papua Regions.

There is a point regarding the requirements for the PCR test, namely: domestic travelers using private cars, motorbikes and long-distance public transportation (airplanes, buses, ships and trains) must show:

a) Vaccine Card (at least the first dose of vaccination);
b) PCR (H-3) for aircraft entering/ leaving the Java and Bali regions;
c) PCR (H-3) or Antigen (H-1) for aircraft between regions other than Java and Bali; or
d) Antigen (H-1) for private cars, motorbikes, buses, ships, and trains.

It was not only the Instruction of the Minister of Home Affairs that had changed, the Circular from the Ministry of Transportation had also changed. Namely regarding the PCR provisions for people traveling by land and crossing with a minimum distance of 250 kilometers (km) or a travel time of 4 hours on the island of Java-Bali. (CNN Indonesia, 2021)

Previously, there was no mandatory PCR rule for the distance or travel time. However, the government changed it by issuing Circular Letter (SE) Number 90 of 2021 concerning Amendments to SE Number 86 of 2021 concerning Guidelines for the Implementation of Travel for Domestic People by Land Transportation during the COVID-19 Pandemic Period. This rule received criticism from the public, until soon it was finally repealed.

3. SE Ministry of Transportation Number 96 of 2021

On November 2, 2021, the Ministry of Transportation Circular Letter No. 96/2021 SE Kemenhub No.96/2021 was issued regarding the Instructions for the Implementation of Domestic Travel by Air Transportation During the Covid-19 Pandemic. The following are the details of the latest travel rules by aircraft listed in the SE of the Ministry of Transportation No. 96/ 2021 (Transportation, 2021):

Flights from or to airports on the islands of Java and Bali must show

a. A certificate of negative rapid test antigen result whose sample is taken within a maximum period of 1x24 hours before departure and a vaccine card (second dose of vaccination) or a certificate of negative result of an RT-PCR test whose sample is taken within a maximum period of 3x24 hours before departure and a minimum vaccine card first dose.
b. For flights between airports outside the Java and Bali islands, it is mandatory to show a certificate of negative rapid test antigen results whose samples were taken within a maximum period of 1x24 hours before departure or a certificate of negative results of RT-PCR tests whose samples were taken within a maximum period of 3x24 hours before departure and vaccine card (at least the first dose)

4. Analysis of PCR Test Policy Changes reviewed with Public Policy Theory

According to Bridgman and Davis (2005) in (Situmorang, 2016) explaining public policy in general contains

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.09

the notion of 'whatever government chooses to do or not to do'. That is, public policy is 'whatever the government chooses to do or not to do'. Talking about policies or what is often referred to as Policy is a government instrument, Ministerial Instructions are essentially public policies, Inmendagri is intended for Regional Heads, Regents, Governors, especially regions that implement PPKM.

The application of the mandatory requirements for the PCR test as stated in the Ministry of Home Affairs for prospective air transportation passengers is a form of prudence, because the PCR test is considered accurate. However, the policy of PCR testing which is only for prospective air transportation passengers raises public questions, people who use land transportation are not required to take a PCR test. This policy has the potential to cause social jealousy, because there are several things that can be observed, namely travel using air transportation will be much more expensive and burdensome to the community, the test period is also longer. This triggers prospective air transportation passengers to think twice and often resign.

Not only the potential for social jealousy, the issue of policy change is relatively brief. The inconsistency of these rules certainly causes polemics and confusion in the community, which rules must be followed or obeyed, even though public policies should be regulatory in nature in order to respond to problems faced by the community and have certain goals, are oriented to the public interest, and aim to overcome problems, fulfill desires. and demands of all members of society.

The inconsistency of the policy that initially required PCR in the midst of the increasingly sloping COVID-19 condition in Indonesia has also raised public suspicion, because according to Neng Eem, Secretary of the PKB MPR RI faction, that PCR testing is one of the things that hinders the increase in the number of airplane passengers during the pandemic season. In line with Neng EEM's opinion, Member of Commission IX DPR Nur Nadlifah also questioned about the succession of vaccinations, when people have been vaccinated a lot but in reality people are still required to do a PCR test. (detik.com, 2021a). Even though the government finally revised the PCR test policy through the Ministry of Transportation's SE Number 96/2021.

In addition, according to Ichal Daud, one of the respondents who traveled from Yogyakarta to Palu in October, admitted that the change in policy made it difficult for users of transportation modes, according to him the PCR obligation was no longer relevant.

Ideally, before setting a policy, the government must of course be based on considerations that are comprehensive in nature, namely making policies according to data and conditions in the field. The government can also look at the PPKM level in their respective regions, so that in determining policies that are appropriate and do not arouse public suspicion, the government also needs to carry out transparent public communications, information regarding the price of PCR tests and the reasons why land and air

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.09

transportation modes differ in terms of requirements. If this public communication is not carried out properly, the potential for public trust will decrease.

Public policy experts believe that poor policy outcomes can be caused because the policy itself is not good enough and or the policy is good but not possible at the level of implementation. Policy analysis itself provides information to policy makers that can be used to solve problems.

DISCUSSION

A policy or policy is closely related to planning, decision making and formulation, implementing decisions, and evaluating the impact of implementing decisions taken on the people who are the target of the policy. Policy changes for the better and carried out in an effort to absorb public criticism and aspirations are indeed needed in dealing with this uncertain pandemic situation. However, changes that are not based on a comprehensive analysis of conditions can also raise public questions and suspicions. Public policy in this case the minister's instructions should be the basis for solving problems that exist in the community in various regions. Revisions or changes to regulations are natural, but in the policy planning stage it is also necessary to pay attention to the formulation process and community conditions so that the substance of the policy becomes ideal and is intended for the benefit of the community. Policies that prioritize the needs and conditions on the ground can minimize public commotion and suspicion. In determining a policy, it is better to look at the facts and data in the field and map the area based on the PPKM level, especially for policies for domestic travel.

Based on the results of the analysis of the literature review and interviews with five respondents who had traveled domestically (in/out of Java and Bali), four of the five respondents stated that the government's policy regarding the implementation of the PCR test had not been effective and had confused people who traveled by air.

Ideally in making policies, the government needs to carry out the stages of policy making, from planning to evaluation, this can be useful for achieving positive public policies, lest the public policies issued are negative, namely a condition for the decision of a handful of political elites not to do something. (Saraswati, 2020) Because ideally, public policies must have clear goals, can reduce problems and have justice, certainty and benefit for the community.

ACKNOWLEDGMENT

We would like to thank the Chancellor of the Muhammadiyah Kudus University, the Chairperson of the LPPM Muhammadiyah Kudus University, as well as research informants, who have helped throughout the process of carrying out this research activity.

AUTHOR CONTRIBUTION

Naili Azizah acts as the main researcher who coordinates the research, carries out all stages of the research, compiles the publication manuscript of this research and presents the research results. Trias Hernanda played a role in developing

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.09

the research framework, processing research data, and compiling research papers. Arina Novitasari plays a role in developing research ideas and hypotheses. Meanwhile, Aldimas Jimantoro helped find research informants and research data.

CONFLICT OF INTEREST

There is no conflict of interest in this study

FUNDING AND SPONSORSHIP

This study is self – funded.

REFERENCES

CNN Indonesia (2021). Aturan Perjalanan yang Cepat Berubah dari PCR Hingga Pergi 250 KM (Fast Travel Rules Change from PCR To Go 250 KM). p. 1. Retrieved from: https://www.cnnindonesia.com/ekonomi/20211103113143-92-715979/aturan -perjalanan-yang-cepat-berubah-dari-pcr-hingga-pergi-250-km.

Detik.com (2021a). Kritik Berdatangan saat PCR jadi Syarat Wajib Penerbangan (Criticism Comes When PCR Becomes a Mandatory Flight Requirement). Retrieved from: https://news.detik.com/berita/d-5778905/kritik-berdatangan-saat-pcr-jadi-syarat-wajib-penerbangan/2.

detik.com (2021b). Time Line Gonta Ganti Kebijakan PCR Naik Pesawat dalam 2 Pekan. Retrieved from: https://news.detik.com/berita/d-5792243/timeline-gonta-ganti-kebijakan-pcr-naik-pesawat-dalam-2-pekan.

Fajar M, Achmad Y (2010). Dualisme Penelitian Normatif & Empiris (Dualism of Normative & Empirical Research). Yogyakarta: Pustaka Pelajar.

Farid N (2021). Alasan Kemenkes Terapkan Tes PCR sebagai Syarat Perjalanan Udara (Reasons for the Ministry of Health to Apply PCR Tests as Air Travel Requirements). Retrieved from: https://www.gatra.com/detail/-news/526996/kesehatan/alasan-kemenkes-terapkan-tes-pcr-sebagai-syarat-perjalanan-udara.

Inmendagri No 53/2021 (2021). Retrieved from: https://ditjenbina-adwil.kemendagri.go.id/download/file/Inmendagri_No_53_Tahun_2021_.pdf

Inmendagri Nomor 55 Tahun 2021 (no date). Retrieved from: https://covid19.hukumonline.com/wp-content/uploads/2021/11/-instruksi_menteri_dalam_negeri_nomor_55_tahun_2021.pdf

Kemenhub RI (2021) SE_96_TAHUN_2021.pdf. Retrieved from: https://jdih.dephub.go.id/assets/uudocs/SE/2021/SE_96_TAHUN_2021.pdf

Makarim FR (2020). Halodoc.com. Retrieved from: https://www-.halodoc.com/artikel/pcr-test-dan-swab-antigen-tidak-sama-ini-penjelasannya.

Marzali A (2012). Antropologi dan Kebijakan Publik (Anthropology and Public Policy). Jakarta: Kencana Prenada Media Group.

Menteri dalam Negeri (2021) Inmendagri No 56/2021. Retrieved from: https://covid19.hukumonline.com/wp-content/uploads/2021/11/instruksi_menteri

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.09

_ dalam_negeri_nomor_56-_tahun_2021.pdf.

Situmorang C (2016). Kebijakan Publik (Teori analisis, implementasi dan evaluasi kebijakan) (Public Policy (Theory of policy analysis, implementation and evaluation). Jakarta.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.09

ANALYSIS OF THE COVID-19 CONTROL AND PREVENTION MANAGEMENT FOR THE COMMUNITY IN MPUNDA SUBDISTRICT, BIMA, WEST NUSA TENGGARA

Mardian Andriani[1)], Abdul Gafar Hidayat[1)], Muhammad Fachrurrazi[2)]

[1)]College of Teacher Training and Education Taman Siswa, Bima, West Nusa Tenggara
[2)]Community Health Center Mpunda, Bima, West Nusa Tenggara

ABSTRACT

Background: Based on October 2020 data, Mpunda subdistrict was one of the areas with the highest number of positive COVID-19 (56 cases) of all 5 districts. This study aimed to describe the management of COVID-19 control and prevention in the community of Mpunda subdistrict, Bima, West Nusa Tenggara.
Subjects and Method: This was a qualitative study conducted at Community Health Center, Mpunda, Bima, West Nusa Tenggara. A sample of 140 key informants was selected for this study. The data were collected by interview and observation. The data were analyzed accordingly.
Results: Management of the COVID-19 response in Mpunda subdistrict, Bima had been carried out in accordance with government regulation policy. However, this effort had not been able to suppress the spread of COVID-19. The addition of new cases was still happening because there was still a lack of public awareness of the dangers of COVID-19. People were still active outside the home without paying attention to the COVID-19 prevention protocol. The study showed the handling of COVID-19 in Bima had not been optimally carried out. Most of the informants stated that they did not know what policies had been carried out by the government in preventing the transmission of COVID-19. Socialization of the control and prevention management of COVID-19 was mostly done through mass media, posters, banners, SK (decision letter), and SE (circular). However, the socialization was not carried out to all levels of society. This effort targeted only a small part of the community where not everyone had access to this information.
Conclusion: The management of COVID-19 counter measures in Mpunda District, Bima has been carried out according to government direction and policy. However, it has not been carried out optimally and the prevention approach is not community-based.

Keywords: management of COVID-19, counter measures, society

Correspondence:
Mardian Andriani. College of Teacher Training and Education Taman Siswa Bima. Jl. Pendidikan Taman Siswa, Belo, Palibelo, Bima, West Nusa Tenggara. Email: mardianandriani280308@gmail.com. Mobile: +62 85238046867.

BACKGROUND

The management of the COVID-19 response in Mpunda Subdistrict, Bima City has been carried out in accordance with government policy regulations such as the implementation of PSBK (village-scale social restrictions), the existence of checkpoints at the city limits and emergency hospitals (Public Relations and COVID-19 Protocol Bima City, 2020). Currently, the Bima City government has enforced a policy of using masks when doing activities outside the home, for those who are found to have violated will be given administrative sanctions and fines aimed at increasing public awareness to implement the COVID-19

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.10

prevention protocol (Uki, 2020). To support the applicable policies, the Bima City government has socialized to the public about the COVID-19 prevention protocol, such as social and physical distancing, using masks, using hand sanitizers or washing hands with soap (Syahrul, 2020). However, this effort has not been able to suppress the spread of COVID-19 in Mpunda District, Bima City, where the incidence of COVID-19 is still fluctuating and the graph tends to increase. Based on data for October 2020, Mpunda District is one of the areas with the highest number of positive COVID-19 confirmations compared to 4 other districts, which are 56 cases (Covid-19 Surveillance Team and Task Force, 2020).

The addition of new cases continues to occur because there is still a lack of public awareness of the threatening dangers of COVID-19, where there are still some people who are active outside the home without paying attention to COVID-19 prevent-ion protocols such as not wearing masks, crowding, not doing social and physical activities. distancing (Kahaba, 2020). Novira (2020) explained that there are still people who do not comply with social distancing, cannot stop themselves from leaving the house, even someone who is required to work from home does not reduce leaving the house and doing activities as usual.

Although the government has carried out various efforts, the number of people who have been confirmed positive for COVID-19 in Mpunda District in particular, continues to emerge. New clusters have also sprung up, so it is deemed necessary to conduct an analysis related to how to manage COVID-19 in the community of Mpunda sub-district, Bima city. The purpose of this study was to find out how the implementation of regional regulations related to COVID-19 prevention by the Mpunda District government, Bima City, to find out how to optimize the dissemination of information on COVID-19 prevention by the government to the community and to find out how people's behavior towards COVID-19 prevention regulations implemented by the government was carried out. government.

SUBJECTS AND METHOD

1. Study Design

This was a case study. The study was conducted as a basis for conducting a more in-depth study related to non-natural disaster management policies so that an effective and efficient policy can be made to suppress the rate of development of COVID-19 in Indone-sia in general and in Mpunda District, Bima City in particular.

This study uses non-probability sampling with purposive sampling. The research instruments used were interview guidelines and observation sheets. Interviews were conducted at the homes of COVID-19 patients and at the Mpunda Health Center in Bima City on the COVID-19 Task Force. The interview guidelines used for the COVID-19 Task Force contain 20 questions, while those used for COVID-19 patients contain 14 ques-tions. To ensure that the data collected is correct, the research team also conducted interviews with village

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.10

heads, Village Advisory Officer (*Babinsa*), and Bhayangkara Community Security and Order Trustees (Bhabinkamtibnas).

2. Population and Sample

This study used a sample of 140 samples involving 25 COVID-19 task forces from the Mpunda Health Center and 50% of the number of COVID-19 patients who did not undergo treatment at the hospital as many as 105 people.

3. Variable of the Study

This study has one independent variable, namely the management of COVID-19 prevention.

4. Instrument

The research instrument used is an instrument that has been validated by experts. The validated instrument was then used to collect research data through open interviews on the task force for handling and accelerating the COVID-19 response at the Mpunda Health Center, Bima City and on COVID-19 patients who were not receiving treatment at the hospital.

5. Data Analysis

Data analysis was carried out using the source and time triangulation technique from Miles Hubberman. Test the validity of the data from research that has been done can be done by testing credibility, transferability, dependability and confirmability. The results of the research that have been carried out will then be analyzed using the NVIVO application so that data analysis can be carried out accurately and efficiently, can process data from various data sources needed by researchers and reduce the risk of researchers' tendencies in invalid and reliable data.

6. Operational Definition

COVID-19 is an infectious disease caused by a virus that can be transmitted quickly through touch or air which can cause disturbances to the respiratory system in humans which can cause emergencies and even death.

COVID-19 management is an effort made by the government or individuals in order to prevent the spread of COVID-19 from the environment to humans and from humans to other humans by keeping a distance, using masks, avoiding crowds, washing hands with soap in running water.

7. Research Ethics

This research was conducted after receiving a recommendation from an educational institution and then applying for a permit to the research site and after obtaining approval, then carrying out research by emphasizing the problems of research principles and ethics.

RESULTS

Based on the results of data analysis that has been carried out with Nvivo 11 using the word cloud, it is known that the words that appear most often are "don't believe", "not maximized", "none", "Covid", "government" and "society". The image below shows the Word Cloud used in the sources in this study.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.10



Figure 1. Word Cloud data analysis results

Furthermore, an analysis was carried out using a hierarchy chart to see how the opinion of COVID-19 patients on the management of COVID-19 countermeasures that had been and was being carried out by the City of Bima government. The following is a picture that shows the Hierarchy chart as the data used by researchers in this study.

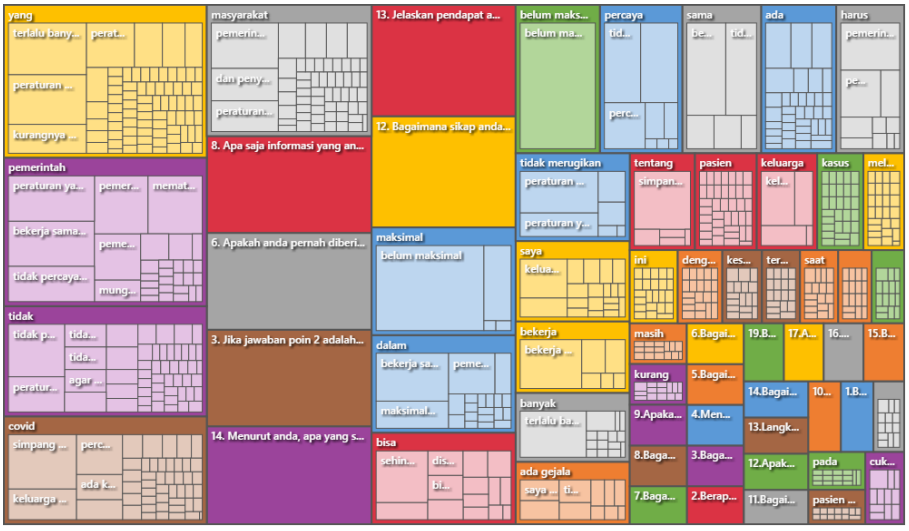


Figure 2. Hierarchy chart analysis of rectangular data

In the next stage, the feature used by the researcher is Cluster Analysis. Cluster Analysis is used by researchers to find out the correlation of relation-ships based on the similarity of words found in the source selected data or nodes will be compared. Data sources or nodes that have a high level of similarity based on their occurrence and frequency of words will be displayed in groups. Data sources or nodes that have a lower degree of similarity based on their

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.10

occurrence and frequency of words will be displayed far apart. From the results of this analysis obtained information that words that have the same or similar words are "no symptoms" have a close correlation with the word "do not believe" followed by the word "sanctions" correlated with the word "there". The image showing Cluster analysis can be seen in the image below.

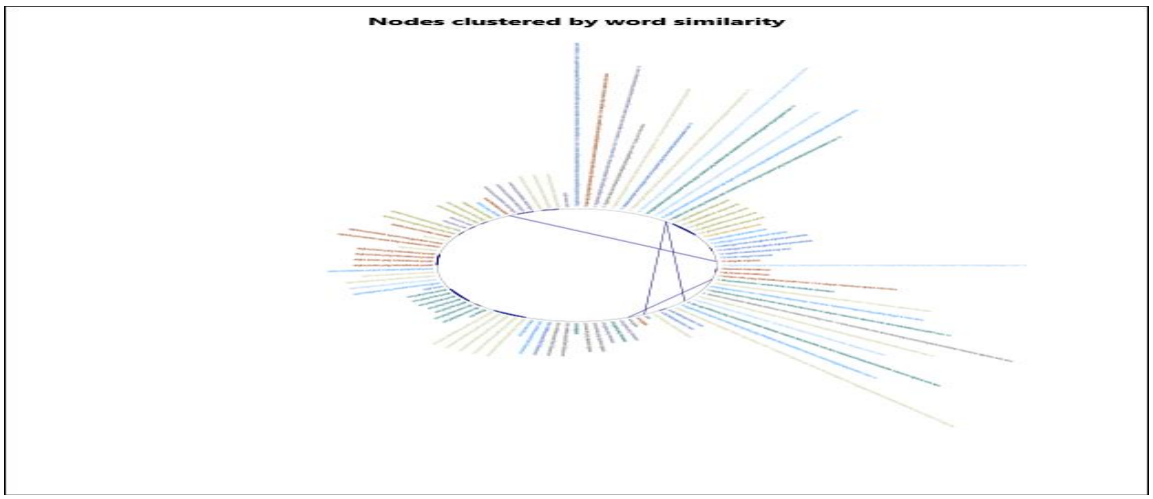


Figure 3. Cluster analysis data

Based on the Pearson correlation coefficient "no symptoms" and "do not believe" which is 1 which indicates that the correlation between the word is very strong and also on the strong correlation between "sanction" and the word "there" is 1 and so are the others which has a strong correlation with Pearson's above 0.5. While the correlation has a value below 0.5 which means that the correlation between the two is not too significant or not too much related to each other.

DISCUSSION

Based on the data analysis that has been carried out, it can be explained that the implementation of COVID-19 management in Mpunda District has not been maximally carried out by the Bima City government. This is in accordance with the results of interviews with informants who stated that "the regulation and response of the Bima City government in tackling and preventing COVID-19 in Mpunda District in particular and Bima City in general have not been maximized, mediocre and some others stated that the Bima City government carried out Proper prevention and control of COVID-19 is only at the beginning so that people do not have confidence in the government." The interview data showed that most of the interviewed informants stated that they did not know what policies had been carried out by the government in preventing the transmission of COVID-19 and preventive efforts in the form of socialization of COVID-19 prevention were not carried out at all levels of society, where socialization was mostly carried out through the media. mass, posters, banners and SK (decision letter) as well as SE (circular). This

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.10

effort is only able to target a small part of the community because not everyone has access to find this information. Furthermore, it can be explained that most people know about Covid1-19 from the news on TV and a small part from mass media and social media. In addition, information was also obtained that the health service center in the Mpunda District, Bima City, namely the Mpunda Health Center did not conduct outreach directly to the community, but only if there were people who came to the puskesmas for treatment or when they made home visits in order to give medicine to the community. patients who have been exposed to COVID-19.

It can be seen from the results of observations made by researchers that most of the patients exposed to COVID-19 who had to undergo isolation at home independently, still committed violations such as receiving guests, still leaving the house. without wearing a mask, go to work, go for a walk and some even open a shop even though they have been given information and education. This may be due to the lack of public trust in the government, so that the public consciously violates the existing rules (Novira, 2020) explaining that there are still people who do not comply with social distancing, unable to refrain from going out. from home even someone who is required to work from home does not reduce leaving the house and doing activities as usual. To understand people's behavior related to the COVID-19 response, it can be understood in general through Coleman's rational choice theory which is based on individual actions leading to a goal and these goals are actions determined by values or preferences. Perpetrators are considered as individuals who have goals, who are faced with a choice that has basic values that are used to make choices, namely using in-depth considerations based on their awareness, besides that the perpetrators also have the power to make choices and actions that become their desires, while resources are where the actor has control and has certain interests, resources are also something that the actor can control (Ritzer and Goodman, 2012). There are two main elements in Coleman's theory, namely knowledge and resources owned. These resources can be understood as the government's efforts to provide various circulars or regulations to deal with non-natural disasters by asking the public to continue to stay at home and not carry out activities outside the home, as the right step in breaking the chain of spread of COVID-19, while the perpetrators is someone who performs an action, of course, previously had certain knowledge and considerations about whether to follow government instructions or think more physiologically for a particular purpose.

Novira (2020) explaining that the general perception of the importance of implementing social distancing in dealing with the outbreak is not being able to control people to behave in accordance with this general perception. Someone may perceive that the policy is very important, but can not stop someone from leaving the house for various purposes. The general perception of those who disobey coming from a particular profession, education level, or income level is not

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.10

substantiated. Those who are recommended to even be obliged to work from home do not reduce going out of the house and doing activities as usual. The number of people who admit that they are very less out of the house but still worship in places of worship shows that on the one hand, Indonesian people are very religious. The religiosity side encourages people to be closer to God in difficult times.

AUTHOR CONTRIBUTION

All of the authors in this article structured and designed the study. Mardian Andriani conducts research, analyzes data and writes reports and articles. all authors contributed in revising the manuscript. All authors approve the final version of the manuscript and agree to be responsible for its content and results.

FUNDING AND SPONSORSHIP

The research was made possible thanks to the support and sponsorship of the Directorate of Research and Community Service, Directorate General of Research and Development of the Ministry of Research, Technology, and Higher Education.

ACKNOWLEDGEMENT

I would like to thank the Directorate of Research and Community Service, Directorate General of Research and Development of the Ministry of Research, Technology and Higher Education for funding this research.

CONFLICT OF INTEREST

There is no conflict of interest.

REFERENCES

Humas dan Protokol COVID-19 Kota Bima (2020). Penyebaran COVID-19 di Kota Bima terkendali, Perwali PSBK dilakukan Perubahan Kedua (internet) (The spread of COVID-19 in Bima City is under control, the PSBK Perwali is carried out with the Second Amendment (internet)). https://portal.bimakota.go.id/web/detail_opd/379/penyebaran_covid19_di_kota_bima.terkendali_perwali_psbk_dilakukan_perubahan_kedua/BAGIANHUMAS_DAN_PROTOKOL, diakses pada tanggal 21 Oktober 2020.

Uki (2020). Hari Ini, Kota Bima Terapkan Sanksi dan Denda yang Tak BerMasker (internet) (Today, the City of Bima Implements Sanctions and Fines for Not Wearing a Mask (internet). https://www.suarantb.com/hari-ini-kota-bima-terapkan-sanksi-dan-denda-yang-tak-bermasker/

Syahrul A (2020). Sosialisasi pencegahan virus corona bersama satgas covid19 perbatasan kota bima (internet) (Dissemination of the prevention of the corona virus with the Covid-19 task force at the Bima City Border (internet).). http://kkn.unram.ac.id-/2020/06/10/sosialisasi-pencegahan-virus-corona-bersama-satgas-covid19-perbatasan-kota-bima/.

Tim Surveilens dan Gugus Tugas COVID-19 (2020). Data COVID-19 Bulan Oktober 2020. Kota

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.10

Bima : Puskesmas Mpunda Kota Bima

Kahaba (2020). Kota Bima Zona Merah COVID-19 Dibutuhkann Kesadaran Seluruh Masyarakat (internet) (The City of Bima Red Zone COVID-19 Needs Awareness of the Whole Community (internet). https://kahaba.net/-berita.bima/79799/kota-bima-zona.merah COVID-19- dibutuhkan-kesadaran-seluruh masyarakat.html

Novira N, Rudi Iskandar, Raehanul Bahraen (2020). Persepsi Masyarakat Akan Pentingnya Social Distancing dalam Penanganan Wabah COVID-19 Di Indonesia (Public Perception of the Importance of Social Distancing in Handling the COVID-19 Outbreak in Indonesia). Jurnal Kependudukan Indonesia. 27-32. https://doi.org/10.14203/jki.v0i0.573.

Kementrian Kesehatan RI (2020). Pedoman Pengendalian dan Pengendalian Coronavirus Desease (COVID-19) (Coronavirus Disease (COVID-19) Control and Control Guidelines). Jakarta: Kemenkes RI

Malik A (2020). Kota Bima Cabut Perwali PSBK (internet). https://-www.suarantb.com/kota- bima-cabut-perwali-psbk/.

Uki (2020). Pekan Depan, Kota Bima Terapkan Sanksi Soal Masker. (Next Week, City of Bima Implement Sanctions About Masks (internet). https://www.suara-ntb.com/pekan-depan-kota-bima-terapkan-sanksi-soal-masker/

Ritzer, Goodman J (2012). Teori sosiologi modern (Modern sociological theory). Jakarta: Kencana

Raco JR, Conny R, Semiawan (2010). Metode Penelitian Kualitatif: Jenis, Karakteristik dan Keunggulannya (Qualitative Research Methods: Types, Characteristics and Advantages). Jakarta: Grasindo.

Tersiana A (2017). Metode Penelitian (kualitatif, kuantitatif, deskriptif) (Research Methods (qualitative, quantitative, descriptive). Yogyakarta: Start Up.

Sugiyono (2017). Metode Penelitian Kuantitatif, Kualitatif, dan R&D (Quantitative, Qualitative, and R&D Research Methods). Bandung : Alfabeta

Arikunto S (2016). Prosedur Penelitian Suatu Pendekatan Praktik (Research Procedure A Practical Approach). Jakarta: Rineka Cipta.

Emzir (2011). Metodologi Penelitian Kualitatif Analisis Data (Qualitative Research Methodology Data Analysis). Jakarta :PT Raja. Grafindo Persada Pusat.

RESPONSE IN THE INTER-PROFESSIONAL TEAM LEARNING AMONG STUDENTS IN THE HEALTH STUDY PROGRAM

Sri Wahyuni

Faculty of Nursing, Sultan Agung Islamic University, Semarang, Central Java

ABSTRACT

Background: Health colleges are institutions that produce health workers. Health workers are formed to interact and collaborate to provide optimal service to patients. Interprofessional services can run well if the preparation of health workers is carried out from the start, during the academic education process through learning that combines between professions called inter professional education. This study aimed to evaluate the response of nursing, medical, and pharmacy students in the implementation of inter-professional education.
Subjects and Method: This was a qualitative study conducted in Sultan Agung Islamic University. A sample of 12 students was selected for this study. The data were collected using an in-depth interview and semi-structured questions. The data were analyzed by identifying themes emerging from the data (thematic analysis).
Results: Four themes emerged from this study: (1) Roles and responsibilities of the profession; (2) Team working; (3) Opening horizons to the knowledge of other professions; and (4) Increasing interaction and communication skills.
Conclusion: Four themes have been identified in the implementation of interprofessional team learning with the purpose to improve the quality of care for patients.

Keywords: response, inter professional team learning, health study program, students

Correspondence:
Sri Wahyuni. Faculty of Nursing, Sultan Agung Islamic University, Semarang. Jl. Kaligawe Raya, Terboyo Kulon, Genuk, Semarang City, Central Java. Email: wahyuni-@unissula.ac.id. Mobile: 082135240746.

BACKGROUND

Health colleges are institutions that produce health workers. The types of health workers vary and they print health workers according to their respective competency standards based on the provisions of the higher education association that houses them.

Health workers are formed to interact and collaborate to provide optimal service to patients. Inter-professional services can run well if preparation for health workers is carried out from the start, during the academic education process through learning that combines between professions called Inter Professional Education (Liles et al., 2018).

Inter Professional Education in higher health education is carried out to prepare the resulting health workers to better understand the role of each health profession and prepare students to be able to collaborate between professions (Widmer, 2012). The ability of health workers to collaborate between professions is needed to overcome health problems in patients which are currently increasingly complex (Thistlethwaite, 2015).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.11

The implementation of inter-professional learning or IPE can be held with a minimum number of two study programs. IPE learning is able to increase competence, mutual respect and the formation of communication between students with different professions (Homeyer et al., 2018).

The learning carried out must still pay attention to the comfort of the students, so that the material discussed can be understood well by students (Weerasinghe et al., 2017).

Implementation of IPE with all the benefits and positive impacts of the results of the ongoing learning process, it is necessary to evaluate the responses of each student to improve the quality of the learning process and student comfort.

SUBJECTS AND METHOD

1. Study Design

This study uses a qualitative method with a phenomenological approach that is carried out on students who carry out the learning process in inter-professional education**.**

2. Population and Sample

The population in this study were students of the health study program at Sultan Agung Islamic University, Semarang, which consisted of Nursing, General Medicine and Pharmacy Study Programs. The criteria for the informants included students of the health study program at the Sultan Agung Islamic University, Semarang, who were in semesters 3, 5, and 7 and were willing to participate in the research. The number of informants was 12 people consisting of 5 students of Nursing in 3rd semester, 4 general medical students in 5th semester and 3 pharmacy students in 5th semester. These students were in the SGD (Small Group Discussion) group which was held at Sultan Agung Islamic University, Semarang.

3. Operational Definition

Student responses are responses that are felt and experienced by students during the interaction of the learning process. Meanwhile, Interprofessional Education is a learning process that combines several professions with at least 2 professions.

4. Variable

The variables of this study include student responses and interprofessional education.

5. Instrument

Data were collected using in-depth interview techniques and using semi-structured questions as well as field notes to identify nonverbal responses and situations during the interview. The tools used for data collection use interview guides or guidelines in the form of open-ended questions.

6. Data Analysis

The stages of data analysis include: After completing the interview, the researcher immediately compiled the results of the interview into verbatim form. To assess the accuracy of the interview results, the researchers listened to the interview recordings again and matched them with reading the verbatim transcripts that the researchers had made. In addition, the results of the field notes obtained during the interview were in the form of nonverbal responses shown by the research participants and integrated into the transcript.

The results of the verbatim transcripts were read repeatedly to get

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.11

a proper understanding of the results of the interviews. The next step, the researcher selects keywords that have almost the same meaning and meaning to be grouped into categories. The same categories and the same type of researchers are grouped into sub-themes. Furthermore, the researchers grouped the sub-themes into potential themes.

7. Research Ethics

The ethical test for this research was conducted at the Research Ethics Committee (KEPK-Faculty of Nursing, Sultan Agung Islamic University, Semarang).

RESULTS

From the data analysis, the results obtained with the themes. The first theme that was obtained was the role and responsibility of the profession. Informants realized that each profession has different roles and responsibilities, even though the goal is the same to ease the suffering of patients. As the expression conveyed by the informant as follows:

Each profession has a different role, if doctors focus on the patient's illness, pharmacists on treatment and nurses focus on treating the disease (P3).

Each profession has its own role but are interrelated to carry out a medical treatment (P8).

Each profession complements each other with the aim of healing patients (P1).

The second theme of the research that was obtained was: Team working. Informants understand the importance of teamwork that must be carried out by health professionals in providing services to patients. Through good cooperation between the health team the suffering experienced by the patient can be reduced. Between professions need each other, provide support and complement. Here's an excerpt from the interview:

Yes, because we cannot work alone, doctors need nurses and pharmacists, nurses need doctors and pharmacists, pharmacists need doctors and nurses (P6).

It is important because with the collaboration between professionals, the patient's problems can be resolved and they can find out the treatment of various diseases (P3).

…….. because later in the world of work or in the field we will collaborate with other medical personnel to treat patients (P7).

The third theme obtained is to open horizons to other professional knowledge. The informants realized that interaction and discussion with other health professions would further enrich their knowledge of various health disciplines. Learn to appreciate how other healthcare professionals treat patients. The following is an expression from the results of the interview.

Studying together with students from other study programs is getting more complete and they know more about other professions (P2).

With IPE, they know about how to treat patients from various professions, increasing knowledge in the health sector (P3).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.11

I have understood some of the material because sometimes doctors use difficult language, but by studying together, there is a better picture (P7).

The fourth theme in the study was found: increasing interaction and communication skills. Informants understand that the health team must interact and communicate well with each other to provide the best service to patients. Here's the expression that was conveyed:

It's fun because you can learn together with friends from other professions (P4).

I'm happy because I'm with friends who have the same semester as training tomorrow when you practice at the Hospital (P6).

Learning is very comfortable and more developed, able to share opinions according to their knowledge in each profession (P11).

DISCUSSION

Research subjects on the results of the interviews are aware of the roles and responsibilities of each profession towards patients. Between health professions have the same goal in providing health services to patients, but the roles and responsibilities of each profession are different according to their authority.

Understanding the roles and responsibilities of each profession towards patients will lead to a sense of respect, respect, and the establishment of good relations between professions (Pullon, 2008). Attitudes in service and understanding of roles in the profession have an impact on success in carrying out work or tasks (Leenders at al., 2017).

The proper functioning of the roles and responsibilities of health care providers will have an impact on the level of patient satisfaction and the level of patient satisfaction is one of the major indicators of the quality of a health service (J.O., F.M., & A.J., 2017). A high level of satisfaction from patients is an excellent means to improve the image of the health profession, because it is undeniable that patients will share their experiences with others.

The habit of understanding the roles and responsibilities of the profession needs to be given from the beginning or since undergoing the study process, so that when carrying out their duties as health workers they are actually able to play a good and maximum role. The ability to carry out a role will have an impact on a person's leadership style when he becomes a leader in a team that affects the level of patient satisfaction provided by services (Bahadori at al., 2016).

Interprofessional education provides a good example for students to be able to cooperate with each other between health professions in providing services to patients. Team working is working together to complete responsibilities according to their area of expertise and a professional cannot be held accountable but the responsibility of all professions in the team (Sánchez et al., 2018)

Good teamwork will minimize the risk of medical errors made by health workers in providing care to the

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.11

patients they care for (Freytag et al., 2017). Good teamwork will be able to build a culture of mutual support and complement in the management of patients because patients will receive comprehensive treatment from all health workers (Eichbaum, 2017)

Comprehensive services from the entire health team are able to evaluate the performance of the team and can improve the quality of care and minimize patient length of stay (Vries et al., 2016).

Implementation of interprofessional team learning allows students with various professions to interact with each other. Interactions that are initiated early on are able to increase understanding of the characteristics and uniqueness of each profession (Darlow et al., 2018). Learning with Inter Professional education is also able to improve the knowledge, attitude and skills of students (Widmer, 2012).

Interactions that occur with many people with various variations will open insight into thinking. As in the learning process with interprofessional education, students begin to understand that by interacting with other professions their horizon of view is getting wider.

An increasing view of the profession will have an impact on mutual respect and respect, the emergence of awareness that other professions have an equally important role and a significant contribution in managing patients (Mishra, 2015). That the health professions need each other and to improve the quality of health services.

As research conducted by (Joynes, 2018) states that providing interprofessional learning has a good impact on respect for other professions and avoids dividing between professions.

Research conducted by (Croker et al., 2016) also states that interprofessional learning increases a positive outlook and respect for other professions and emerges and is embedded after interactions between health teams.

Learning that is carried out jointly between health professions or interprofessional education allows students to interact and communicate with each other. Communication and interaction that takes place begins with formal communication that they do in class, but with frequent interactions it will lead to getting to know each other and understand that between professions need each other (Franklin et al., 2015).

Inter-professional learning will stimulate students to be able to communicate with other professions. Learning with interprofessional education trains students to be able to coordinate and collaborate with each other when providing care to patients (Morley & Cashell, 2017).

Inter-professionals must be able to communicate with each other and discuss with each other about the condition of the patients they care for to provide optimal services and increase the recovery rate of patients being treated (Baker et al., 2011). Research conducted by Good Communication is able to increase patient satisfaction rates in health services (Ranjan et al., 2015).

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.11

Learning communication and at the same time practicing it directly with other professions will minimize violations that may occur in the health care area (Bahadori et al., 2016).

Research shows that research shows that with interprofessional education students realize the importance of learning together with other professions to improve the quality of care for patients.

AUTHOR CONTRIBUTION

This research is carried out on the role and contribution of managers and students from general medicine, nursing and pharmacy study programs at Sultan Agung Islamic University, Semarang.

FUNDING AND SPONSORSHIP

The research received support from an internal grant organized by the Institute for Research and Community Service (LPPM) of Sultan Agung Islamic University, Semarang.

ACKNOWLEDGMENT

This research was carried out with the support of several parties, for that the researcher would like to thank the Chancellor of Unissula, LPPM and the Dean of the Faculty of Nursing and the entire academic community of the Faculty of Nursing. Thank you for both moral and material support so that this research can be completed. Hopefully this research is useful for the community, especially for the learning process in the health study program.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Ahadori A, Peyrovi H, Ashghali-Farahani M, Hajibabaee F, Haghani H (2016). The relationship between nursing leadership and patient satisfaction. International Journal of Medical Research & Health Sciences, 5(10): 134–141.

Baker L, Egan-Lee E, Martimianakis, MA, Reeves S (2011). Relationships of power: Implications for interprofessional education. Journal of Interprofessional Care. 25(2). 98–104. https://-doi.org/10.3109/13561820.2010.505350.

Busari JO, Moll FM, Duits AJ (2017). Understanding the impact of interprofessional collaboration on the quality of care: A case report from a small-scale resource limited health care environment. Journal of Multidisciplinary Healthcare, 10: 227–234. https://doi.org/10.21-47/JMDH.S140042.

Croker A, Smith T, Fisher K, Littlejohns S (2016). Educators' interprofessional collaborative relationships: Helping pharmacy students learn to work with other professions. Pharmacy, 4(2). 17. https://doi.org/10.3390/pharmacy4020017

DarlowB, Brown M, Gallagher P, Gray, L, Mckinlay E, Purdie G, Gallagher P (2018). Longitudinal impact of interprofessional education on attitudes , skills and career trajectories : a protocol for a quasi - experimental study in New Zealand. 1–9. https://doi.-

org/10.1136/bmjopen-2017-018-510.

Eichbaum Q (2017). Collaboration and Teamwork in the Health Professions. Academic Medicine. 93(4). 574–580. https://doi.org-/10.1097/acm.0000000000002015.

Franklin CM, Bernhardt JM, Lopez RP, Long-Middleton ER, Davis S (2015). Interprofessional Teamwork and Collaboration Between Community Health Workers and Healthcare Teams. Health Services Research and Managerial Epidemiology. 2. 233339281-557331. https://doi.org/10.1177-/2333392815573312.

Freytag J, Stroben F, Hautz WE, Eisenmann D, Kämmer JE (2017). Improving patient safety through better teamwork: How effective are different methods of simulation debriefing? Protocol for a pragmatic, prospective and randomised study. BMJ Open, 7(6). 1–9. https://doi.org/10.11-36/bmjopen-2017-015977.

Homeyer S, Hoffmann W, Hingst P, Oppermann RF, Dreier-Wolfgramm A (2018). Effects of interprofessional education for medical and nursing students: Enablers, barriers and expectations for optimizing future interprofessional collaboration - a qualitative study. BMC Nursing, 17(1). 1–10. https://doi.org/10.-1186/s12912-018-0279-x.

Joynes VCT (2018). Defining and understanding the relationship between professional identity and interprofessional responsibility: implications for educating health and social care students. Advances in Health Sciences Education. 23(1): 133–149. https://doi.org/10.1007/s1045-9017977x.

Leenders MVE, Buunk AP, Henkens K (2017). The role of the relationship with parents with respect to work orientation and work ethic. Journal of General Psychology. 144(1). 16–34. https://doi.org/-10.1080/00221309.2016.1258386.

Liles AM, Hill LG, Murphy JE, Leonard A, Bingham AL, Lee M, Dang DK (2018). Interprofessional education: Principles and application. An update from the American College of Clinical Pharmacy. Journal of the American College of Clinical Pharmacy 1(1) e17–e28. https://doi.-org/10.1002/jac5.1025.

THE RELATIONSHIP OF THE EFFORT DETERMINANTS OF THE CITY OF SIBOLGA GOVERNMENT WITH COVID-19 PREVENTION BEHAVIOR IN THE CITY OF SIBOLGA IN 2020

Yusniar, Faisal

School of Health Polytechnics, Ministry of Health
Medan, Central Tapanuli

ABSTRACT

Background: In tackling COVID-19, the Government has made various efforts and policies in order to break the chain of the spread of the COVID-19 virus. The Sibolga City Government chose to use masks and wash hands as often as possible to carry out social distancing rather than carry out a massive lockdown to break the chain of the spread of the corona virus. As a region that fully supports the central government's policy in breaking the chain of Sibolga City, its community values are not very consistent with its commitment to efforts to prevent COVID-19, while interviews with several Lurah in the Sibolga Sub-district, the Camats throughout the city of Sibolga are compact, saying that apart from the formation of the Cluster, The task of accelerating the handling of COVID-19 has also carried out many activities from the sub-district level to the environmental level (RT/RW).
Subjects and Methods: This study used a quantitative correlation design method with a sample of 100 subjects. Behavior (knowledge, attitudes and actions) to prevent COVID-19 becomes a variable; The binding of the determinants of the Sibolga City Government's efforts (communication, disposition, resources and bureaucratic structure) becomes the independent variable. The purpose of this study was to identify the relationship between the determinants of the Sibolga City Government's efforts with COVID-19 prevention behavior in Sibolga City.
Results: The results showed that there was a relationship; the resources owned by the Sibolga City government in efforts to prevent COVID-19 behavior are 40.2% with a positive correlation, the strength of the correlation is sufficient ($p = 0.001$, $r = 0.42$) meaning that the resources owned by the Sibolga City government are not sufficient to make the people of the City of Sibolga Sibolga behaves to prevent or break the chain of the spread of COVID-19.
Conclusion: There is a relationship; the resources owned by the Sibolga City government in efforts to prevent COVID-19 behavior.

Keywords: communication, resources, disposition, bureaucratic structure, preventive behavior, COVID-19.

Correspondence:
Yusniar. Health Polytechnic of the Ministry of Health Medan, Central Tapanuli. Email: 1409yusniar@gmail.com. Mobile: +628126481578.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.12

BACKGROUND

Currently, Indonesia and the rest of the world have not been separated from the grip of the corona virus or COVID-19. Like other respiratory illnesses, COVID-19 can cause mild symptoms including runny nose, sore throat, cough, and fever. About 80% of cases recover without the need for special treatment. About 1 in every 6 people may develop severe illness, such as with pneumonia or difficulty breathing, which usually develops gradually. Although the mortality rate for this disease is still low (around 3%), older people and people with pre-existing medical conditions (such as diabetes, high blood pressure and heart disease) are usually more susceptible to becoming ill. critical. Looking at developments to date, more than 50% of confirmed cases have been declared to be improving, and the cure rate will continue to increase (Ministry of Health, 2020).

In tackling the Corona Epidemic or COVID-19, our government has made various efforts and policies in order to break the chain of the spread of this virus or outbreak. Apart from using masks at all times and washing hands as often as possible, our government chooses to practice social distancing rather than doing a massive lockdown. amount to break the chain of spread of the corona virus. Of course, our government has the right reasons for choosing this option. This is in line with Mashabi's research (2020) which states that the high mobility of society and a dense population causes the spread of positive cases of COVID-19 in the Indonesian province to be relatively fast.

Socialization is an important and inseparable component in the response to public health emergencies, both locally, nationally, and internationally (COVID-19 Guidelines, 2020). Zhang et al. (2020) in their research stated that non-pharmaceutical interventions are prioritized, such as prevention strategies by the community to slow down transmission, especially among high-risk populations. In his research, Utami (2020) also stated that the transmission of COVID-19 can be slowed down through the proper management of social distancing.

Sibolga City as an area that fully supports the central government's policy in breaking the chain of the spread of COVID-19 has made various efforts. From the results of interviews with several Lurah in the Sibolga District and almost all sub-districts throughout the city of Sibolga, they said that apart from the formation of the Task Force for the Acceleration of Handling COVID-19, various activities have also been carried out from the district level to the neighborhood level (RT/RW). These efforts include providing cash assistance, basic necessities as well as socializing the 3M Program (wearing masks, washing hands and maintaining distance).

Good public attitudes will be implemented consistently if there are strict rules from policy makers and good role models from public figures. So, it is important in shaping people's attitudes that are supported by government

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.12

policies (Firda and Haksama, 2020). The prevention and control of COVID-19 must be placed at the top priority in all government policies (General Guidelines, 2020). Readiness of Regional Governments in Implementing Productive and Safe Communities COVID-19 is intended so that regional governments can provide maximum service to the community in the era of the COVID-19 Pandemic. The success of efforts to deal with COVID-19 is highly dependent on the role of the community. However, community participation is highly expected in breaking the chain of the spread of this virus (UU No. 440-430, 2020). The understanding and awareness of the people of Sibolga regarding the prevention of COVID-19 is still low. In addition, the level of community compliance to carry out social distance is also still low, because it is still seen that residents move out of their homes for recreational purposes, sitting in groups, gathering without wearing masks or keeping their distance, so that possible deployment is still a huge task. Promotive action to increase public understanding is needed in order to increase their knowledge about self-isolation in accordance with standard operating procedures (Sagala et al., 2020).

SUBJECTS AND METHOD

1. Study Design

This study uses a quantitative method with a correlation design. That is to find out whether there is a relationship between two or several variables. This study uses numerical data and is processed using statistical methods. The study was conducted in the city of Sibolga, North Sumatra Province. The initial survey, the collection of research data arrived in August and the preparation of the seminar results was completed in September 2020.

2. Population and Sample

The technique used in the sampling of the population is random sampling, with the consideration that the population/ community who are subject are in the same area, namely the people of Sibolga City which are relatively homogeneous.

3. Study Variable

The dependent variable is knowledge, attitude and action in preventing COVID-19. The independent variable in this study is the efforts of the Sibolga City government (communication, disposition, resources and bureaucratic structure).

4. Operational Definition of Variable

Communication is a process of delivering information about local government public policies in preventing COVID-19 in Sibolga City to communicants, measured using a questionnaire with the results of the Guttman Scale with the answer choice "yes" being given a value of 1 and "No" being given a value of 0 with a bad statement if the score is 0-5. Good if the score is 6-10.

Disposition is a government action in implementing the COVID-19 prevention policy in Sibolga City with a Guttman scale measuring scale with the answer

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.12

choice "yes" being given a value of 1 and "No" being given a value of 0 with the statement: Bad if the score is 0-5, Good if the score is 6 -10.

Resources is a policy of the local government's ability to prevent covid -19 in Sibolga City with a Guttman scale measuring scale with the answer choice "yes" being given a value of 1 and "No" being given a value of 0 with the statement: Bad if the score is 0-5, Good if score 6-10.

Bureaucratic Structure is an implementing agency for local government policies in preventing COVID-19 in the city of Sibolga with a Guttman scale measuring scale with the answer choice "yes" being given a value of 1 and "No" being given a value of 0 with the statement: Bad if the score is 0-5, Good if the score is 6-10.

Knowledge is the level of public understanding of COVID-19 prevention measured by the Guttman Scale with the answer choices "yes" being given a value of 1 and "No" being given a value of 0 with the statement: Bad if the score is 0-5, Good if the score is 6-10

Attitude is an evaluative statement from the subject about the prevention of COVID-19 measured by the Guttman Scale with the answer choice "yes" being given a value of 1 and "No" being given a value of 0 with the statement: Bad if the score is 0-5, Good if the score is 6-10.

Actions are actions that are part of preventive behavior against COVID-19 measured by the Guttman Scale with the answer choices "yes" being given a value of 1 and "No" being given a value of 0 with the statement: Bad if the score is 0-5, Good if the score is 6-10.

5. Study Instruments

This study used a questionnaire instrument for data collection.

6. Data Analysis

Data were analyzed by univariate, bivariate and univariate using SPSS program.

7. Research Ethics

This research was conducted in accordance with the applicable research principles.

RESULTS

Table 1 shows that the Disposition variable has a relationship with a value of p< 0.001 with COVID-19 Prevention Behavior in Sibolga City with a not so strong relationship meaning, this is indicated by the value of r= 0.39.

Table 2 shows that the existing bureaucratic structure in the Sibolga City government has a very strong relationship. This is indicated by the p value = 0.00 and the r value = 0.72 with COVID-19 prevention behavior in Sibolga City.

Table 3 shows that there is no relationship between the communication variable and the COVID-19 prevention behavior in Sibolga City, with p value = 0.66 and r value = -0.44.

The results from the table above explain that there is no relationship between communication with COVID-19 prevention behavior in Sibolga City with p value = 0.655 and r value = -0.45

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.12

Table 1. Results of bivariate analysis of the relationship between disposition, bureaucratic structure, communication, and COVID-19 prevention behavior in Sibolga City (n = 100)

Government Determinants	Good		Bad		p	r
	Frequency	%	Frequency	%		
Disposition	71	71	29	29	<0.001	0.39

Table 2. Frequency Distribution of Bureaucratic Structure Relationship with COVID-19 Prevention Behavior in Sibolga City (n = 100) 2020

Government Determinants	Good		Bad		p	r
	Frequency	%	Frequency	%		
Bureaucratic Structure	47	47	53	53	0.00	0.72

Table 3. Frequency Distribution of Communication Relationships with COVID-19 Prevention Behavior in Sibolga City (n = 100) 2020

Government Determinants	Good		Bad		p	r
	Frequency	%	Frequency	%		
Comunication	49	49	51	51	0.660	-0.44

4. Frequency Distribution of Communication Relationships with COVID-19 Prevention Behavior in Sibolga City (n = 100) 2020

Government Determinants	Good		Bad		p	r
	Frequency	%	Frequency	%		
Resources	77	77	23	23	0.655	-0.45

DISCUSSION

The data above shows that the determinants of the Sibolga City government have sub-variables consisting of four variables which include communication, disposition, resources, bureaucratic structure, bureaucratic structure as the independent variables.

In the Disposition and Bureaucratic Structure variable in Sibolga City in an effort to prevent COVID-19 behavior, it was found that the Sibolga City government's efforts which include the division of tasks from the Camat to the head of the neighborhood (RT/RW), the implementation of a curfew in collaboration with Forkopimda (the Regional Leadership Coordination Forum) is considered good by the people of Sibolga City in an effort to break the chain of the spread of the corona virus that is currently engulfing all corners of the world. This is in accordance with Faradilla's (2021) research that the COVID-19 response strategy is closely related to the government's efforts to cooperate with various institutions and the role and participation of the community in their care.

The role of government communication in efforts to prevent COVID-19 can be seen in policies and regulations regarding the prevention of the COVID-19 pandemic (Marcolino et al., 2020). This can be shown by the success of the decline or the small number of sufferers due to the corona virus which is currently in a pandemic.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.12

The Sibolga City Government confirmed the first case of COVID-19 on March 2, 2020, then several policies and strategies were made. Some of these policies include banning all flights to and from China, stopping the granting of visas for Chinese citizens to travel to the Sibolga City area, limiting travel to and from several areas such as Medan, Padangsidempuan, Padang and several areas and closing schools, campuses, including Several government offices and private companies, to closing entertainment centers have been carried out by the Sibolga City Government to control the extent of the spread of COVID-19. This policy replication effort was taken by the Sibolga city government as a form of government sensitivity to policies that have been formulated and implemented in accordance with regulations made by the Indonesian Ministry of Health.

The Sibolga City Government on the health side provided personal protective equipment (PPE), masks, medicines, and converted several lecture buildings into special hospitals for handling COVID-19. The Sibolga city government also optimizes COVID-19 tests, both through rapid tests and through PCR. The goal is that the spread of the corona virus can be localized so that the government has a map of the distribution of COVID-19. These policies were taken because the Sibolga city government is aware that the COVID-19 outbreak is a national-scale disaster that must be resolved in an extraordinary (extra-ordinary) way. Therefore, it is not surprising that the President of Indonesia issued Presidential Decree (Keppres) Number 12 of 2020 concerning the Designation of Non-Natural Disasters that Cause Corona Virus Disease 2019 (COVID-19) as National Disasters on April 13, 2020, although at a very late date due to The number of infected people has reached 6,760 people and 590 others have died (Task Force for the Acceleration of Handling COVID-19, 2020).

If we look at the lack of communication (borrowing Edward III's term) and the lack of synchronization of coordination between the Sibolga City government and the community (a network that is not properly monitored), this also occurs in the implementation of the regional isolation policy (lockdown) in the community. In mid-March 2020, the local government has decided not to adopt regional isolation because it will disrupt human migration and hamper the residents' economy. Therefore, the decision was to implement social or physical distancing in the Sibolga City area.

The lack of provision of personal protective equipment (PPE) is an indication of the weak communication and coordination (networking) between Sibolga city government institutions, especially institutions that are closely related to the issue of handling COVID-19. The most painful impact of the lack of provision of PPE by the government is the death of national heroes (read: doctors and nurses) in many areas. Until August 20, 2020. Likewise with the City of Sibolga, many residents were detected as infected with the corona virus until at a time made Sibolga City a dangerous status zone in the spread of COVID-19. One of the reasons for this happening is that people don't believe in the COVID-19 incident. The government should be

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.12

able to swiftly provide PPE, especially for its citizens, as a substitute for PPE that is difficult to obtain.

One other problem that has brought the attention of the Sibolga City government to being less successful in controlling the spread of the corona virus is the indifference (not to say indifference) of citizens to government appeals or instructions. This problem can be seen from the crowds of people gathering in coffee shops, cafes, malls, cinemas, or places that have been banned by the government. Even though since the beginning the government has given directions to residents to do physical or social distancing to keep their distance from other people. This is because the spread of the corona virus, one of which is, through saliva splashes. If people do not keep their distance, and it is known that the person they are talking to is infected or a carrier (carrier) of the virus, then it has the potential to infect other people and spread it again to third, fourth, and so on. Therefore, physical or social distancing is one way out to inhibit the spread of COVID-19. The government's directives are only directions when most of the people are still huddled together in terminals, stations, shelters, markets, and others. Residents seem not to worry about the virus because they are more concerned with their daily activities.

Similar to physical or social distancing, the government's appeal for the use of masks is often violated by the wider community. The invitation to wash hands after leaving the house was also not followed by many residents. Why does this happen? Looking at the conditions on the ground, there are at least three possibilities because the people are not indifferent to the government's direction. People's ignorance of the very deadly danger of COVID-19. This ignorance is due to the weak socialization carried out by the Sibolga city government, including the local government from the sub-district level to the village level. The Sibolga city government is not optimal in socializing the need for clean and healthy living, including using masks and washing hands frequently because some mediums can be a carrier for the spread of the corona virus. For example, the study of van Doremalem et al. (2020) explained that the corona virus can survive for hours to days on different mediums. Corona viruses can survive several hours in air, survive 4 to 8 hours on copper medium, survive 24 hours on cardboard medium, and can also survive up to 3 days on plastic or stainless-steel media (van Doremalem et al., 2020: 1). This virus resistance must be anticipated with a clean and healthy way of life.

The determination of the Sibolga city government implemented by the Sibolga city government to deal with Covid 19, such as the Health Protocol policy contained in the Decree of the Minister of Health Number HK.01.-07/MENKES/382/2020 aims to suppress the spread of covid 19 in Jakarta. However, the number of COVID-19 cases in the city of Sibolga is still under controlled conditions. However, the policies and efforts made by the Sibolga city government have not been able to suppress the spread of covid 19 in the city of Sibolga. Policies and efforts made in handling are still experiencing obstacles originating from

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.12

the community's non-compliance with health protocols and Health Protocol policies implemented by the Sibolga city government. solid and professional cooperation and coordination in dealing with the COVID-19 pandemic. The Sibolga city government and the community together can convey a comprehensive message both through various media regarding the pandemic situation, the consequences to be faced, and the anticipation that must be done. In addition, the author sees the need for strict and real punishments for violators in the form of fines large enough to cause a deterrent effect for people who violate the policies and rules that have been applied.

It is recommended that there is a need for collaboration between the government, health services and the community environment in carrying out strategic communication efforts and sustainable health education in the hope of changing people's behavior, especially when facing the COVID-19 pandemic. This research still has many limitations, so that more in-depth research is needed on the impact or response of the community when facing COVID-19.

This study concludes that the disposition and bureaucratic structure of the Sibolga City government has a relationship with COVID-19 prevention behavior in Sibolga City.

REFERENCES

Andrews JL, Foulkes L, Blakemore SJ (2020). Peer Influence in Adolescence: Public-Health Implications for COVID-19. Trends in Cognitive Sciences. 24(8): 585–587. https://doi.org/10.1016/j.-tics.2020.05.001.

Buku pedoman manajemen bagi pemerintah daerah dalam penanganan covid-19 dan dampaknya tahun 2020 (Management manual for local governments in handling COVID-19 and its impacts in 2020).

Buku pedoman umum menghadapi pandemi COVID-19 tahun 2020 (General guidelines for facing the 2020 COVID-19 pandemic).

Faradillah, Andi. (2020). Strategi pemerintah dalam penanggulangan COVID-19 pada sekretariat satuan tugas penanganan COVID-19 Kota Makassar (The government's strategy in dealing with COVID-19 at the secretariat of the Makassar City COVID-19 handling task force). Skripsi Program Studi Ilmu Administrasi Negara Fakultas Ilmu Sosial Dan Ilmu Politik Universitas Muhammadiyah Makassar.

Farizi S, Harmawan BN (2020). Data transparency and information sharing: coronavirus prevention problems in Indonesia. Jurnal Administrasi Kesehatan Indonesia (Indonesian Journal of Health Administration). 8(2). DOI: 35.https://doi.org/10.20473/jaki.v8i2.2020.35-50

Firda AA, Haksama S (2020). Building health system resilience during COVID-19 Crisis. Jurnal Administrasi Kesehatan Indonesia (Indonesian Journal of Health Administration). 8(2), 1. DOI: https://doi.org/10.20473/jaki.v8i2.2020.1-3

http:///www.sehatnegeriku.kemkes.go.id diakses Kamis,10 September 2020

https://nasional.kompas.com/read/2020/03/17/17244001/mobilitas-pendudukdki- yang-tinggi-sebabkan-peningkatan-kasus-COVID-19.

https://jurnal.umsb.ac.id/index.php/menaramedika/index JMM 2020. p-ISSN 2622-657X, e-ISSN 2723-6862

Law S, Leung AW, Xu C (2020). Severe acute respiratory syndrome (SARS) and coronavirus disease-2019 (COVID-19): From causes to preventions in Hong Kong. International Journal of Infect Dis. 94: 156–163. DOI: https:-//doi.org/10.1016/j.ijid.2020.03.059

Marcelino AVJ, Julius LK. Randang, Kalesaran E. (2020). Peran komunikasi pemerintah dalam pencegahan COVID-19 di kelurahan Uwuran Dua di kabupaten Minahasa Selatan (The role of government communication in preventing COVID-19 in the Uwuran Dua sub-district in South Minahasa district). Retrieved from: https://ejournal.unsrat.ac.id/index.php/actadiurnakomunikasi/article/download/36024/33567

Mashabi S (2020). Mobilitas penduduk DKI yang Tinggi sebabkan peningkatan kasus COVID-19 DKI Jakarta's high population mobility causes an increase in COVID-19 cases). Available online.

Utami RA (2020). Pengetahuan, sikap dan keterampilam masyarakat dalam pencegahan COVID-19 di provinsi DKI JAKARTA (Knowledge, attitudes and skills of the community in preventing COVID-19 in the DKI JAKARTA province). Jurnal Kesehatan Holistic. 4(2).

WHO (2020). Materi Komunikasi risiko COVID-19 untuk fasilitas pelayanan kesehatan (COVID-19 risk communication materials for health care facilities). World Health Organization, Western Pacifik Region. Diakses Kamis, 10 September 2020. Community knowledge, attitudes, and behavior towards social distancing policy as prevention transmitssion of COVID-19 in Indonesia. Jurnal Administrasi Kesehatan Indonesia (Indonesian Journal of Health Administration). 8(2), 4. DOI: https://doi.org/10.2047-3/jaki.v8i2.2020.4-14

Zhang M, Zhou M, Tang F, Wang Y, Nie H, Zhang L, You G (2020). Knowledge, attitude, and practice regarding COVID-19 among healthcare workers in Henan, China. Journal of Hospital Infect. 105(2), 183–187. DOI: https://doi.org/10.1016/j.jhin.2020.04.012

PUBLIC OPINION ABOUT THE IMPLEMENTATION OF PUBLIC ACTIVITY RESTRICTION IN THE PANDEMIC ERA

Putri Chairani Eyanoer[1)], Harriyo Utomo[2)]

1)Department of Community and Preventive Medicine, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia
2)Department of Medical Education, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia

ABSTRACT

Background: Implementation of public activity restrictions has already replaced large-scale social restrictions in Indonesia since January 2021. This policy has been done and changed multiple times to adapt to increasing COVID-19 transmission. This study aimed to examine peoples knowledge and opinion about the implementation of public activity restrictions.
Subjects and Method: This was a cross-sectional study conducted in September 2021. A sample of 301 lay people was selected for this study. The data were collected by questionnaire consisting of 10 questions.
Results: As many as 99% of study participants knew the regulation and 81.1% understood it. 75% of the study participants agreed with working from home. As many as 100% agreed with opening of essential stores. 30.6% agreed with closing worship places. As many as 49.8% agreed with closing amusement parks and playground. 31.2% of the participants disagreed the health protocols.
Conclusion: People have already known and implemented the public activity restrictions and agreed with the regulation.

Keywords: public activity, restriction, policy, transmission, COVID-19, community

Correspondence:
Putri Chairani Evanoer. Department of Community and Preventive Medicine, Faculty of Medicine, Universitas Sumatera Utara, Medan. Jl. Dr. T. Mansur No. 9, Padang Bulan, Medan Baru, Medan 20222, North Sumatera. Email: putrieyanoer@usu.ac.id. Mobile: +62 81370232513.

BACKGROUND

The number of people infected by COVID-19 is increasing every day. Data obtained from World Health Organization (WHO) until August 2nd, 2021 were 198,234,951 confirmed cases, including 4,227,359 deaths. The development of COVID-19 in Indonesia is still increasing in number. Due to the increase in COVID-19 cases, the government has implemented various policies in the form of large-scale social restrictions, lock down, limited scale restrictions, social distancing, new normal, health protocols, and other policies (Napitu et al., 2021).

The implemented policies have always been dynamic, from wearing masks, maintaining distance, washing hands, avoiding crowds, and avoiding mobility. The changes from large-social restrictions to the implementation of public activity have started in January 2021 (Susanna, 2021).

The implementation of public activity has been done and changed from time to time. from the first time applied was January 11 to January 25.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.13

the second application became the micro implementation of public activity started on February 9th, 2021 to February 23th, 2021, and then changed to emergency implementation of public activity from July 3th, 2021 to 20th, 2021, and the last one is 4 levels of implementation of public activity carried out from July 21th, 2021 to August 2nd, 2021 (Ministry of Home Affairs of the Republic of Indonesia (2021).

This study aimed to find people's knowledge and opinion about the implementation of public activity restrictions conducted so far.

SUBJECTS AND METHOD

1. Study Design

This was a descriptive cross-sectional study conducted in September 2021.

2. Population and Sample

The population in this study were lay people (public people). A total of 301 lay people was selected by random sampling.

3. Study Variables

The study variables were knowledge, and the participants understanding the regulation.

4. Operational Definition of Variables

Knowledge is information that a person knows or is aware of about government regulations applied during a pandemic.

Understanding of the regulation is is people's understanding of the rules that are applied and their implementation in everyday life.

5. Instruments

The data were collected from the participants through self-made survey questionnaire that consist of 10 questions.

6. Data Analysis

The frequency distribution data were reported descriptively.

RESULTS

1. Characteristic of study subjects

The majority characteristics of the participants were 151 females (50.2%), age in the range of 18-24 years were 108 (35.9%), university graduates were 179 people (59.5%), entrepreneurs were 74 people (24.6%), no history of COVID-19 infection were 208 people (69.1%) and vaccinated two times were 153 (50.8%) people (Table 1).

Table 2 showed that 298 people (99%) have heard about the implementation of publicactivity restrictions but only 244 people (81.1%) understand the policy. Table 2 also showed that 147 people (48.8%) agree that 3 to 10 people cangather in one place at one time.

Table 3 showed the results showed that the majority of the participants strongly agreed to essential stores should open 100% were about 43.2%, places of worship closed were about 30.6%, amusement parks and playgrounds should be closed 49.8%.

Table 3 also showed that the participants agreed to work from home should be 75% were about 33.2%, this restriction could suppress COVID-19 transmission were about 33.6%, the restriction interfered with daily life activities were about 34.6%, but disagree when asked whether the health protocol carried out by the community had been doing well were about 31.2%.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.13

Table 1. Characteristics of Study Subjects

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18-24	108	35.9
	25-34	56	18.6
	35-44	21	8
	45-55	56	18.6
	≥55	57	18.9
Gender	Female	151	50.2
	Male	150	49.8
Education (Graduates)	Primary school	5	1.7
	Junior high school	14	4.7
	Senior high school	103	34.2
	University	179	59.5
Job	Civil servant	65	21.6
	Entrepreneur	74	24.6
	Housewife	41	13.6
	Student	96	31.9
	Jobless	25	8.3
History of COVID-19	Yes	93	30.9
	No	208	69.1
COVID-19 Vaccination	Not vaccined	85	28.2
	Vaccinated 1 time	63	20.9
	Vaccinated 2 times	153	50.8

Table 2. Knowledge of the policy

Question	Frequency (n)	Percentage (%)
Do you ever hear theimplementation of public activity restrictions?		
Yes	299	99
No	3	1
Do you understand the rule inthe implementation of public activity restrictions?		
Yes	244	81.1
No	57	18.9
How many people can gather in one place at one time?		
<3	134	44.5
3-10	147	48.8
11-20	20	6.6

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.13

Table 3. Statement and Opinions about the Policy

Question	SA		A		NS		D		SD	
	n	%	n	%	n	%	n	%	n	%
1. 75% workers should work from home in this restriction.	91	30.2	100	3.2	58	19.3	33	11.0	19	6.3
2. Essential store should be open 100% in this restriction.	130	13.6	100	33.2	43	14.3	16	5.3	12	4.0
3. Places of worship should be closed in this restriction.	92	30.6	65	21.6	56	18.6	35	11.6	53	17.6
4. Amusement parks and playground should be closed in this restriction.	150	49.8	82	27.2	28	9.3	15	5.0	26	8.6
5. Health protocols carried out by community so far are doing well.	18	6.0	38	12.6	67	22.3	94	31.2	84	27.9
6. This restriction can suppress COVID-19 transmission.	82	27.2	101	33.6	72	23.9	34	11.3	12	4.0
7. This restriction interferes with daily life activities.	85	28.2	104	34.6	62	20.6	32	10.6	18	7.0

DISCUSSION

The implementation of public activity restrictions is one of the policies made by the government to suppress COVID-19 transmission. The first activity that must be done is socialization. This implementation is started by socializing with the parties involved such as the head and the community in each district. This must be informed so that the public will not be surprised by the new policy that will be implemented. In addition, socialization was carried out to inform the technical implementation of this implementation. Technical implementation is very important to convey so that there are no mistakes or lack of information if there are people who ask about this policy. The result of this study showed that the majority of the participants has known and understood about the implementation of public activity restriction in the pandemic era.

In this study, the participants have strongly agreed and agree with opinions about the regulation. These showed that the participants' opinions were in line with the policy made by the Ministry of Internal Affairs in the first policy. The regulation was based on four elements for the parameter such as death rate above the national average, cure rate is below the national cure rate, active case rate is above the national average active case rate, hospital bed occupancy rates for Intensive Care Units (ICUs) and isolation rooms above 70% (Ministry of

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.13

Home Affairs of the Republic of Indonesia, 2021).

Maintaining health protocols such as physical distancing, face masks usage, and eye protection has been proven to prevent people-to- people transmission of COVID-19 (Chu et al., 2020). This study also showed that most participants (33.6%) agreed that health protocol could suppress the transmission of COVID-19. Besides that, other health protocol that should be kept doing includes maintaining a healthy lifestyle, washing hands, avoiding crowds, and avoiding mobility (Susanna, 2021). But the majority of the participants (31.2%) disagree that the health protocols carried out by the community had been going well.

Government interventions may cause substantial economic and social costs while affecting individuals' behavior, mental health and social security (Haug et al., 2020). Individual's ability to use available resources (such as technology, food, work, and a sense of security, comfort) in meeting basic needs and carrying out social functions. COVID-19 pandemic makes the resilience of the community experience social vulnerability. Social vulnerability causes decreased productivity, disrupted livelihoods, and the emergence of social anxiety disorders in society (Napitu et al., 2021). This study showed that participant's daily life (34.6%) was disturbed by this regulation.

The impact of social vulnerability causes some people to take three interrelated actions, namely apathy, irrational actions, and criminal acts. We can see apathy in the actions of people who don't care about government instructions to implement health protocols. Irrational actions mean that not a few people believe in various medicinal ingredients and prevention methods so as not to get infected with COVID-19 even though there is no scientific research evidence, panic buying, debt to moneylenders, depression, Suicide, and other maladaptive behaviors. Criminal acts are behaviors that are feared to occur due to social vulnerability to the COVID-19 pandemic, such as theft, mugging, pickpocketing, burglary, looting, and even murder.

Criminal acts are carried out because of the difficulty of meeting needs due to difficulty in finding a livelihood, layoffs occur, economic conditions, the low purchasing power of the people. To maintain the survival of people who do not have good access to capital, a short route that is at risk of being carried out is in the form of criminal acts and behavior social deviation (Napitu et al., 2021).

This study shows that most of the participants have known and agreed to the regulations made by the government to suppress COVID-19 transmission. This study concludes that the news of the regulation has reached most people in the country. However, the regulation until now had not been effective to suppress the transmission due to indiscipline obeying health protocols. Further changes in the regulation are advised to be made to make the better outcome for the people's daily well-being.

AUTHOR CONTRIBUTION

Putri Chairani Eyanoer concieved and design the study and analysis, perform the analysis and wrote the article.

https://doi.org/10.26911/ICPHmanagement.FP.08.2021.13

Harriyo Utomo collected the data and wrote the article.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGMENT

We would like to thank all the subjects for spending their valuable time to answer the questions.

REFERENCES

Napitu U, Corry C, Matondang KD (2020). Sosialisasi Pembatasan Pelaksanaan Kegiatan Masyarakat (PPKM) Mikro di Kelurahan Bah Kapul (Socialization of Restrictions on the Implementation of Micro Community Activities (PPKM) in Bah Kapul Village). Community Dev. J. DOI: 10.31004/cdj.v2i2.1698

Susanna D (2021). Evaluating the COVID-19 Pandemic Responses. Jurnal Kesehatan Masyarakat . DOI: 10.21109/kesmas.v0i0.5254

Ministry of Home Affairs of the Republic of Indonesia (2021). Instruksi Menteri dalam Negeri Nomor 24 Tahun 2021 tentang Pemberlakuan Pembatasan Kegiatan Masyarakat Level 4 dan Level 3 Corona Virus Disease 2019 di Wilayah Jawa dan Bali (Instruction of the Minister of Home Affairs Number 24 of 2021 concerning the Implementation of Restrictions on Community Activities Level 4 and Level 3 Corona Virus Disease 2019 in the Java and Bali Regions). 2021; 3:6.

Pujaningsih NN, Sucitawathi IGAAGD (2020). Penerapan Kebijakan Pembatasan Kegiatan Masyarakat (PKM) dalam Penanggulangan Wabah COVID-19 di Kota Denpasar (Implementation of the Community Activity Restriction Policy (PKM) in Combating the COVID-19 Outbreak in Denpasar City). J. Ilm. Ilmu Pemerintahan, 6 (3). DOI: 10.25157/moderat.v6i3.3537

Chu DK, Duda S, Solo K, Yaacoub S, Schunemann H (2020). Physical Distancing, Face Masks, and Eye Protection to Prevent Person-to-Person Transmission of SARS-CoV-2 and COVID-19: A Systematic Review and Meta-Analysis. J. Vasc. Surg. Cases, 72 (4), 1500. DOI: 10.1016/j.jvs.2020.07.040

Haug N, Geyrhofer L, Londei A, Dervic E, Desvars-Larrive A, Loreto V, Pinior B, et al. (2020). Ranking the effectiveness of worldwide COVID-19 government interventions. Nature human behaviour, 4(12), 1303–1312. DOI: 10.1038/-s41562-020-01009-0.

TOPIC II :
HEALTH PROMOTION AND BEHAVIOR

META-ANALYSIS THE EFFECT OF OBESITY ON POLYCYSTIC OVARY SYNDROME IN WOMEN OF REPRODUCTIVE AGE

Nabila Aulia Tsaqifah[1)], Rita Benya Adriani[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Considering that insulin resistance is a major contributor to the pathogenesis of the polycystic ovary syndrome (PCOS), obesity exacerbates hormonal and clinical features of PCOS, and women with PCOS appear at higher risk of obesity. This study aimed to explore the effect of obesity on polycystic ovary syndrome in women of reproductive age.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles from Google Scholar, PubMed, BMJ, ScienceDirect, SpingerLink, and Sage databases. The articles were filtered using PICO model, including: (1) Population= women of reproductive age, (2) Intervention= obesity, (3) Comparison= normal body weight, and (4) Outcome= PCOS. The inclusion criteria were full text, cross sectional or cohort studies, and reported adjusted odds ratio (aOR). The articles were collected using PRISMA diagram and the qualitative synthesis was assessed using Review Manager (RevMan 5.3).
Results: 4 studies were selected for qualitative synthesis using meta-analysis. This study showed that obesity in women of reproductive age increased the risk of PCOS 1.21 times than those with normal body weight (aOR= 1.21; 95% CI= 1.00 to 1.48; p= 0.050).
Conclusion: obesity in women of reproductive age increased the risk of PCOS 1.21 times than those with normal body weight.

Keywords: obesity, polycystic ovary sindrome, women of reproductive age

Correspondence:
Nabila Aulia Tsaqifah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: auliatsaqifah@gmail.com. Mobile: 085607389109.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.12

OUTCOME OF PARENTERAL NUTRITION ON LOW BIRTH WEIGHT

Muthia Syafira[1,2], Rasmaya Niruri[1], Wahyu Sedjatiningsih[3]

[1]Masters Program in Public Health, Universitas Sebelas Maret
[2]Study Program in Pharmacy, Universitas Sebelas Maret
[3]Pharmacy Installation, Dr. Moewardi Hospital, Surakarta

ABSTRACT

Background: Infants born prematurely often fail to grow at rates similar to those estimated for the in-utero fetus. Protein and energy deficits during postnatally were directly related to subsequent postnatal growth restriction. Several studies demonstrated that early parenteral nutrition provided benefit for short-term outcomes without evidence of increased morbidity and mortality. This study aimed to investigate outcome of parenteral nutrition on low birth weight.
Subjects and Methods: A cross sectional study was carried out from February to June 2020. A number of 71 LBW infants was selected for this study. The dependent variable was infant weight and mortality. The independent variables were comorbidity, formula milk, length of formula milk consumption, and length of parenteral intake. The data were obtained from medical record and questionnaire. The data were analyzed using a multiple logistic regression.
Results: The risk or mortality in LBW infants increased with formula milk consumption (OR= 38.16; 95% CI= 8.16 to 178.54; p<0.001) and presence of comorbidity (OR= 5.72; 95% CI= 1.34 to 24.44; p= 0.019). Infant weight gain increased with length of formula milk consumption (OR= 3.29; 95% CI= 1.10 to 10.62; p= 0.041). It decreased with short length of parenteral intake (OR= 0.20; 95% CI= 0.06 to 0.63; p= 0.006).
Conclusion: The risk or mortality in LBW infants increases with formula milk consumption and presence of comorbidity. Infant weight gain increases with length of formula milk consumption but decreases with short length of parenteral intake.

Keywords: low birth weigth, parenteral nutrition, mortality, nutritional status

Correspondence:
Muthia Syafira. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: mutsyaf@student.uns.ac.id. Mobile: 085920660180.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.15

PATH ANALYSIS ON THE SOSIOECONOMIC DETERMINANTS OF ANEMIA IN FEMALE HIGH SCHOOL STUDENTS IN KLATEN CENTRAL JAVA

Nurmala Dewayanti[1)], Endang Sutisna Sulaeman[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Iron deficiency anemia affects a large number of women in developing countries, especially during reproductive age. Anemia negatively affects academic performance, productivity, and general wellbeing of adolescents. This study aimed to explore socioeconomic determinants of anemia in female high school students.
Subjects and Method: A cross sectional study was conducted in Klaten, Central Java, in February 2020. A sample of 200 female adolescents aged 15 to 19 years was selected by probability sampling. The dependent variable was anemia. The independent variables were knowledge, family income, menstrual pattern, iron intake. Hemoglobin level was measured by Hemoglobinometer. The other variables were measured by questionnaire. The data were analyzed by a multiple linier regression run on STATA 13.
Results: The risk of anemia in female adolescents increased with low knowledge (b= 2.72; 95% CI= 0.45 to 2.84; p= 0.007), low family income (b= 2.64; 95% CI= 0.41 to 2.82; p= 0.008), poor nutritional intake (b= 3.81; 95% CI= 1.20 to 3.74; p <0.001), irregular menstrual pattern (b= 3.30; 95% CI= 0.79 to 3.11; p <0.001), and did not consume iron tablet (b= 4.24; 95% CI= 1.73 to 4.70; p<0.001).
Conclusion: The risk of anemia in female adolescents increases with low knowledge, low family income, poor nutritional intake, irregular menstrual pattern, and did not consume iron tablet.

Keywords: anemia, female adolescent, path analysis

Correspondence:
Nurmala Dewayanti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: nurmaladewayanti@gmail.com. Mobile: +6287734875004.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.01

EXCLUSIVE BREASTFEEDING, COMPLEMENTARY FEEDING, AND THE RISK OF STUNTING IN CHILDREN UNDER FIVE IN PINRANG REGENCY, SOUTH SULAWESI

Putri Andini Muslimah[1)], Harsono Salimo[2)], Yulia Lanti Retno Dewi[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Pediatrics, Dr. Moewardi Hospital, Surakarta
[3)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Breast milk is an essential nutrition for child growth. Exclusive breastfeeding is followed of provision appropriate complementary feeding may affect linear growth in children. This study aimed to determine the effects of exclusive breastfeeding and complementary feeding on the incidence of stunting in children under five in Pinrang Regency, South Sulawesi, Indonesia.
Subjects and Method: This was an analytic observational study with a cross sectional design. The study was conducted in Pinrang Regency, South Sulawesi, Indonesia, from January to March, 2021. A sample of 200 children under five was selected randomly. The dependent variable was stunting. The independent variables were exclusive breastfeeding, complementary feeding, worm infection, maternal education, maternal height, family income, number of family member, birth weight, and birth length. The data were collected by questionnaire and analyzed by a multiple logistic regression run on Stata 13.
Results: The risk of stunting in children under five increased with non exclusive breastfeeding (OR= 2.57; 95% CI= 1.04 to 6.38; p= 0.041), inappropriate complementary feeding (OR= 3.02; 95% CI= 1.15 to 7.87; p= 0.024), had worm infection (OR= 7.55; 95% CI= 2.96 to 19.23; p <0.001), maternal education <Senior high school (OR= 2.73; 95% CI= 1.13 to 6.63; p= 0.026), low family income (OR= 2.73; 95% CI= 1.06 to 7.03; p= 0.038), family member ≥5 (OR= 7.88; 95% CI= 3.04 to 20.42; p< 0.030), maternal height <150 cm (OR= 2.66; 95% CI= 1.10 to 6.43; p= 0.030), low birth weight (OR= 3.75; 95% CI= 1.42 to 9.88; p= 0.008), and birth length <48 cm (OR= 6.28; 95% CI= 2.56 to 15.40; p<0.001).
Conclusion: The risk of stunting in children under five increases with non exclusive breastfeeding, inappropriate complementary feeding, has worm infection, maternal education <Senior high school, low family income, family member ≥5, maternal height <150 cm, low birth weight, and birth length <48 cm.

Keywords: stunting, exclusive breastfeeding, complementary feeding.

Correspondence:
Putri Andini Muslimah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ptriandn15@gmail.com. Mobile +6285331663133.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.02

ASSOCIATION BETWEEN GESTATIONAL AGE AND ASPHYXIA IN INFANTS IN KARANGANYAR HOSPITAL, CENTRAL JAVA

Yulita Endah Mayaningrum[1)], Heni Puji Wahyuningsih[2)], Nining Wiyati[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Study Program in Midwifery, Health Polytechnics Ministry of Health Yogyakarta

ABSTRACT

Background: Asphyxia has been hypothesized with hemostatic abnormalities in later stage of life. Perinatal asphyxia can occur due to maternal condition during pregnancy, uterine, or placenta and umbilical cord conditions, and prematurity. The purpose of this study was to examine the association between gestational age and asphyxia in infants in Karanganyar Hospital, Central Java, Indonesia.
Subjects and Method: A case control retrospective study was conducted in Karanganyar, Central Java, in January 2017. A sample of 204 infants was selected for this study. The study subjects were divided into two groups: (1) 102 infants with asphyxia (case group) and (2) 102 infants without asphyxia. The dependent variable was asphyxia. The independent variable was gestational age. The data were obtained from medical record. The data were assessed using Chi-square.
Results: Gestational age <37 weeks or >42 weeks increased the risk of asphyxia and it was statistically significant (OR= 3.42; p= 0.003).
Conclusion: Gestational age <37 weeks or >42 weeks increases the risk of asphyxia.

Keywords: asphyxia, gestational age, maternal age, parity

Correspondence:
Yulita Endah Mayaningrum. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: yulita.maya95@-gmail.com. Mobile: +6285817887585

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.03

COMBINATION ORAL CONTRACEPTIVE ON THE RISK OF VENOUS THROMBOEMBOLI: A META-ANALYSIS

Putri Yunita Sari[1)], Eti Poncorini Pamungkasari[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Drospirenone-containing oral contraceptives, which have become available more recently, have a mineralocorticoid-derived progestational component. Previous studies hypothesized that mineralocorticoid-derived progestational component had higher effect on the venous thromboembolism. This study aimed to assessed combination oral contraceptive on the risk of venous thromboemboli.
Subjects and Method: A systematic review and meta analysis study was conducted by collecting articles from Google Scholar, PubMed, Research Gate, Scopus, Springer Link, and Science direct databases. Keywords used oral contraceptive" OR "combined oral contraceptives" OR "risk factor" AND "venous thrombolism" OR "VTE" AND "family planning". The inclusion criteria were full text case control studies published from 2000 to 2020. The articles were assessed using RevMan 5.3 software.
Results: A review from 9 studies showed that combination oral contraceptive elevated the risk of venous thromboemboli in family planning acceptors (aOR= 2.95; 95% CI= 1.80 to 4.84; $p<0.001$). No publication bias was found in this study.
Conclusion: Combination oral contraceptive elevates the risk of venous thromboemboli in family planning acceptors.

Keywords: combination oral contraceptive, venous thromboemboli, family planning

Correspondence:
Putri Yunita Sari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: puyunita16@gmail.com. Mobile: 08818794685.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.04

THE EFFECT OF ORAL CONTRACEPTIVE ON BREAST CANCER: A META-ANALYSIS

Dilma'aarij[1)], Setyo Sri Rahardjo[2)], Eti Poncorini Pamungkasari[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Oral contraceptive is the most commonly prescribed contraceptive in women of reproductive age. Estrogen, as a component of oral contraceptives, has been postulated induce the risk of breast cancer. The purpose of this study was to assessed the effect of oral contraceptive on breast cancer using meta-analysis.
Subjects and Method: A systematic review and meta analysis study was conducted by following PRISMA flow diagram. The study collected articles from PubMed, Science Direct, and Google Scholar databases. Keywords used "Women aged 15-80 Years" OR "Women of Menopause" AND "Contraceptive Pills" AND "Breast Cancer". The inclusion criteria were full text observational studies, published from 2010 to 2020, used English language, and reported adjusted Odds Ratio. The articles that met the criteria were assessed using RevMan 5.3 application program.
Results: 10 case control studies were analyzed for meta analysis. This study found that oral contraceptive had possibility to breast cancer 1.48 times than non hormonal contraceptive (aOR= 1.48; 95% CI= 1.16 to 1.90; p= 0.002).
Conclusion: Oral contraceptive increases the risk of breast cancer 1.48 times than non hormonal contraceptive.

Keywords: oral contraceptive, breast cancer

Correspondence:
Dilma'aarij RiskiAgustia. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: dilmarij@gmail.com. Mobile: 082230100871.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.05

META-ANALYSIS: THE EFFECT OF PRENATAL YOGA ON BIRTH LABOR DURATION

Meida Siwi Riawati[1)], Uki Retno Budihastuti[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Departement of Obstetrics and Gynecology, Dr. Moewardi Hospital, Surakarta
[3)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Facilitation of a good childbirth experience requires use of self-comforting techniques that can help relieve pain and enhance labor progress. Yoga is an intervention based on mind and body interconnectedness, is one non-pharmacological method that can be used for assisting with and help women become accustomed to the natural, instinctive yoga-like positions often preferred during labor and delivery. Therefore, yoga can be an effective way to empower women during labor and to assist in attaining and maintaining their optimal level of functioning. This stduy aimed to investigate the effect of prenatal yoga on birth labor duration using systematic review and meta-analysis.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles published from 2005 to 2021. Articles search source were PubMed, Science Direct, Springer Link, Google Scholar, and Chorance Library databases. The inclusion criteria were English full text and randomized controlled trial. The articles were filtered using PICO model, including: (1) Population= pregnant women, (2) intervention= prenatal yoga, (3) comparison= non prenatal yoga, and (4) outcome= labor duration. Quantitative data analysis was processed by calculating standardized mean difference using Review Manager (RevMan 5.3).
Results: 9 articles were included for this meta-analysis. This study reported that prenatal yoga lowered labor duration (SMD= 0.88; 86% CI= -1.31 to -0.44 $p<0.001$).
Conclusion: Prenatal yoga lowers labor duration.

Keywords: labor duration, prenatal yoga, randomized controlled trial

Correspondence:
Meida Siwi Riawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: meida.siwi.r@gmail.com. Mobile: 087824093041.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.06

RELATIONSHIP BETWEEN ORAL CONTRACEPTION AND THE RISK OF BREAST CANCER

Bening Rahimi Titisari[1)], Vitri Widyaningsih[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Oral contraceptive uptake has been linked to an increased risk of breast cancer in the current studies. A systematic review and meta-analysis was conducted to investigate the relationship between oral contraception and the risk of breast cancer.
Subjects and Method: A systematic review and meta analysis was conducted to assess the association between oral contraceptive and the risk of breast cancer. This study collecting articles published from Google Scholar, PubMed, and Sciencedirect electronic databases, from 2010 to 2021. The inclusion criteria were full text, case control study, and reporting adjusted odd ratio. The selected articles were analyzed using PRISMA guideline and quantitative data were assessed by Revman 5.3 application program.
Results: 7 case control studies involved 1,809 cases and 1,829 control study subjects. Oral contraception increased the risk of breast cancer 2.51 times (aOR= 2.51; 95% CI= 2.04 to 3.07; $p < 0.001$). No publication bias was found in this study.
Conclusion: This meta analysis provides evidence of oral contraceptive use increases risk of breast cancer.

Keywords: oral contraceptive, breast cancer, meta analysis

Correspondence:
Bening Rahimi Titisari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A Surakarta 57126, Central Java. Email: dr.beningbiru@gmail.com Mobile: 082194287848.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.07

EFFECTS OF LOW AND SEVERE UNDERWEIGHT ON THE RISK OF CHILD DYING FROM HIV/AIDS: A META-ANALYSIS

Dyah Ambarwati[1)], Yulia Lanti Retno Dewi[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Malnutrition in the background of HIV/AIDS is a complex medical condition contributing to premature death and the development of comorbidities for affected children. A systematic review and meta-analysis was conducted to examine the effects of low and severe underweight on the risk of child dying from HIV/AIDS: a meta-analysis.
Subjects and Method: A meta analysis study was conducted by collecting articles from Google scholar and PubMed databases. The article search method is carried out using several methods, including boolean operators, handsearching, keywords, and MesH. The inclusion criteria were cohort study. The articles were systematically collected by PRISMA-P flow chart. Selected articles were analyzed using Review Manager 5.3 application software.
Results: Low body weight (aHR= 2.14; 95% CI= 1.92 to 2.39; p<0.001) and severe low body weight (aHR= 2.86; 95% CI= 1.76 to 4.64; p<0.001) increased the risk of child death infected by HIV/AIDS.
Conclusion: Low body weight and severe low body weight increase the risk of child death infected by HIV/AIDS.

Keywords: low body weight, severe low body weight, child death, HIV/AIDS

Correspondence:
Dyah Ambarwati. Masters Program in Public Health, Universitas Sebelas Maret, Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ambarwati.dyah27@gmail.com. Mobile: +6287735486570.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.08

SMOKING AND ITS ASSOCIATION WITH ECTOPIC PREGNANCY: A META ANALYSIS

Ridha Rossela Yanuari[1)], Eti Poncorini Pamungkasari[2)], Vitri Widyaningsih[2)]

[1)]Masters Program in Public Health,Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Over 98% of ectopic pregnancies implant in the Fallopian tube but the aetiology of tubal implantation is largely unknown. Transport of the embryo through the Fallopian tube is controlled by a combination of smooth muscle contractility and ciliary beating. Epidemiological studies have shown that cigarette smoking is a major risk factor for tubal ectopic pregnancy. Despite, the exact mechanism by which cigarette smoking leads to ectopic pregnancy remains uncertain. A systematic review and meta-analysis was conducted to explore the the association between smoking and ectopic pregnancy.
Subjects and Method: A systematic review and meta-analysis was carried out using PRISMA flow diagram. The articles were collected from PubMed, Science Direct, and Google Scholar databases, which published from 2000 to 2020. The inclusion criteria were full text, and case control study. The keywords used “smoking AND ectopic pregnancy" AND multivariate; smoking OR cigarette AND "ectopic pregnancy" OR “tubal pregnancy” AND multivariate. Articles that met the criteria were analysis using Revman 5.3 software application.
Results: Meta-analysis from 7 studies showed that smoking increased the risk of ectopic pregnancy 2.20 times in women of reproductive age than those who did not smoke (aOR= 2.20; 95% CI= 1.45 to 3.34; p= 0.002).
Conclusion: Smoking increases the risk of ectopic pregnancy.

Keywords: ectopic pregnancy, smoking, meta-analysis

Correspondence:
Ridha Rossela Yanuari. Masters Program in Public Health, Universitas Sebelas Maret, Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ridharosselayanuari@gmail.-com. Mobile: 085747311182.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.09

GESTATIONAL DIABETES MELLITUS AND ITS RELATIONSHIP WITH MACROSOMIA: A META ANALYSIS

Tantri Yunita Ratna[1)], Yulia Lanti Retno Dewi[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Fetal macrosomia was defined as a birth weight ≥4,000 g. The increased risk of macrosomia in gestational diabetes mellitus is mainly due to the increased maternal insulin resistance. In gestational diabetes mellitus, a higher amount of blood glucose passes through the placenta into the fetal circulation. As a result, extra glucose in the fetus is stored as body fat causing macrosomia. The purpose of this study was to explore the impact of gestational diabetes mellitus on fetal macrosomia.
Subjects and Method: A systematic review and meta-analysis was carried out using PRISMA flow diagram. The articles were collected from PubMed, Science Direct, and Google Scholar databases, which published from 2000 to 2020. The keywords used including "gestational diabetes mellitus" OR "diabetes in pregnancy" AND macrosomia OR "perinatal outcomes". The inclusion criteria were full text, observasional study, using English language, and reporting adjusted Odds Ratio for multivariate analysis. Articles that met the criteria were analysis using Revman 5.3 software application.
Results: 12 cohort studies were reviewed for this study. This meta analysis reported that pregnant women with gestational diabetes mellitus increased the risk to deliver macrosomia babies 1.36 times than those without gestational diabetes mellitus (aOR= 1.36; 95% CI= 1.15 to 1.60; p= 0.003).
Conclusion: Diabetes mellitus increases the risk to macrosomia than those without gestational diabetes mellitus.

Keywords: gestational diabetes mellitus, macrosomia, meta analysis

Correspondence:
Tantri Yunita Ratna. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: tantriyunita66@gmail.com. Mobile:082338868869

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.10

THE EFFECT OF ACUPRESSURE ON HYPEREMESIS GRAVIDARUM IN PREGNANT WOMEN: A META ANALYSIS

Alfira Fitriana[1)], Agus Kristiyanto[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Sport Education, Universitas Sebelas Maret
[3)]Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Nausea and vomiting are common complaints during early pregnancy. Many pharmacological treatments are available for hyperemesis, but concerns about their effect on fetal outcomes make many healthcare providers and pregnant women avoid or minimize the use of medications and prefer non-pharmacological therapies, such as acupressure. The purpose of this study was to determine the effects of acupressure on hyperemesis gravidarum in pregnant women.
Subjects and Method: A systematic review and meta analysis study was carried out using PRISMA flow diagram. Articles collection was obtained from Science Direct, PubMed, Google Scholar databases, which published from year 2005 to 2020. Keywords used accupresure OR pressure OR "accupuncture point" AND "hyperemesis gravidarum" OR nausea OR vomitting AND "randomized controlled trial". Quantitative data were assessed using Review Manager 5.3 (RevMan 5.3) software.
Results: 9 articles showed that acupressure was effective to reduce hyperemesis gravidarum with high heterogeneity between experiments (I^2= 83%; p<0.001). This meta-analysis used random effect model (REM). Pregnant women with acupressure therapy had hyperemesis gravidarum 0.8 units lower than those without acupressure therapy (SMD= -0.84; 95% CI= -1.18 to -0.5; p<0.001).
Conclusion: Acupressure can reduce hyperemesis gravidarum in pregnant women.

Keywords: acupressure therapy, hyperemesis gravidarum, pregnant women

Correspondence:
Alfira Fitriana. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: firafitriana01@gmail.com . Mobile: 085812071211.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.11

ANALYSIS OF BASIC IMMUNIZATION PROGRAM MANAGEMENT TO ACHIEVE UNIVERSAL CHILD IMMUNIZATION AT MOJOSONGO HEALTH CENTER

Tifa Aviandari[1)], Eti Poncorini Pamungkasari[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Tremendous gains have been made in immunizations over the last 40 years. Immunization managers play a critical role in addressing these challenges, as they are the ones who must skillfully manage and integrate each of the elements of a successful immunization program: cost-effective and dependable procurement processes, reliable funding, an effective cold chain, consistent monitoring of vaccine safety and efficacy, effective surveillance systems, productive and proactive communication with the public, and well-trained health workers. This study aimed to explore basic immunization program management to achieve universal child immunization at Mojosongo health center.
Subjects and Method: This was a qualitative study. Five key informants incuded head of Mojosongo health center, head of health family program division, and midwives, were selected by purposive sampling. The data were collected by in-depth interview, document review, and observation. The data is processed through the stages of data reduction, data presentation and drawing conclusions as well as triangulating sources and methods
Results: The implementation of the immunization program has not been fully implemented in accordance with the Immunization Implementation Guidelines. This study also found that: (1) the mobilization of the active role of the community has not been maximized, (2) socialization to vaccine officers has been carried out including pediatricians and midwives/ nurses implementing immunizations, (3) there has been socialization by pediatricians about post-immunization events, (4) suboptimal utilization of the use of the maternal and child handbook as monitoring the immunization schedule, (5) cold chain maintenance in immunization vaccine storage has been carried out optimally by monitoring the temperature of the vaccine storage refrigerator on a regular basis using a temperature monitoring chart.
Conclusion: The management of the immunization program has not been maximally implemented. Community health center is expected to be able to integrate data on family health programs for determining immunization targets, and maximum community participation and cross-sectoral collaboration to achieve universal child immunization.

Keywords: universal child immunization, health management

Correspondence:
Tifa Aviandari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: aviandaritifa@student.uns.ac.id. Mobile: 089682108211.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.13

META-ANALYSIS THE EFFECT OF OBESITY IN MENSTRUAL CYCLE DISORDER

Lutfi Annarahayu[1)], Yulia Lanti Retno Dewi[2)], Rita Benya Adriyani[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret
[3)]Department of Occupational Therapy, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Many women of reproductive age suffer dysmenorrhea and irregular menstrual bleeding, which can lead to serious problems even infertility. Previous studies examine the possibility that overweight and obesity play a role in menstrual problems. This study aimed to investigate the effect of obesity in menstrual cycle disorder.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles from PubMed, ScienceDirect, and Google Scholar. The study population was women of reproductive age. Intervention was obesity with comparison was normal weight. Outcome was menstrual cycle disorder. Keywords used "obesity" AND menstrual irregularity OR menstrual disorder AND cross sectional study". The inclusion criteria were full text and cross sectional study. Selected articles were assessed by Review Manager 5.3.
Results: Meta-analysis involving 8 observational studies showed that obese women of reproductive age were at risk to experience menstrual cycle disorder 4 times than those with normoweight (aOR= 4.19; 95% CI= 1.99 to 8.84; p= 0.002).
Conclusion: Obesity increases menstrual cycle disorder.

Keywords: obesity, menstrual cycle disorder

Correspondence:
Lutfi Annarahayu. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java, Indonesia. Email: Lutfi.annarahayu-@student.uns.ac.id. Mobile: 081910979054

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.14

META-ANALYSIS OF CORRELATION BETWEEN IRON TABLET INTAKE AND LOW BIRTH WEIGHT

Fara Khansa Azizah, Bhisma Murti

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: During the course of pregnancy, as iron stores decrease, the absorption of dietary nonheme iron increases. However, the adequacy of this homeostatic response is limited by the amount of absorbable iron in the diet and the high iron requirements for pregnancy. Therefore, pregnant women need additional iron tablet during pregnancy. This study aimed to investigate correlation between iron tablet intake and low birth weight using meta-analysis.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from PubMed, Google Scholar, and Science Direct databases. The articles were selected by the eligibility criterias, including Population= pregnant women, Intervention= iron tablet, Comparison= non irot tablet, and outcome= low birth weight. Articles that met the criteria were analyzed by Revman 5.3.
Results: 8 studies were selected for meta analysis. This study found that pregnant women who did not consume iron tablet have higher risk to deliver infants with low birth weight (OR= 2.66; CI 95%= 1.38-5.14; p= 0.001).
Conclusion: Pregnant women who do not consume iron tablet have higher risk to deliver infants with low birth weight.

Keywords: iron tablet, low birth weight, nutrional status

Correspondence:
Fara Khansa Azizah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: farakhansa96@gmail.com Mobile: 082243043940.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.16

EFFECT OF MOZART MUSIC THERAPY ON THE SUCKING REFLEX AND BODY WEIGHT GAIN IN INFANTS WITH LOW BIRTH WEIGHT

Anggun Fitri Handayani[1)], Maftuchah[2)], Hermeksi Rahayu[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Undergraduate Applied of Midwifery Science Program, Universitas Karya Husada

ABSTRACT

Background: Music, with its elements, sounds, rhythms, melody and harmony, works as an intermediate object of a relationship that enables the development of a therapeutic process. It may influence both physiological and behavioral aspects. Studies with premature infants report its influence on the reduction in heart and respiratory rates, cortisol levels, and behavioral states of stress, with an increase in oxygen saturation, in the velocity of non-nutritive sucking, and in weight gain, thus reducing hospitalization time. This study aimed to examine effect of mozart music therapy on the sucking reflex and low birth weight.
Subjects and Method: A quasy experiment with no control group was carried out at K.R.M.T Wongsonegoro hospital. A sample of 14 low birth weight infants was selected by accidental sampling. The dependent variables were sucking reflex and bdy weight gain. The independent variable was mozart classic music. The fetus is played classical music using tape recorder for 30 minutes everyday in a month. Infant body weight was measured by infant weight scale. Sucking reflex was measured by observation. Mean difference of sucking reflex and body weight gain before and after intervention were measured by paired t-test.
Results: Sucking reflex after Mozart therapy (Mean= 1.71; SD= 0.26) was higher than before (Mean= 1.07; SD= 0.46) and it was statistically significant ($p<0.001$). Body weight after Mozart therapy (Mean= 2,400.64; SD= 96.5) was higher than before (Mean= 2,280.71; SD= 108.60) and it was statistically significant ($p<0.001$).
Conclusion: Mozart therapy increases sucking reflex and body weight in infants with low birth weight.

Keyword: sucking reflex, body weight, mozart classic music, infants

Correspondence:
Anggun Fitri Handayani. Masters Program in Public Health. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Handayanianggun22@gmail.com. Mobile: +628122-5095742.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.17

OBESITY AS A RISK OF BREAST CANCER IN POST MENOPAUSE WOMEN: A META-ANALYSIS

Shofia Nur Fadhila[1)], Bhisma Murti[1)], Vitri Widyaningsih[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: A woman has an increased risk of breast cancer if her lifelong estrogen exposure is increased due to an early menarche, a late menopause, and/or an absence of childbearing. Recent epidemiological data have shown that late postmenopause has a significant effect on the risk of breast cancer. The purpose of this study was to investigate obesity as a risk of breast cancer in post menopause women.
Subjects and Method: This was a systematic review and meta-analysis. Using the PubMed, Google Scholar, SpringerLink, and Science Direct database, a literature search was conducted for observational studies (published from 2010 to 2021) on the effect of obesity and breast cancer. The following search terms were used: "obesity OR BMI OR "body mass index" AND "breast cancer" OR "breast carcinoma" AND "postmenopausal women". The inclusion criteria were English full text and reported adjusted odds ratio. The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: 10 studies from Tunisia, Africa, Nigeria, Arabia, Iran, Poland, Japan, San Francisco, Brazil, and Guatemala, were involved to meta-analysis. There was high heterogeneity between studies (I^2= 78%; p= 0.05). A random effect model found that obesity increased the risk of breast cancer in postmenopause women (aOR= 1.40; 95% CI= 0.99 to 1.96; p= 0.05).
Conclusion: Obesity increased the risk of breast cancer in postmenopause women.

Keywords: obesity, breast cancer, postmenopause

Correspondence:
Shofia Nur Fadhila. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: shofianurf@gmail.com. Mobile: 085725288680

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.18

IS LOW BIRTH WEIGHT AFFECTED BY ANXIETY DURING PREGNANCY? A META ANALYSIS

Amalia Ulfah Suparno[1)], Uki Retno Budihastuti[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Obstetrics and Gynecology, Dr. Moewardi Hospital, Surakarta

ABSTRACT

Background: Pregnancy is an emotional time, and anxiety is just one of many feelings that pregnant women experience. Untreated antenatal anxiety exposes the fetus to excess glucocorticoids, which may influence birth outcome. This study aimed to investigate the effect of anxiety during pregnancy on low birth weight and premature birth delivery using meta-analysis.
Subjects and Method: A systematic review and meta analysis was conducted by collecting articles from Google Scholar, PubMed, and Science Direct databases. Keywords used “antenatal anxiety”OR “pregnancy anxiety”OR “anxiety during pregnancy” OR “anxiety disorder” OR anxiety OR pregnancy AND “perinatal outcomes”OR “adverse birth outcome” OR “neonatal outcome” OR “low birth weight”OR "infant, low birth weight” OR "Infant, Low Birth Weight". The inclusion criteria were full text cohort studies, published from 2000 to 2021, used English language, and reported adjusted Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: This meta-analysis included 10 observational studies. The study reported that high anxiety during pregnancy increased the risk of premature birth delivery 1.49 times than pregnant women with low anxiety (aOR= 1.49; 95% CI= 1.33 to 1.66; p<0.001). Meta-analysis using 7 observational studies reported that high anxiety during pregnancy increased the risk of low birth weigth 1.55 than pregnant women with low anxiety (aOR=1.55; CI 95% 1.26 hingga 1.91; p< 0.001).
Conclusion: high anxiety during pregnancy increased the risk of poor birth outcome (prematurity and low birth weight).

Keywords: anxiety, low birth weight, premature birth

Correspondence:
Amalia Ulfah Suparno. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: amaliaulfahsuparno1@gmail.-com. Mobile: 0882005711778

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.19

META-ANALYSIS: THE EFFECT OF EARLY BREASTFEEDING INITIATION ON THE HYPOTHERMIA IN INFANTS

Fristyaningrum Hidayah[1)], Yulia Lanti Retno Dewi[2)], Uki Retno Budihastuti[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Birth and immediate postpartum period pose many challenges for the newborn. For years, breast feeding has been known to be an important intervention in developing countries to reduce infant mortality from infectious diseases and malnutrition. However, less attention has been paid to the role of breast feeding in deaths during the first month of life. This study aimed to examine the effect of early breastfeeding initiation on the hypothermia in infants.
Subjects and Method: A systematic review was conducted using the PubMed, Science Direct, Google Scholar and Springerlink, published from 2009 to 2021. The following search terms were used: ("early initiation breastfeeding") AND (“neonatal” OR “infant”) AND (“hypothermia”) AND ("cross-sectional") AND ("adjusted odds ratio”). The systematic review was carried out according to the PRISMA guidelines. The inclusion criteria were English full-text, cross-sectonal study, and reported adjusted Odds Ratio (aOR). Data analyses were performed using RevMan 5.3.
Results: A total of 10 articles from Ethiopia, Uganda, India, dan Nigeria were eligible for quantitative meta-analysis. This study indicated high heterogeneity between groups (I^2= 82%). A random effect model showed that early early initiation of breastfeeding reduced the risk of hypothermia in infants (aOR= 0.37; 95% CI= 0.24 to 0.58; p <0.001).
Conclusion: Early initiation of breastfeeding reduces the risk of hypothermia in infants.

Keywords: early initiation of breastfeeding, hypothermia, meta-analisis

Correspondence:
Fristyaningrum Hidayah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: fristyaningrum95@-student.uns.ac.id. Mobile: 085745611008.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.20

FACTORS ASSOCIATED WITH STUNTING IN CHILDREN AGED 6-59 MONTHS IN SANGKRAH, SURAKARTA, CENTRAL JAVA

Ervia Fahma Dhony[1)], Kusuma Estu Werdani[2)], Purwanti[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Public Health Department, Faculty of Health Science, Muhammadiyah Surakarta University
[3)]Surakarta Health Office, Surakarta, Central Java, Indonesia

ABSTRACT

Background: Stunting results from a complex interaction of individual, household and social (environmental) factors. Epidemiological data are sugested that improvements in maternal care as an important determinant in reducing child stunting. The purpose of this study was to identify factors associated with stunting in children aged 6-59 months.
Subjects and Method: A case control study was conducted at Sangkrah health center, from January 15 to Februari 1, 2020. A number of 164 children aged 6 to 59 months was selected by fixed disease sampling, consisted of 82 stunted children and 82 normal children. The dependent variable was stunting. The independent variables were anemia during pregnancy, history of chronic energy deficiency during pregnancy, and non exclusive breastfeeding. The data were obtained from maternal and child health book and quationnaire. The data were analyzed by a multiple logistic regression.
Results: Maternal anemia during pregnancy (aOR= 2.54; 95% CI= 1.18 to 5.46; p= 0.017), history of chronic energy deficiency during pregnancy (aOR= 2.48; 95% CI= 1.22 to 5.07; p= 0.012), and non exclusive breastfeeding (aOR= 4.40; 95% CI= 2.17 to 8.97; p<0.001) increased the risk of stuting in children aged 6 to 59 months.
Conclusion: Maternal anemia during pregnancy, history of chronic energy deficiency during pregnancy, and non exclusive breastfeeding increase the risk of stuting in children aged 6 to 59 months.

Keywords: stunting, anemia, exclusive breastfeeding, chronic energy deficiency, pregnant women

Correspondence:
Ervia Fahma Dhony. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: fhmervii@gmail.com. Mobile: 082134843244.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.21

PREECLAMPSIA AND ITS CORRELATION WITH INFANT MORTALITY: A META-ANALYSIS

Ruth Apriyanti

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Management of preeclampsia often culminates in induced delivery of a preterm infant. While early termination protects the fetus from an intrauterine death, the newborn then faces increased risks associated with preterm delivery. Recent evidence suggests that preeclampsia is a major cause of perinatal morbidity and death. This study aimed to explore correlation between preeclampsia and infant mortality.
Subjects and Method: A systematic review and meta analysis was conducted using the Pubmed, Google Scholar, and Science Direct databases, published from 2011 to 2021. Eligibility criteria were defined using the PICO model as follows, (1) population: pregnant women, (2) intervention: preeclampsia, (3) comparison: without preeclampsia, and (4) outcome: infant mortality. The following search terms were used: "Preeclamsia" OR "Preeclampsia" AND "Perinatal Death" OR "Perinatal Mortality" OR "Fetal Death" AND "Pregnancy, High-Risk" OR "Pregnancy" OR "Pregnant Women". The inclusion criteria were English full-text, cohort study, and reported adjusted Odds Ratio (aOR). The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: A total of 7 articles from China, Israel, Netherlands, Norway, and United States were eligible for quantitative meta-analyses. This study showed that preeclampsia elevated the risk of infant mortality (aOR= 1.95; 95% CI= 1.22 to 3.11; p= 0.005).
Conclusion: Preeclampsia elevates the risk of infant mortality.

Keywords: preeclampsia, perinatal death, fetal death, infant mortality

Correspondence:
Ruth Apriyanti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ruthyanti94.ras@student.uns.ac.id. Mobile: 081375232120.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.22

IS BABY MASSAGE INCREASE INFANT WEIGHT?

Raina Lola Fauzia[1)], Uki Retno Budihastuti[2)], Rita Benya Adriani[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Obstetrics and Gynecology, Faculty of Medicine, Universitas Sebelas Maret
[3)]Study Program of Occupational Therapy, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: For decades, researchers and therapists alike have been exploring the effects of different kinds of stimulation on weight gain in infants. One of the most effective ways to increase weight gain has been tactile-kinesthetic stimulation, more recently called massage therapy. The purpose of this study was to evaluate the effectiveness of baby massage in increasing infant weight.
Subjects and Method: A systematic review and meta analysis was conducted using the Pubmed, Google Scholar, and Science Direct databases, published from 2011 to 2021. Eligibility criteria were defined using the PICO model as follows, (1) population: children aged 0 to 12 months, (2) intervention: baby massage, (3) comparison: without control, and (4) outcome: infant weight. The following search terms were used: "("baby massage" OR "infant massage") AND ("baby weight gain" OR "body weight") AND ("randomized controlled trial"). The inclusion criteria were English full-text, randomized controlled trial, published from 2011 to 2021, and reported adjusted mean dan standard deviation. The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using RevMan 5.3.
Results: 7 studies from United States, Iran, Singapore, Korea, and China were selected for meta analysis. This study showed that baby massage elevated infant weight 2.16 times than control group (Standardized Mean Difference= 2.16; 95% CI= 0.67 to 3.66; p= 0.005).
Conclusion: Baby massage elevates infant weight 2.16 times than control group.

Keywords: baby massage, infant weight

Correspondence:
Raina Lola Fauzia. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: rainafauzia@student.uns.ac.id. Mobile: +6281215278321.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.23

BIRTHING BALL EXERCISE AND ITS CORRELATION ON LABOR PAIN

Susiana Yuni Astuti[1)], Uki Retno Budihastuti[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Obstetrics and Gynecology, Dr. Moewardi Hospital/
Faculty of Medicine, Universitas Sebelas Maret
[3)]Study Program of Acupunture, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Pain relief in labour was identified to be one of the most important topics related to pregnancy and childbirth. Birth ball is one of the non-pharmacologic pain relief methods to help mothers cope with the laboring process. It can ease sensations of pain by promoting women's well-being, comfort, and sense of control in labor. This study aimed to evaluate the effectiveness of birthing ball exercise and its correlation on labor pain.
Subjects and Method: This was a systematic review and meta-analysis. Using the PubMed, Science Direct, Google Scholar, and Springerlink database, a literature search was conducted for randomized control trial on the effect of birthing ball exercise on labor pain. The following search terms were used: ("birthing ball exercise") AND ("labor pain") AND ("randomized controlled trial"). The inclusion criteria were English full text and randomized controlled trial. The articles were filtered using PICO model, including: (1) Population= pregnant women aged 18-35 years, (2) intervention= birthing ball exercise, (3) comparison= without birthing ball exercise, and (4) outcome= labor pain. The inclusion criteria were English full-text, published from 2011 to 2020, and reported mean and standard deviation. The systematic review was carried out according to the PRISMA flow diagram. Data analysis were performed using RevMan 5.3.
Results: 6 studies from Unites States, Taiwan, Iran, Turkey, India, and Hongkong were involved for meta-analysis. This study showed that birthing ball exercise reduced labor pain 0.92 units than without birthing ball exercise (Standardized mean difference= -0.92; 95% CI= -1.28 to -0.56; p= 0.005).
Conclusion: Birthing ball exercise significantly reduces labor pain.

Keywords: birthing ball exercise, labor pain

Correspondence:
Susiana Yuni Astuti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: susianayuni.a@student.uns.ac.id. Mobile : +6281390940681.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.24

IS URINARY TRACT INFECTION IN PREGNANT WOMEN AFFECT THE NEONATAL SEPSIS?

Rizqi Amalia Wulandari[1)], Uki Retno Budihastuti[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Obstetrics and Gynecology, Dr. Moewardi Hospital/
Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Neonates are at high risk of early onset neonatal sepsis, which can occur as a result of direct transmission of the maternal colonizers (e.g. bacteria in the maternal vaginal tract, as caused by urinary tract infection) to the newborns during delivery. Neonatal sepsis has also been claimed for contributing on the neonatal deaths. Therefore, better prevention and management of severe neonatal infections including intra-partum antibiotic prophylaxis for at-risk mothers is required. This study aimed to determine the association between urinary tract infection in pregnant women on the neonatal sepsis.
Subjects and Method: A systematic literature search was conducted in multiple databases including PubMed, Science Direct, Google Scholar, and Springerlink to identify case control studies published from 2011 to 2021. The following search terms were used: ("urinary tract infection") AND ("neonatal sepsis") AND ("case control"). The inclusion criteria were full-text and reported adjusted odds ratio (aOR). The systematic review was carried out according to the PRISMA flow diagram. The data were quantitatively analyzed using RevMan 5.3.
Results: There were 6 studies from Ethiopia, Ghana, and Bangladesh that met the eligible criteria for meta-analysis. This study reported that urinary tract infection in pregnant women increased the risk of neonatal sepsis (aOR= 3.54; 95% CI= 2.18 to 5.75; p <0.001).
Conclusion: Urinary tract infection in pregnant women increased the risk of neonatal sepsis.

Keywords: urinary tract infection, neonatal sepsis

Correspondence:
Rizqi AmaliaWulandari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: wulandarizqi@student.uns.-ac.id. Mobile : +6285740488978.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.25

META-ANALYSIS: EFFECT OF TRANSCUTANEOUS ELECTRIC NERVE STIMULATION UPTAKE DURING PREGNANCY ON LABOR PAIN

Fiqi Widyawati[1)], Bhisma Murti[1)], Rita Benya Adriani[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Department of Therapeutic Therapy, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Transcutaneous electrical nerve stimulation (TENS) therapy is a non-invasive peripheral stimulation technique that involves the use of low-voltage electric currents to treat pain. It is widely available in hospital settings and has been proposed as a means of reducing pain in labor. This study aimed to examine the effect of transcutaneous electric nerve stimulation uptake during pregnancy on labor pain.
Subjects and Method: A systematic review and meta-analysis was conducted by collecting articles from PubMed, Google Scholar, and Science Direct databases. Keywords used "pregnancy" OR “pregnant” AND "pregnant women" AND "pregnant" AND "Transcutaneous electrical nerve stimulation" AND "labor pain" AND "Randomized Controlled Trial". Article search is carried out by considering the eligibility criteria, including population= pregnant women, intervention= transcutaneous electric nerve stimulation, comparison= common pregnancy care, and outcome= labor pain. The inclusion criteria were full text, articles were published from year 2001 to 2021, and reported mean and standard deviation. Articles that met the criteria were analyzed by Revman 5.3.
Results: A meta-analysis using 5 primary studies showed that transcutaneous electric nerve stimulation reduced labor pain 0.78 units than common pregnancy care (SMD= -0.78; 95% CI= -1.92 to 0.37; p= 0.190).
Conclusion: Transcutaneous electric nerve stimulation reduces labor pain.

Keywords: transcutaneous electrical nerve stimulation, labor pain

Correspondence:
Fiqi Widyawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: vikiwidyawati808@gmail.com. Mobile: 082231458699.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.26

CORRELATION BETWEEN MATERNAL MID-UPPER ARM CIRCUMFERENCE AND ESTIMATED FETAL WEIGHT

Ratih Hermas Purnasari[1)], Chichik Nirmasari[1)], Siti Haryani[2)]

[1)]Study Program in Midwivery, Universitas Ngudi Waluyo, Ungaran, Central Java, Indonesia
[2)]Study Program in Nursing, Universitas Ngudi Waluyo, Ungaran, Central Java, Indonesia

ABSTRACT

Background: Maternal nutritional status, as estimated by anthropometrics, is an important contributor to fetal growth and infant birth weight. Therefore, simple and inexpensive anthropometric measurements, such as mid-upper arm circumference (MUAC), is used in large-scaled epidemiological studies to derive estimates of lean muscle mass and adiposity. In resource-limited settings, intrauterine growth assessments rely on serial fundal height measurements during antenatal care and determination of intrauterine growth restriction is based on low birth weight for estimated gestational age. This study aimed to investigate correlation between maternal MUAC and estimated fetal weight.
Subjects and Method: A cross-sectional study was carried out at Cemeng village, Sragen, Central Java. A number of 32 aterm pregnant women was selected for this study. The dependent variable was low estimated fetal weight. The independent variable was maternal mid-upper arm circumference (MUAC). Maternal MUAC was measured using standardized midline tape by Ministry of Health. Fetal weight was estimated by measuring uterine fundal height and calculated using Johnson formula. Correlation between maternal MUAC and fetal weight was analyzed by Chi square.
Results: Maternal MUAC <23.5 cm increased the risk of low fetal weight (<2,500 g) 13 times than maternal MUAC ≥23.5 cm (OR= 13.13; 95% CI= 1.85 to 92.96; p= 0.010).
Conclusion: Maternal MUAC <23.5 cm increases the risk of low fetal weight.

Keywords: maternal mid-upper arm circumference, low fetal weight, pregnant women

Correspondence:
Ratih Hermas Purnasari. Study Program in Midwivery, Universitas Ngudi Waluyo Ungaran. Jl. Diponegoro 186, Ungaran, Semarang 50512, Central Java. Email: hermashp@gmail.com. Mobile: +6287700634677.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.27

EFFECT OF OBESITY ON POLYCYSTIC OVARY SYNDROME: META-ANALYSIS

Saktryana Endang Ragil Jayanti, Bhisma Murti

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Polycystic ovary syndrome (PCOS) is the most common hormonal abnormality in reproductive-age women. The reproductive features of PCOS include increased androgen production and disordered gonadotropin secretion leading to menstrual irregularity, hirsutism, and infertility. Obesity is a common finding in women with PCOS and between 40–80% of women with this condition are reported to be overweight or obese. The purpose of this study was to explore the effect of obesity on polycystic ovary syndrome.
Subjects and Method: This was a systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from PubMed, Science Direct, and Google Scholar databases. Research problems were formulated in PICO, as follows: (1) Population= women, (2) Intervention= polycystic ovary syndrome, (3) Comparison= normal, and (4) Outcome= obesity. Keywords used obesity AND PCOS OR BMI AND PCOS AND "logistic regression". The inclusion criteria were full text, articles were published from year 2015 to 2020, case control study, and reported adjusted Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: A meta analysis involved 6 primary studies from United States, Brazil, China, Central China, Iraq, and Pakistan. This study reported that there was no significant correlation between obesity polycystic ovary syndrome (aOR= 1.04; 95% CI= 0.78 to 1.40; p= 0.790).
Conclusion: There is no significant correlation between obesity polycystic ovary syndrome.

Keywords: obesity, body mass index, polycystic ovary syndrome

Correspondence:
Saktryana Endang Ragil Jayanti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: saktryana.agil@gmail.com. Mobile: 082242154117.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.28

EFFECT OF LOW BIRTH WEIGHT ON THE LANGUAGE DELAY IN CHILDREN: META-ANALYSIS

Ruliany Yuni Nurul Hakim[1)], Setyo Sri Rahardjo[2)], Yulia Lanti Retno Dewi[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Previous studies reported that low birth weight children have higher rates of subnormal growth, illnesses, and neurodevelopmental problems. Children with development delay inhibit them to attain failure new development. This study aimed to explore the effect of low birth weight on the language delay in children using meta-analysis.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, Pubmed, and Research Gate databases. Keywords used "Low Birth Weight" AND "Language Delay" "AND "observational study" AND "adjusted odd ratio". The inclusion criteria were full text, observational studies published from year 2008 to 2020, used English language, and reported Odds Ratio. Articles that met the criteria were analyzed by Revman 5.3.
Results: 5 studies from India, Thailand, Taiwan, Japan, and Cairo were reviewed for meta-analysis. This study found that low birth weight increased the risk of language delay in children (aOR= 2.52; 95% CI= 1.90 to 3.35; p<0.001).
Conclusion: Low birth weight increased the risk of language delay in children.

Keywords: low birth weight, language delay, language development

Correspondence:
Ruliany Yuni Nurul Hakim. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: Ruliany27@gmail.-com. Mobile: 082124886320

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.29

THE EFFECTIVENESS OF PRENATAL YOGA ON THE PERVAGINAM BIRTH LABOR: META-ANALYSIS

Ayu Trisni Pamilih

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Preparation for delivery can be effective in decreasing adverse responses during labor. A prolonged duration of labor and other complications can result in a cesarean section. Many forms of antenatal exercise have been developed to improve the readiness of pregnant women in approaching childbirth physically and psychologically, and encourage pervaginam birth labor. This study was performed to observe the effectiveness of prenatal yoga on the pervaginam birth labor.
Subjects and Method: A systematic review and meta-analysis was conducted by PRISMA flow diagram. The articles were collected from Google Scholar, Pubmed, and Science Direct databases. Keywords used "Pregnancy" AND "Prenatal Yoga" AND "Vaginal Delivery" AND "adjusted odds ratio". Eligibility criteria were defined using the PICO model as follows, (1) population: pregnant women, (2) intervention: prenatal yoga, (3) comparison: usual care, and (4) outcome: pervaginam birth labor. The inclusion criteria were English open-access full text and randomized controlled trial study. Articles that met the criteria were analyzed by Revman 5.3.
Results: This meta-analysis combined 6 randomized controlled trial study from India, United States, Iran, and Korea. Thi study showed that prenatal yoga was increased the likelihood of pervaginam birth labor than usual care in pregnant women (aOR= 2.21; 95% CI= 1.15 to 4.26; p= 0.020).
Conclusion: Prenatal yoga is effective in increasing the likelihood of prevaginam birth labor in pregnant women.

Keywords: prenatal yoga, pregnant women, prevaginam birth labor

Correspondence:
Ayu Trisni Pamilih. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: trisniayu97@student.uns.ac.id. Mobile: 081393622900.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.30

THE RELATIONSHIP BETWEEN HORMONAL CONTRACEPTIVE USE AND THE RISK OF BREAST CANCER AMONG WOMEN IN KEDIRI, EAST JAVA

Nurita Nilasari Bunga Kharisma Arifiana Putri, Eko Sri Wulaningtyas

Academy of Midwifery Medika Wiyata, Kediri, East Java

ABSTRACT

Background: In 2020, there were 2.3 million women diagnosed with breast cancer and 685,000 deaths globally. An analysis of data from more than 150,000 women who participated in previous 54 epidemiologic studies showed that, overall, women who had ever used oral contraceptives had a slight (7%) increase in the relative risk of breast cancer compared with women who had never used oral contraceptives. This study aimed to determine the relationship between hormonal contraceptive use and the risk of breast cancer among women.
Subjects and Method: This was a cross-sectional study conducted in Gambiran Hospital, Kediri, East Java, in June 2021. A total of 38 hormonal contraceptive users was selected by total sampling. The dependent variable was breast cancer. The independent variable was hormonal contraceptive use. The data were collected by questionnaire and analyzed using odds ratio and chi-square.
Results: Hormonal contraceptive use was associated with an increased risk of breast cancer, but it was statistically not significant (OR= 1.37; 95% CI= 0.62 to 3.32; p=0.428).
Conclusion: Hormonal contraceptive is associated with breast cancer, but it is statistically not significant.

Keywords: hormonal contraceptive, risk factor, breast cancer

Correspondence:
Nurita Nilasari Bunga Kharisma Arifiana Putri. Academy of Midwifery Medika Wiyata. Jl. Dr. Sahardjo 16 Campurejo Mojoroto Kediri, East Java. Email: nuritanilasari01@-gmail.com. Mobile: +6281259798269

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.31

THE EFFECTIVENESS OF "FATIMA" TO REDUCE STRESS IN POSTPARTUM MOTHERS: A COPING STRATEGY DURING COVID-19 PANDEMIC

Ika Sumiyarsi Sukamto, Siti Nurhidayati, Niken Bayu Argaheni, Luluk Fajria Maulida, Nurul Jannatul Wahidah, Inas Azhar Dwi Haryadi

Midwifery Study Program, Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: During COVID-19 pandemic postpartum mothers face higher risk of experiencing stress. Progressive education, diaphragmatic relaxation, and music are interventions that can be done to reduce stress levels in postpartum mothers. This study aimed to analyze the effect of FATIMA management on lowering stress levels in postpartum mothers during the COVID-19 pandemic.
Subjects and method: This was a quasi-experiment study with pre-post test one group design, conducted in Yogyakarta Community Health Center from July to August 2021. A total of 40 postpartum mothers was selected by total sampling. The dependent variable was stress level. The independent variable was "FATIMA" intervention. FATIMA's intervention was performed for 28 days including educational videos, diaphragm relaxation and music. Stress levels was measured by Perceived Stress Scale (PSS) and analyzed by t-test.
Results: Stress level after FATIMA's intervention (Mean= 25.20; SD= 7.14) was lower than before (Mean= 30.50; SD= 7.37) and it was statistically significant ($p<0.001$).
Conclusion: The FATIMA intervention is effective in reducing stress in postpartum mothers.

Keywords: postpartum mothers, stress, FATIMA management, relaxation, COVID-19

Correspondence:
Ika Sumiyarsi Sukamto. Midwifery Study Program, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: ikasumiyarsi@staff.uns.ac.id. Mobile: +6281548515239.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.32

EFFECTIVENESS OF BEAMS GAME AND PLASTICINE GAME ON COGNITIVE DEVELOPMENT IN EARLY CHILDHOOD EDUCATION, IN KEDIRI, EAST JAVA

Sutik[1)], Zenny Priyanti Lasdiana[2)], Anik Nuridayanti[3)]

[1)]Department in Nursing, School of Health Sciences
Ganesha Husada, Kediri, East Java
[2)]Bachelor Program in Nursing, School of Health Sciences
Ganesha Husada, Kediri, East Java
[3)]Department in Nursing, School of Health Sciences
Ganesha Husada, Kediri, East Java

ABSTRACT

Backgrounds: Cognitive development was the primary thing for children, especially in the golden age period. In Indonesia, data from the Ministry of Education and Culture, 2018, showed that the average number of pre-school age children had low cognitive development (56.4%). The game was one of the efforts to improve cognitive development. This study aimed to analyze the effectiveness of using beams and plasticine games on the cognitive development of pre-school children.
Subjects and Method: This was a quasi-experiment post-test only with control design. The study was conducted in Pelita Ilmu and Dharma Wanita Early Childhood Education, Kediri, East Java, in March 2020. A total of 40 pre-school children were divided into 20 subjects receiving beams game and 20 subjects receiving plasticine game. The dependent variable was cognitive development. The independent variables were using beams and plasticine games. The data was collected by observation sheet assessment AUD and analyzed by Mann Whitney test.
Result: The mean rank of cognitive development pre-school children in the beams game group was 24.93, while the mean rank of the plasticine games group was 15.08, and it was statistically significant (p=0.007)
Conclusion: Beams games is more effective than using plasticine games on the cognitive development of pre-school children.

Keywords: beams game, plasticine game, cognitive development, pre-school

Correspondence:
Sutik. Department in Nursing, School of Health Sciences Ganesha Husada. Jl. Soekarno Hatta Gg. Budaya Cipta 2 No. 2 Kediri, East Java. Email: putrigrace98@yahoo.co.id. Mobile: +6281330783574.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.33

THE ASSOCIATION BETWEEN DYSMENORRHEA AND PHYSICAL ACTIVITY IN DIPLOMA III MIDWIVERY STUDENTS IN SORONG, WEST PAPUA, INDONESIA

Dyan Puji Lestari[1)], Yuni Subhi Isnaini[2)], Bahrah[2)]

[1)]Diploma III Midwifery, Health Polytechnics Ministry of Health Sorong
[2)] Health Polytechnics Ministry of Health Sorong

ABSTRACT

Background: Dysmenorrhea is menstruation accompanied by severe pain and cramps. Adolescents who are experiencing menstrual pain or dysmenorrhea are unable to carry out activities and must rest. This study aimed to determine the association between dysmenorrhea and physical activity in the D-III Midwifery Study Program students of Manokwari.
Subjects and Methods: A cross-sectional study was conducted at the Diploma III Midwifery Study Program, Manokwari, West Papua, in April 2017. A total of 38 midwifery students were selected using a random sampling technique. The dependent variable was physical activity. The independent variable was dysmenorrhea. Data were collected using questionnaires and interviews. Data were analyzed using OR and chi-square test.
Results: As many as 79.0% of midwifery students had moderate activities. Dysmenorrhea was not statistically associated with reduced physical activity in midwifery students (OR= 0.36; 95% CI= 0.73 to 1.81; p= 0.232).
Conclusion: Dysmenorrhea is not statistically associated with reduced physical activity in midwifery students.

Keywords: dysmenorrhea, physical activity, female students.

Correspondence:
Dyan Puji Lestari. Diploma III Midwifery, Health Polytechnics Ministry of Health Sorong. Slamet Riyadi Street, Upper Ambon Village, Manokwari, West Papua. Email: dyanlestari56@gmail.com. Mobile: +6281248194297.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.34

RISK FACTORS FOR UNDERWEIGHT AMONG CHILDREN AGED 6-59 MONTHS IN INDONESIA

Irlina Raswanti Irawan, Sudikno, Aditianti

Center for Research and Development of Public Health Efforts Health Research and Development Agency, Ministry of Health, Indonesia

ABSTRACT

Background: Underweight is a form of malnutrition often associated with increased risk of mortality in children under five years of aged. Underweight is often simultaneously experienced with stunting and wasting. This study aimed to identify risk factors for underweight in children aged 6-59 months in Indonesia.
Subjects and Method: This study was cross-sectional study using Riskesdas data in 2018. The study sample included 47,579 children under five years. The dependent variable was nutritional status. The independent variables included socio-demographic characteristics and illness history. The data were analyzed using logistic regression.
Results: The risk of underweight in children aged 6-59 months increased with age 24-59 months (aOR= 1.84; 95% CI= 1.70 to 1.99; p < 0.001), male (aOR= 1.16; 95% CI= 1.11 to 1.22; p < 0.001), history of tuberculosis (aOR= 1.90; 95% CI= 1.24 to 2.92; p= 0.003), history of diarrhea (aOR= 1.13; 95% CI= 1.05 to 1.21; p < 0.001), birth delivery at home (aOR= 1.56; 95% CI= 1.42 to 1.70; p < 0.001). The risk of underweight in children aged 6-59 months increased with extended family (aOR= 1.19; 95% CI= 1.11 to 1.27; p < 0.001), low maternal education (aOR= 1.34; 95% CI= 1.19 to 1.50; p < 0.001), housewives (aOR = 1.38; 95% CI= 1.18 to 1.62; p < 0.001), unemployed father (aOR= 1.26; 95% CI= 1.09 to 1.45; p= 0.001), mother with a history of underweight (aOR= 1.43; 95% CI= 1.32 to 1.55; p= 0.001), and father with a history of underweight (aOR= 1.51; 95% CI= 1.38 to 1.66; p<0.001).
Conclusion: The risk of underweight in children aged 6-59 months increases with age 24-59 months, male, history of tuberculosis, history of diarrhea, birth delivery at home, extended family, low maternal education, housewives, unemployed father, mothers with a history of underweight, and fathers with a history of underweight.

Keywords: risk factor, underweight, children underfive.

Correspondence:
Irlina Raswanti Irawan. Ministry of Health, Jakarta. Jl. State Printing 29, Central Jakarta, Indonesia. Email: irlina.irawan@gmail.com. Mobile: +628156001773.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.35

THE EFFECT OF COMMUNICATION, INFORMATION, AND EDUCATION SESSION ON NUTRITIONAL STATUS IN CHILDREN UNDER 3 YEARS IN MUHAMMADIYAH HOSPITAL GRESIK, EAST JAVA

Siti Hamidah

Universitas Muhammadiyah Gresik, Gresik, East Java, Indonesia

ABSTRACT

Background: The prevalence of childhood malnutrition remains high in the developing world. Malnutrition rate is high between the ages of 6 to 24 months because breast milk alone is not enough to meet the nutritional needs of the child and other foods are introduced. WHO recommends that children should be introduced to complementary foods at 6 months. It is argued that poor feeding practices are associated with care-givers poor knowledge, lack of information and their being restricted by traditional beliefs. This study aimed to determine the effectiveness of a month-long nutritional communication, information, and education session on increasing nutritional status in children under 3 years of age.
Subjects and Method: This was a randomized control trial conducted at Gresik Muhammadiyah Hospital, Gresik, East Java, Indonesia. A sample of 160 children under 3 years was selected for this study. The sample was allocated randomly into the experimental group and control group with each group consisting of 80 children. The dependent variable was weight for age in z-score. The independent variable was information, communication, and education (ICE). The ICE session was delivered by health cadres every week for a month with mothers of the children under study assigned as the participants of the session. The dependent variable was measured 3 months after the intervention. The body weight was measured by weight scale. The data were analyzed using independent t-test.
Results: After the ICE intervention, the mean weight for age z-score in the experimental group (Mean= 1.50; SD= 1.30) was higher than the mean weight for age z-score in the control group (Mean= -0.50; SD= 1.10), and it was statistically significant (p= 0.023).
Conclusion: A month-long nutritional communication, information, and education session targeted to mothers is effective to increase nutritional status of children under 3 years of age.

Keywords: communication, information, and education, nutritional status, children.

Correspondence:
Siti Hamida. Public Health, Universitas Muhammadiyah Gresik. Jl. Sumatra.101, Mt. Malang, Randuagung, Kebomas, Gresik, East Java. Email: siti_hamidahtw@umg.ac.id. Mobile: +62 81553520203.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.36

DETERMINANTS OF LONG-TERM CONTRACEPTIVE METHOD UPTAKE IN WOMEN OF REPRODUCTIVE AGE IN INDONESIA

Dinda Anindita Salsabilla[1)], Feri Yuda Anggara[2)], Liza Laela Abida[3)], Rizki Kurniawan Saputra[4)]

[1)]Emergency Hospital COVID-19 Wisma Atlet Kemayoran
[2)]Pangandaran District Health Office
[3)]Speech Therapy Study Program, Health Polytechnic of the Ministry of Health Surakarta
[4)]Center for Tropical Medicine FK-KMK, Universitas Gadjah Mada

ABSTRACT

Background: The target of the family planning program for couples of reproductive age was focusing on the group of women of reproductive age. This target includes increasing prevalence of modern contraception and number of active users. The long-term contraceptive methods included tubectomy, implant, and Intra-Uterine Device (IUD). However, most of the active family planning participants preferred injection and pill than the long-term contraceptive. This study aimed to analyze factors affecting the use of long-term contraceptive in women of reproductive age in Indonesia.
Subjects and Method: This study was a cross-sectional study using secondary data from the Indonesia Demographic and Health Survey (IDHS) in 2017. The target population consisted of 20,404 women of reproductive age. A random sample of 4,713 the target population was selected for this study. The dependent variable was the use of long-term contraceptive. The independent variables included maternal age, residence, maternal education, occupation, economic status, parity, household decision-maker, desire of offsprings, family planning services facility, and health insurance statue. The data were analyzed using multiple logistic regression analysis.
Results: The use of long-term contraceptive increased with maternal age >30 years old (OR= 1.10; 95% CI= 1.00 to 1.20; p= 0.027), urban residence (OR= 1.60; 95% CI= 1.40 to 1.70; p<0.001), higher education (OR= 2.60; 95% CI= 2.30 to 2.90; p< 0.001), high economic status (OR= 1.50; 95% CI= 1.40 to 1.60; p< 0.001), parity >2 children (OR= 1.50; CI 95%= 1.40 to 1.70; p< 0.001), shared decision making (OR= 1.50; 95% CI= 1.40 to 1.60; p< 0.001), did not want children (OR= 1.70; 95% CI= 1.60 to 1.90; p < 0.001), and had health insurance (OR= 1.30; 95% CI= 1.20 to 1.40; p< 0.001).
Conclusion: The use of long-term contraceptive in women of reproductive age increases with maternal age >30 years old, urban residence, high maternal education, high economic status, parity >2 children, joint decision-maker, do not want more children, and having health insurance.

Keywords: modern contraception, family planning, women of reproductive age

Correspondence:
Dinda Anindita Salsabilla. Emergency Hospital COVID-19 Wisma Atlet Kemayoran. Jl. HBR Motik, Kebon Kosong, Kemayoran, Jakarta Pusat, Indonesia. Email: dindaaninditasalsa@gmail.com. Mobile: 081249007525.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.37

OPTIMIZING NURSING INTERVENTIONS IN CHILDREN WITH DIARRHEA

Elly Marce Titihalawa, Dwi Kurniasih, Florida Listavia Panggus

Dharma Insan Nursing Academy, Pontianak, Indonesia

ABSTRACT

Background: Diarrhea or gastroenteritis was a watery bowel movements more than three times a day for two consecutive days. Diarrhea can occur in all age groups, both toddlers, children, and adults with various social groups. Diarrhea was the second leading cause of death in children under five years, and nearly 1.7 billion cases of diarrhea occur in children, with a mortality rate of around 525,000. This study aimed to describe the application of knowledge and practice of nursing care in children with diarrhea to prevent hypovolemia risk due to excessive fluid loss.
Subjects and Method: This study was qualitative research with a phenomenological approach conducted at the Pontianak Level II Government Hospital in Central Borneo for two weeks. The samples used in this study were four key informants who are nurses working in the child care room and three triangulated informants from the client's family. The dependent variable was diarrhea in children. The independent variable was optimizing nursing interventions. Data collection was carried out by structured and direct interviews using a tape recorder. The data were analyzed using content analysis method.
Results: This study identified several themes such as sufficiency of fluid needs, hypothermia, and skin integrity damage prevention. In case of diarrhea in children, the nurses should consider the sufficient fluid administration as the primary intervention to overcome the risk of hypovolemia with the conscent of parents.
Conclusion: The sufficient fluid administration is the primary intervention of nursing care for children with diarrhea to prevent the risk of hypovolemia.

Keywords: active fluids, diarrhea, intervention, nurse

Correspondence:
Elly Marce Titihalawa. Dharma Insan Nursing Academy. Pontianak, Indonesia. Jl. Merdeka 55 Pontianak, West Borneo, Indonesia. Email: ellymarce1968@-gmail.com. Mobile: 081348465064.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.38

EFFECT OF *REMAKUDA* JUICE ON HEMOGLOBIN LEVEL AND DYSMENORRHEA IN FEMALE ADOLESCENTS

Zeny Fatmawati, Elis Fatmawati, Elly Rustanti

Husada Jombang Institute of Health Science

ABSTRACT

Background: Menstruation can cause dysmenorrhea and decreased hemoglobin level. Decreased hemoglobin level in female adolescents may be associated with reduced intelligence, learning achievement, and motor development. *Remakuda* juice contains lemon grass, young coconut water, and dates, which help increase hemoglobin level and reduce the intensity of dysmenorrhea. This study aimed to determine the effect of *Remakuda* juice on increasing hemoglobin and decreasing the intensity of dysmenorrhea in female adolescents.
Subjects and Method: This was a quasi experiment using one group pre-test post-test with no control design. This study was conducted in SMPN I Tembelang, Jombang, East Java. A sample of 60 female students was selected for this study. The independent variable was *Remakuda* Juice. The dependent variable was hemoglobin level and dysmenorrhea. Hemoglobin level was measured using a digital haemometer. Dysmenorrhea was measured by Numeric Rating Scale (NRS) and Wong-Baker Pain Rating Scale. The data were analyzed by paired t-test.
Results: Mean hemoglobin level after intervention (Mean= 2.00; SD= 0.00) was higher than before intervention (Mean=1.73; SD=0.45), and it was statistically significant (p= 0.047). Mean dysmenorrhea score after intervention (Mean= 1.43; SD= 0.59) was lower than before intervention (Mean= 2.70; SD= 0.65), and it was statistically significant (p= 0.023).
Conclusion: *Remakuda* juice is effective to increase hemoglobin level and to reduce dysmenorrhea intensity in female adolescents with menstruation.

Keywords: *remakuda* juice, hemoglobin, dysmenorrhea

Correspondence:
Zeny Famawati. Husada Jombang Institute of Health Science. Jl. Veteran, Mancar Peterongan, Mancarmalang, Mancar, Jombang 61481, East Java. Email: zenyjoe123-@gmail.com. Mobile: 082230313559.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.39

THE EFFECT OF REPRODUCTIVE HEALTH GYMNASTICS ON MENSTRUAL PAIN AMONG FEMALE ADOLESCENTS AT SOWI HEALTH CENTER, WEST PAPUA

Bahrah, Yuni Subhi Isnaini

School of Health Polytechnics, Ministry of Health
Sorong, Papua, Indonesia

ABSTRACT

Background: Female adolescents entering puberty will experience menstruation. They are at risk of experiencing dysmenorrhea or menstrual pain. One of the non-pharmacological therapies that may be beneficial to overcome dysmenorrhea is reproductive health exercise. This exercise may increase the production of endorphin and serotonin, which have pain reducing effect. This study aimed to analyze the effect of reproductive health gymnastics on menstrual pain among female adolescents.
Subjects and Method: A randomized controlled trial was conducted at Sowi Health Center, Manokwari, West Papua. A sample of 20 female adolescents aged 12-15 years was selected at random. The dependent variable was dysmenorrhea. The independent variable was reproductive health gymnastics. The intervention was given three times a week with 15-20 minutes for one month. Dysmenorrhea was measured by visual analog scale (VAS). Pain level before and after the intervention was assessed by paired t-test.
Results: Mean of dysmenorrhea after reproductive health gymnastic (Mean= 2.00; SD= 0.10) was lower than before (Mean= 2.60; SD= 0.90), and it was statistically marginally significant (p= 0.067).
Conclusion: Reproductive health gymnastics is effective in reducing dysmenorrhea in female adolescents.

Keywords: female adolescents, menstrual pain, reproductive health gymnastics

Correspondence:
Bahrah. Health Polytechnic, Ministry of Health, Sorong. Jl. Slamet Riyadi, Ambon Village, Manokwari, West Papua, Indonesia. Email: rha_poe@yahoo.co.id. Mobile: +62812482-96303

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.40

THE EFFECT OF ANTENATAL FAMILY CULTURALLY BASED-EDUCATION ON KNOWLEDGE AND PRACTICE ABOUT MATERNAL PRENATAL HEALTH AND NUTRITION

Diyan Indriyani[1)], Esti Yunitasari[2)], Sri Wahyuni[3)]

[1)]Doctoral Program in Nursing, Faculty of Nursing,
Airlangga University, Surabaya, Indonesia
[2)] Faculty of Nursing, Airlangga University, Surabaya, Indonesia
[3)]Faculty of Health Sciences, Muhammadiyah University
at Jember, East Java, Indonesia

ABSTRACT

Background: Previous studies show that educational intervention delivered to both mothers and other family members in a group setting had a greater impact on improving neonatal health and survival in low and middle income countries. This study aimed to determine the effect of family culturally based education intervention on maternal knowledge and practice about prenatal nutrition and health.
Subjects and Methods: This was a quasi-experiment using pre-post test with no control design. A sample of 100 pregnant women were selected at random from Kalisat Hospital, Jember, East Java. An additional sample of 100 family members were also selected alongside the selected pregnant women. A family culturally-based education intervention was implemented to this sample. The dependent variables included maternal knowledge and practice about prenatal maternal health and nutrition. The dependent variables were measured before and after intervention by questionnaire. The independent variable was family culturally-based education intervention. The data were analyzed using paired t-test.
Results: The mean score of maternal knowledge about nutrition after the intervention (Mean= 72.20; SD= 8.64) was higher than before (Mean= 58.00; SD= 6.99), and it was statistically significant (p= 0.023). The mean score of maternal knowledge about the negative impact of malnutrition during pregnancy after the intervention (Mean= 74.80; SD= 10.29) was higher than before (Mean= 54.80; SD= 9.12) and it was statistically significant (p= 0.031). The mean score of pregnant women's about protein nutrition as healthy nutrition during pregnancy after the intervention (Mean= 74.00; SD= 7.56) was higher than before (Mean= 52.00; SD= 7.08) and it was statistically significant (p=0.001). The mean score of knowledge about monitoring fetal health at home after the intervention (Mean= 73.60; SD= 7.17) was higher than before (Mean= 54.40; SD= 8.43) and it was statistically significant (p=0.030). The mean score of nutritional consumption of pregnant women after the intervention (Mean = 83.80; SD = 9.41) was higher than before (Mean = 69.00; SD = 7.92) and it was statistically significant (p = 0.021).
Conclusion: Family culturally based education intervention is effective in improving knowledge and practice about prenatal nutrition and health in pregnant women.

Keywords: family culturally based education, nutrition, fetal health, pregnant women

Correspondence:
Diyan Indriyani, Doctoral Program in Nursing, Faculty of Nursing, Airlangga University, Jln. Mulyorejo, Surabaya, 60115. Email diyan.indriyani-2020@fkp.unair.ac.id_mobile +6281336237976.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.41

EFFECT OF EXCLUSIVE BREASTFEEDING ON STUNTING IN CHILDREN UNDER FIVE AT PEDAN HEALTH CENTER, KLATEN, CENTRAL JAVA, INDONESIA

Anik Kurniawati, Fatma Vera Kusuma, H. Paryono

Health Polytechnics, Ministry of Health Surakarta, Central Java

ABSTRACT

Background: Stunting has been associated with increased child morbidity and mortality, lower educational performance during childhood, and later-life reduced socioeconomic status, and increased metabolic diseases. Nutrition is one of the key factors to achieve adequate child growth and development along with additional individual, household, and contextual factors. In particular, breastfeeding has been associated with multiple maternal and child health benefits. The purpose of this study was to examine the effect of exclusive breastfeeding on stunting in children under five in Pedan health center, Central Java.
Subjects and Method: This was a case control study conducted at Pedan health center, Klaten, Central Java, Indonesia. A sample of 82 children under five was selected by purposive sampling. The dependent variable was stunting. The independent variable was exclusive breastfeeding. The data were collected by questionnaire and analyzed by Chi-square.
Results: Chilren with non exclusive breastfeding were at risk for stunting than those with exclusive breastfeding (OR= 3.61; 95% CI= 1.50 to 8.64; p= 0.003).
Conclusion: non exclusive breastfeding were at risk for stunting

Keywords: exclusive breastfeeding, stunting, children under five

Correspondence:
Anik Kurniawati. Health Polytechnic Surakarta Ministry of Health. Jl. Letjend Sutoyo Mojosongo, Surakarta, Central Java, Indonesia. Email: anikpoltek@gmail.com. Mobile: 081228545894.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.42

PREVALENCE AND RISK FACTORS OF STUNTING IN CHILDREN AGED 0-23 MONTHS IN INDONESIA

Sudikno[1)], Dodi Izwardy[1)], Sugeng Eko[2)], Irlina Raswanti Irawan[1)], Aditianti[1)], Sandjaja[2)]

[1)]Research and Development Center for Public Health, Health Research and Development Agency, Jakarta, Indonesia
[2)]Nutrition and Food Experts Society of Indonesia (Pergizi Pangan), Jakarta, Indonesia

ABSTRACT

Background: Growth stunting is considered an important indicator of child health inequalities. It can be caused by several factors in both pre- and post-natal phases of development, some of these factors include poor nutrition, infectious diseases, and household environment. A global review of stunting in low- and middle-income countries identified growth restriction in-utero and lack of access to sanitation as the main drivers of stunting. This study aimed to investigate prevalence and risk factors of stunting in children aged 0-23 months in Indonesia.
Subjects and Method: This was a cross-sectional study conducted using secondary data from Indonesian Basic Health Research, 2018. A sample of 10,799 children aged 0-23 months in Indonesia was selected for this study. The dependent variable was stunting. The independent variables were gender, age group, region (rural/urban), birth weight, birth length, and maternal height. The data were analyzed using a multiple logistic regression.
Results: The prevalence of stunting in children aged 0-23 months, 0-11 months, and 12-23 months was 28.9%, 22.4%, and 36.8%, respectively. The risk of stunting in children aged 0-23 months in Indonesia increased if male (aOR= 1.32; 95% CI= 1.21 to 1.44; p< 0.001), aged 12-23 months (aOR= 2.05; 95% CI= 1.88 to 2.22; p< 0.001), living in rural areas (aOR= 1.21; 95% CI= 1.11 to 1.32; p< 0.001), low birth weight (aOR= 1.78; 95% CI= 1.48 to 2.15; p< 0.001), birth length <48 cm (aOR= 1.50; 95% CI= 1.35 to 1.66 p< 0.001), and maternal height <145 cm (aOR= 1.93; 95% CI= 1.65 to 2.26; p< 0.001).
Conclusion: The risk of stunting in children aged 0-23 months in Indonesia increases if male, aged 12-23 months, living in rural areas, low birth weight, birth length <48 cm, and maternal height <145 cm.

Keywords: stunting, risk factors, children under five

Corespondence:
Sudikno. Center for Research and Development of Community Health Efforts. Jl. Percetakan Negara 29, Central Jakarta, Indonesia. Email: onkidus@gmail.com. Mobile: +62 81316350502.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.43

PRACTICE OF TETUN TRIBE CULTURE IN MATERNITY CARE IN SILAWAN, BELU, EAST NUSA TENGGARA, INDONESIA: A QUALITATIVE STUDY

Maria Paula Marla Nahak[1)], Elisabeth Rohan[1)], Angela Muryanti Gatum[2)]

[1)]Study Program of Nursing, Universitas Timor, Kefamenanu, East Nusa Tenggara
[2)]Study Program of Nursing, UNiversitas Citra Bangsa, Kupang, Rast Nusa Tenggara

ABSTRACT

Background: Incorrect cultural practices during pregnancy contribute the root of maternal and child health problems in rural areas. This study aimed to investigate practice of Tetun Tribe culture in maternity care.
Subjects and Method: This was a quantitative study with phenomenology approach, conducted at Silawan, Belu, East Nusa Tenggara, Indonesia, from January to February 2019. Key informants in this study were 5 members of the Tetunese family selected by purposive sampling. The data were collected by in-depth interview, non-participating observation, and document review. The data were analyzed by Miles and Huberman method.
Results: Traditional pregnancy care in the form of abdominal massage by traditional shamans using coconut oil and blessing water was still carried out among pregnant women in Silawan, East Nusa Tenggara. Pregnant women also avoided certain foods such as eggs, octopus, shrimp, fish, and rice crust.
Conclusion: Traditional pregnancy care is still carried out by pregnant women in Silawan Village, Belu Regency. Prevention efforts should be made to increases health promotion and the integration of cultural beliefs with professional health practices.

Keywords: culture, pregnancy care, Tetunese

Correspondence:
Maria Paula Marla Nahak. Universitas Timor. Jl. Sasi, Kefamenanu, East Nusa Tenggara, Indonesia. Email: paulamarla@unimor.ac.id. Mobile: +62 82328282282.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.44

THE EFFECT OF BETEL LEAVES BOILED WATER ON THE PERINEAL TEAR HEALING TIME IN POST-PARTUM WOMEN AT NGEMPLAK HEALTH CENTER, BOYOLALI

Henik Istikhomah, Danik Marlisa, Dewi Susilowati

Department of Midwifery, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: Perineal wound care can be done by pharmacological and non-pharmacological methods. Pharmacological treatment using antibiotic drugs, while non-pharmacological perineal wound care is using traditional medicine or natural ingredients that have few or no side effects, one of which is using betel leaf. This study aimed to examine the effect of betel leaves boiled water on the perineal tear healing time in post-partum women at Ngemplak Community Health Center, Boyolali.
Subjects and Method: This was a quasi-experiment with posttest only control group design conducted at Ngemplak Community Health Center, Boyolali, Central Java. A sample of 22 postpartum women from 0 to day 3 of perineal injuries was selected and divided into two groups: (1) Intervention group; and (2) Control group. The dependent variable was perineal healing time in days. The independent variable was the use of betel leaves boiled water. The data were collected by observation. The data were analyzed by Mann Whitney.
Results: The majority of post-partum women in this study were at age 20-35 years old, high school level of education, and multipara. The duration of perineal tear healing in the intervention group (Mean= 5.54; SD= 0.32) was faster than that of in the control group (Mean= 6.54; SD= 0.54), and it was statistically significant (p= 0.034).
Conclusion: The use of betel leaves boiled water is effective in reducing the perineal tear healing time in post-partum women.

Keywords: betel leaf boiled, healing time, perineal tear, post-partum women

Correspondence:
Henik Istikhomah. Department of Midwifery, Health Polytechnics. Jl. Letjend Sutoyo, Mojosongo, Jebres, Surakarta, Central Java. Email: janeetaqueen@gmail.com. Mobile: +62 81215908592.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.45

THE ASSOCIATION OF BODY MASS INDEX AND MENSTRUAL PATTERN WITH THE INCIDENCE OF ANEMIA IN FEMALE ADOLESCENTS IN JAMBI, INDONESIA

Monika Mayang Sari, Adelina Fitri, Willia Novita Eka Rini

Study Program of Public Health Science, Universitas Jambi, Jambi

ABSTRACT

Background: Anemia is a condition in which the number of red blood cells or the level of hemoglobin in red blood cells is below normal. The threshold of anemia for adolescents is 12 mg/dl. In Jambi, the incidence of anemia in adolescents aged 15-18 years is fluctuative. There were 259 cases in 2015, 257 cases in 2016, and 1,169 cases in 2017. Many factors cause anemia in adolescents. This study aimed to determine the association of body mass index and menstrual pattern with the incidence of anemia among female adolescents in Jambi.
Subjects and Method: This was a case control study conducted at high school, Jambi, from December 2018 to June 2019. A sample of 290 female adolescents was selected at random, consisting of 65 case and 65 control. The dependent variable was anemia. The independent variables were body mass index and menstrual pattern. The data for anemia were collected from medical record documented in Payo Selincah Community Health Center. The data for independent variables were collected by questionnaire. The data were analyzed by odds ratio and chi-square.
Results: The incidence of anemia increased with underweight category of BMI (OR= 2.12; 95% CI= 0.52 to 8.65; p= 0.338) and menstrual pattern (OR= 4.67; 95% CI= 1.25 to 17.48; p= 0.025) in female adolescents.
Conclusion: The incidence of anemia increases with underweight category of BMI and menstrual pattern in female adolescents.

Keywords: anemia, body mass index, menstrual pattern, female adolescent

Correspondence:
Adelina Fitri. Study Program of Public Health Science, Universitas Jambi, Jambi. Jl Jambi - Muara Bulian 15, Mendalo Darat, Jambi, Indonesia. Email: adelinafitri@-unja.ac.id. Mobile: +62 81272030308.

https://doi.org/10.26911/AB.Maternal.ICPH.08.2021.46

EFFICACY OF ANTIOXIDANT SUPLEMENTATION TO PREVENT PREECLAMPSIA

Fania Nurul Khoirunnisa[1)], Indah Risnawati[1)], Nor Asiyah[1)], Dewi Kusumawati[2)]

[1)]Study Program in Midwifery, Faculty of Health, Universitas Muhammadiyah Kudus
[2)]Study Program in Nutrition, Faculty of Health, Universitas Muhammadiyah Kudus

ABSTRACT

Background: Preeclampsia has remained a significant public health threat in both developed and developing countries contributing to maternal and perinatal morbidity and mortality globally. It is a pregnancy-related hypertensive disorder occurring usually after 20 weeks of gestation. If left untreated, it progresses to eclampsia. Oxidative stress has been proposed as a key factor involved in the development of pre-eclampsia. Antioxidants, such as vitamin C and E, may neutralize free radicals. However, previous studies reported mixed effect of antioxidant in the reduction of pre-eclampsia. This study aimed to examine the efficacy of the antioxidant supplementation (vitamin E and C) to prevent preeclampsia.
Subjects and Method: This was a literature review of research articles publish from 2005 to 2020. The articles were accessed from various databases including PubMed, Google Scholar, and Science Direct. The keywords were preeclampsia and antioxidants or vitamin C or vitamin E.
Results: This literature review showed that there was no significant difference in the risk of preeclampsia between women who received supplementation with vitamins C and E compared to the placebo group. Although oxidative stress plays a major role in the pathophysiology of preeclampsia, the causal mechanism of the disorder vary.
Conclusion: There are no significant difference in the risk of preeclampsia between women who receives supplementation with vitamins C and E versus the placebo group.

Keywords: antioxidant supplementation, preeclampsia.

Correspondence:
Fania Nurul Khoirunnisa. Study Program in Midwifery, Faculty of Health. Universitas Muhammadiyah Kudus. Email: fanianurul@umkudus.ac.id. Mobile: +6285700848840.

BACKGROUND

Pre-eclampsia and eclampsia are one of the direct causes of maternal mortality in Indonesia in addition to bleeding and infection. The incidence of pre-eclampsia is around 3-10% of total pregnancies and occurs in 7-10% of pregnancies in developing countries such as Indonesia. Pre-eclampsia and eclampsia are health problems that require special attention because pre-eclampsia is a high cause of maternal and perinatal mortality, especially in developing countries. Until now, pre-eclampsia and eclampsia are still "The disease of theories", because the incidence of pre-eclampsia-eclampsia remains high and results in high rates of maternal morbidity and mortality (Sikumbang, 2019)

About 2-3% of pregnant women can develop pre-eclampsia. Pre-eclampsia has a complex etiology, which is the result of the association between genetic disorders, immunological factors, and the

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

placenta. Familial tendencies of maternal siblings account for 3 to 4 times the incidence of maternal pre-eclampsia. Nutritional deficiencies also play a role in the occurrence of pre-eclampsia. Pre-eclampsia can begin in the antenatal, intrapartum, or postnatal period (Sikumbang, 2019; Wahyuni, 2020).

The clinical manifestations of pre-eclampsia are hypertension and proteinuria, which indicate disorders of the vascular system, namely vasoconstriction and increased vascular permeability. On examination of the blood of mothers with pre-eclampsia found low levels of antioxidants (Glutathione (GSH), vitamin C, vitamin E) in the mother's blood. This occurs due to oxidative stress. The cause of the lack of antioxidants, pregnant women who suffer from preeclampsia cannot control high oxidative stress which can damage the endothelial cells of the mother's blood vessels and cause endothelial dysfunction. Preeclampsia patients have high levels of free radicals. These free radicals are destructive, so their production must be controlled by enzymes or vitamins that function as antioxidants (Baktiyani, 2010).

Vitamins C and E are known as powerful antioxidants and are important in treating preeclampsia. Vitamin C is an antioxidant acting in the cytosol and in extracellular media. Since it is not synthesized in the body, there must be an adequate diet to prevent oxidative stress. Vitamin C levels are detectable low in individuals with preeclampsia. Vitamin E is a major fat-soluble antioxidant, acting on cell membranes to prevent lipid peroxidation. Vitamin E can also be found in lipoprotein particles and in higher levels than lipids.

In some studies, vitamin E has been found in women with preeclampsia. The effect of the combination of the two is considered more impactful than if given separately. Previous studies found that giving 1000 mg of antioxidant vitamin C and vitamin E 400 per day starting at 22 weeks of age decreased the incidence significantly (Ardini, 2005; Irmayanti 2019). The effect of giving antioxidants, namely vitamins E and C on the incidence of pre-eclampsia, needs to be studied further. It is hoped that by reviewing this article, the concept of developing antioxidant potential as a complementary therapy in pre-eclampsia can be developed and analyzed further.

SUBJECTS AND METHOD

1. Study Design

The research design used is a literature review, Literature Study from the PubMed Database, Web Page and Google Scholar, ScienceDirect which is relevant from the period 2005 to 2020 with the keywords used: preeclampsia and (antioxidants or oxidative stress or vitamin C or vitamin E).).

2. Inclusion Criteria

Articles included in the broader review if explicitly focused on antioxidant supplementation in relation to the management of preeclampsia cases.

3. Exclusion Criteria

This study aims to systematically examine the efficacy of providing antioxidants in pre-eclampsia cases. We did not include studies that were not fully accessible and articles with intervention administering antioxidants (vitamin E, vitamin C or zinc) separately.

4. Study Variables

The dependent variable is preeclampsia. The independent variable was the efficacy of supplementation (vitamin C and vitamin E).

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

5. Operational Definition of Variable

Preeclampsia is a complex etiology, which is the result of the association between genetic disorders, immunological factors, and the placenta with clinical manifestations of hypertension and proteinuria. On examination of the blood of mothers with preeclampsia found low levels of antioxidants (Glutathione (GSH), vitamin C, vitamin E) in the mother's blood.

Supplementation efficacy is an assessment of the ability of vitamin E and vitamin C supplements given together in cases of pre-eclampsia.

RESULTS

Antioxidants are important in maintaining cellular integrity in normal pregnancy by inhibiting peroxidation reactions and thereby protecting enzymes, proteins, and cells from destruction by peroxides. Antioxidant defense mechanisms include cellular and extracellular enzymes such as: glutathione reductase, superoxide dismutase, catalase and free radicals, including vitamins C and E, carotenoids, glutathione, serum albumin, and metabolites such as bilirubin and uric acid. Vitamins C and E are antioxidants that come from food. The free radical antioxidant effects of vitamin C act in the aqueous phase and fat-soluble vitamin E acts in vivo to prevent the formation of lipid peroxides and thereby protect cell membranes. There is evidence of oxidative stress in women with preeclampsia, namely increased plasma concentrations of prostaglandin F2α, lipid peroxide and decreased concentrations of antioxidants such as vitamins C and E (Rumbold, 2006).

In a 2006 placebo-controlled trial by Rumbold in nulliparous women giving 1000 mg of vitamin C and 400 IU of vitamin E daily during pregnancy did not reduce the risk of preeclampsia, the risk of death or serious fetal outcome or the risk of intrauterine growth restriction. This finding contrasts with findings in a previous trial that supplementation with vitamins C and E is beneficial in women at high risk for preeclampsia. Maternal supplementation with antioxidant vitamins can improve the antioxidant status of the fetus and thereby reduce the risk of diseases associated with oxidative stress (Rumbold, 2015).

Vitamin E is the generic name given to eight fat-soluble vitamins and compounds of plant origin; four are referred to as tocopherols (alpha, beta, gamma, delta) and four are known as tocotrienols (alpha, beta, gamma, delta). Vitamin E functions as an antioxidant in the lipid phase, protects phospholipid fatty acids from oxidation by harmful free radicals (reactive oxygen molecules) and thereby stabilizes cell membranes (Rumbold, 2015).

As an antioxidant, vitamin E helps prevent oxidative stress, which is characterized by an excess of free radicals coupled with a decrease in antioxidants. Vitamin E interacts synergistically with water-soluble vitamin C, where it helps convert oxidized vitamin E back to its useful form. This association may explain the limited observation of marked vitamin E deficiency in humans, requiring vitamin C to assist in processing stored vitamin E. Vitamin E and vitamin C supplements are often given together to obtain these benefits and to promote antioxidant defense in the aqueous and lipid phases. The dose of vitamin E required for antioxidant effects has been reported to be at least 400 IU (approximately 268 mg alpha-TE) (Blum, 2010; Robert 2010).

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

During pregnancy, oxidative stress has been implicated in the development of pre-eclampsia and affects intrauterine growth (preterm birth) and pre-delivery rupture of membranes (PROM). Oxidative stress has also been implicated in many disorders common in premature infants including chronic lung disease, intraventricular hemorrhage, periventricular haemorrhage, leukomalacia, retinopathy of prematurity, necrotising enterocolitis and bronchopulmonary dysplasia. Preventing complications in pregnancy such as pre-eclampsia, IUGR, PROM, prematurity and serious neonatal morbidity will provide significant cost efficiency in hospital and intensive health care and the use of other health resources (Rumbold, 2015).

In 7 trials that have been performed, the diagnosis of preeclampsia was established as gestational hypertension occurring after 20 weeks of gestation plus proteinuria (≥300 mg/24 hours or 2+ on the dipstick test or 300 mg/24 hours or 1+ on the dipstick test or 300 mg). /24 hours or 2+ on dipstick testing or protein/creatinine ratio 0.3521. In the study by Rumbold et al. (2015) pre-eclampsia was defined as gestational hypertension occurring after 20 weeks of gestation with one or more of the following symptoms: proteinuria, renal insufficiency, liver disease, neurological problems, haematological disorders, or fetal growth restriction (Agudelo, 2011).

There was no significant difference in the risk of preeclampsia between women receiving supplementation with vitamins C and E versus the placebo group (9.6% vs. 9.6%; RR = 1.00, 95% CI= 0.92 to 1.09). The effect of vitamins C and E on the risk of preeclampsia did not change after a sensitivity analysis was limited to six trials that were considered free of major bias (RR = 1.02, 95% CI = 0.93 to 1.11). Vitamins C and E did not decrease the frequency of preeclampsia in either women at moderate risk (6.5% vs. 6.0%; RR= 1.08; 95% CI= 0.95 to 1.23) or high risk (16.3% vs. 17.2%; RR 0.95, 95% CI 0.85 to 1.06). In addition, vitamin C and E supplementation did not reduce the risk of preeclampsia in women at high risk of developing the disorder, regardless of the specific risk factors present at the time of testing. There was a statistically significant but not significant reduction in preeclampsia among primiparous women with a BMI of 30 kg/m^2 who received vitamins C and E (10.7% vs. 14.1%; RR = 0.76; 95% CI= 0.55 to 1.05). The risk of placental abruption was significantly lower in the group of women receiving vitamins C and E than among the women receiving placebo (0.6% vs 1.0%; RR = 0.63, 95% CI: 0.43 to 0.94; five trials, 13,075 women) (Weissgerber , 2013).

A secondary analysis of randomized controlled trials was conducted in which 10,154 low-risk women received daily vitamins C and E and placebo, from 9-16 weeks of gestation until delivery. The HP phenotype was determined in the study prediction cohort (n= 2,393) and the case–control cohort (703 cases, 1,406 controls). The primary outcome was severe PAH, or mild or severe PAH with elevated liver enzymes, elevated serum creatinine, thrombocytopenia, eclampsia, fetal growth restriction, medical indications for preterm delivery or perinatal death. Preeclampsia is a secondary outcome. The odds ratio was estimated by logistic regression. Sample weights were used to reduce bias from overrepresentation of women with preeclampsia or the primary outcome. There was no association between Hp phenotype and primary outcome or preeclampsia in Hispanic, white/other or black women. Vitamin

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

supplementation did not reduce the risk of primary outcome or preeclampsia in women with any phenotype. Supplementation increased the risk of preeclampsia (OR= 3.30; 95% CI= 1.61 to 6.82; p= 0.010) in Hispanic Hp 2-2 women. HP phenotype did not affect the risk of preeclampsia, nor identified the subset of women who might benefit from vitamin C and E supplementation to prevent preeclampsia (Weissgerber, 2013).

It is possible that if the results of these studies had been reported more consistently, the effect sizes might have been different, to date no trials have reported long-term consequences. Finally, the effect of vitamin C and E supplementation with biochemical evidence of increased oxidative stress in women has not been assessed due to lack of data. Antioxidants, especially vitamins C and E, have been proposed as potential preventive strategies that suggest a role in overcoming increased oxidative stress in the pathogenesis of preeclampsia.

It is not clear why supplementation with vitamins C and E during pregnancy does not reduce the risk of preeclampsia. First, it is possible that although oxidative stress plays a major role in the pathophysiology of preeclampsia, the causal causes of the disorder vary so that interventions to reduce oxidative stress do not reduce the risk of preeclampsia. It has been proposed that supplementation with vitamins C and E started in the early trimester of pregnancy after placentation has occurred to influence the pathological process of the condition. However, from 5 experiments that have been conducted, it was found that supplementation with vitamins C and E during pregnancy was associated with a significant reduction (37%) in the risk of placental abruption. Clemetson and Cafaro reported that women with low serum ascorbic acid levels during pregnancy (<0.4 mg/dL) had a higher risk of placental abruption than women with normal levels (<0.4 mg/dL). RR= 9.80, 95% CI= 3.50 to 27.4) (Agudelo, 2011).

Two studies by Sharma et al showed that serum levels of vitamins A, C and E were lower in women with placental abruption than in women with normal pregnancies. It has been suggested that supplementation with vitamins C and E during pregnancy may reduce the risk of preeclampsia in women with low baseline antioxidant status. In a study by McCance et al in 22 women with low antioxidant status in early pregnancy (plasma ascorbate <10 mol/L or serum -tocopherol 5 mol/mmol cholesterol) receiving vitamins C and E had a reduced risk of preeclampsia compared to the placebo group, although the amount small and the difference did not reach statistical significance. In the study by Villar et al, vitamin C and E supplementation did not prevent preeclampsia in high-risk women who were thought to have low antioxidant status on the baseline data. In a randomized controlled trial, supplementation with antioxidants (vitamins A, B6, B12, C, and E, folic acid), N-acetylcysteine, copper, zinc, manganese, iron, calcium, and selenium) was associated with a reduced rate of preeclampsia of 29%. to 7% (RR = 0.24; 95% CI = 0.06 to 1.01) in 60 women with low antioxidant status (superoxide dismutase <1102 U/g Hb or <164 U/mL) at 8 to 12 weeks of gestation (Agudelo, 2011) .

A study by Baktiyani 2010 stated that the addition of NAC, vitamin C and vitamin E could significantly reduce H2O2 levels in the HUVEC eclampsia model ($p < 0.05$). Administration of 2 M NAC was better than 4 M or 8 M doses. The combination of three antioxidants

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

gives better results than a single antioxidant.

Levels of antioxidant nutrients can be manipulated only by diet or pharmacological supplements. However, the importance of vitamin E and carotenoids in preventing free radical damage is well recognized and their levels have been reported to be significantly decreased in pre-eclampsia. Maternal vitamin D deficiency may be an independent risk factor for pre-eclampsia and its supplementation in early pregnancy should be explored to prevent preeclampsia and improve neonatal well-being. In a study by Kolusari (2008), lower levels of vitamins A, D and E were observed in PE women compared to the control group. This suggests that nutritional efforts to increase levels of antioxidants and vitamins, such as vitamins A, D and E, in pregnant women may be beneficial in preventing preeclampsia (Kolusiri, 2008).

A study conducted with supplementation of vitamins C and E starting at 9 to 16 weeks of gestation in a low-risk cohort, nulliparous women not selected to reduce the risk of adverse or perinatal outcomes associated with pregnancy-associated hypertension, included 283 high-risk women. for preeclampsia, supplementation with vitamins C and E, compared with placebo, was effective in reducing evidence of endothelial activation; 60% reduction in the diagnosis of preeclampsia.

Post hoc subgroup analysis by gestational week at randomization (<13 weeks vs. 13 weeks). Results did not differ significantly by subgroup (P = 0.54 for interaction). Among the 4,343 women who attended the study before the 13th week of gestation, the primary outcome occurred in 6.6% of those in the vitamin group, compared with 5.9% of the placebo group (RR = 1.12; 95% CI = 0.89 to 1.42); among 5,626 women enrolled in or after the 13th week of gestation, primary outcomes occurred in 5.7% of those in the vitamin group and 5.6% of those in the placebo group (RR = 1.02; 95% CI= 0.82 to 1.26). In that study, supplementation with vitamins C and E did not reduce the risk of preeclampsia. Several other trials have examined the effectiveness of vitamins C and E in preventing preeclampsia. Each of the previous trials had a smaller sample but a significant increase in the use of antihypertensive therapy was found with vitamin supplementation in a previous trial involving low-risk women (Robert, 2010).

DISCUSSION

Preeclampsia is a multisystem disorder characterized by hypertension and proteinuria that usually occurs in the second trimester of pregnancy. Preeclampsia carries a risk of serious complications and maternal death. There are several risks to the fetus, including death, premature birth, intrauterine hypoxia and IUGR. The pathogenesis of preeclampsia involves inadequate trophoblast invasion, often leading to poor placental perfusion; endothelial dysfunction, immune maladaptation and inflammation. Oxidative stress, coupled with inadequate antioxidant defense mechanisms is considered to be the cause (Rumbold, 2006).

Empirical studies suggest that an imbalance of oxidant and antioxidant levels (oxidative stress) may have an important role in the pathogenesis of preeclampsia. Understanding this is important to evaluate the potential of antioxidant therapy, prevent complications, and improve prognosis and ultimately improve health quality. Preeclampsia

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

(PE) is a syndrome in pregnancy characterized by clinical symptoms of increased blood pressure and proteinuria. The criteria for the diagnosis of preeclampsia are hypertension in pregnancy diagnosed after 20 weeks of gestation and accompanied by proteinuria. In the majority of cases, PE occurs near term (gestational age 34 weeks) which is called late onset preeclampsia or late onset preeclampsia (PEAL), about 10% of cases of PE occur before 34 weeks of gestation, which is called early onset preeclampsia.

Clinical manifestations of PE usually occur in the first pregnancy, appearing after gestational age more than 20 weeks or the second trimester of pregnancy. In general, preeclampsia is divided into mild preeclampsia and severe preeclampsia. Diagnosis of mild PE if it meets criteria number 1-2 and a diagnosis of severe PE if it meets criteria number 3-12.

The criteria for the diagnosis of PE are::

1. Systolic blood pressure 140 mmHg or diastolic 90 mmHg,
2. Proteinuria 300 mg-5 g/24 hours
3. Normal 160 mmHg or diastolic >110 mmHg,
4. Proteinuria > 5 g/24 hours,
5. Increased serum creatinine,
6. Oliguria (a (<500 mL/24 hours),
7. Symptoms: headache, visual disturbances, epigastric pain in the right upper quadrant,
8. Pulmonary edema,
9. Impaired hepatocellular function (elevated Aspartate Transaminase [AST] and Alanine Transaminase [ALT]),
10. Thrombocytopenia,
11. Microangiopathic hemolysis,
12. Grand mal seizures (eclampsia).

Biologically, antioxidants are compounds that can reduce the negative effects of oxidants in the body. Antioxidant systems are divided into enzymatic and non-enzymatic groups. Enzymatic antioxidants are often referred to as primary antioxidants, consisting of the enzymes glutathione peroxidase, catalase, glutathione, and superoxide dismutase (SOD). Enzymatic antioxidants work by preventing the formation of new free radical compounds and breaking the chain reaction of radicals. Secondary antioxidants consist of vitamins C, A, E, -carotene, tocopherols, and flavonoids which function to capture oxidant compounds and prevent the formation of chain radical reactions (Niki, 2009; Candra 2007). In preeclampsia, antioxidants glutathione peroxidase, catalase, glutathione, and superoxide dismutase (SOD) tend to decrease (Hung, 2007; Rani 2010).

One theory related to the pathophysiology of preeclampsia is oxidative stress. Oxidative stress is a state of imbalance in the amount of oxidants with antioxidants, which has the potential to cause cell or tissue damage. In PE patients, the invasion of trophoblast cells is disrupted and causes inadequate placental perfusion, which in turn can lead to oxidative stress (Robert, 2010).

Based on the levels of oxidative end products and antioxidants it was hypothesized that oxidative stress might be a potential risk factor for the initiation of preeclampsia due to the primary inability of antioxidant capacity to neutralize free radicals and increase levels of oxidative stress products. However, when oxidative stress a protective response was induced by increasing some antioxidants, as observed for catalase and glutathione peroxidase in the current meta-analysis. The data available from this study, however, support the hypothesis that oxidant concentrations are increased in

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

preeclampsia compared with normal pregnancy. (Taravati, 2018).

In a systematic review of 2953 cases and 3621 controls statistically significant reductions in total antioxidant capacity, nitric oxide, superoxide dismutase, glutathione, vitamins E and C were observed in preeclamptic women. On the other hand, statistically significant increases in malondialdehyde, protein carbonyl, total peroxide, glutathione peroxidase, catalase and uric acid were observed in preeclamptic women. Increased oxidative stress products, which were found in the meta-analysis may be the underlying mechanism of endothelial dysfunction in preeclampsia. This meta-analysis provides scientific support that a major reduction in antioxidant capacity and increased levels of oxidative stress products may lead to a condition in which the pathways responsible for blood pressure homeostasis are disrupted. In conclusion, it is hypothesized that when oxidative stress occurs, a protective response is induced by increasing several antioxidants. Further studies are needed to investigate the role of dietary supplementation and genetic variation in women with ethnic differences (Taravati, 2018).

P-selectin, a cell adhesion molecule is elevated in many inflammatory conditions including preeclampsia which is characterized by generalized endothelial dysfunction and vasoconstriction possibly due to free radicals or mediators released by defective placentation. Vitamin E is documented to have benefits for protecting cell membranes from oxidative damage and also decreasing platelet aggregation. Soluble P-selectin was measured by ELISA and Vitamin-E levels in plasma were estimated spectrofluorometrically. The effect of supplementation with 400 IU/day of Vitamin E (a-tocopheryl acetate) in pre-eclamptic patients showed significant results. Decreased levels of soluble P-selectin at week 2 as compared to patients given placebo ($p = 0.005$). In the short study period no direct correlation was observed between Vitamin E or P-selectin levels with blood pressure as well as proteinuria. Further studies are needed, perhaps focusing on the effects of a-tocopheryl acetate or the phosphate form of Vitamin-E, recently proposed to be a more active form on other inflammatory markers such as IL-6, an important stimulus of P-selectin release in preeclampsia (Wangkheimayum, 2011).

Preeclampsia patients have high levels of free radicals. These free radicals are destructive, so their production must be controlled by enzymes or vitamins that function as antioxidants. The free radical antioxidant effects of vitamin C act in the aqueous phase and fat-soluble vitamin E acts in vivo to prevent the formation of lipid peroxides and thereby protect cell membranes. There is evidence of oxidative stress in women with preeclampsia, namely increased plasma concentrations of prostaglandin F2α, lipid peroxide and decreased concentrations of antioxidants such as vitamins C and E. In several studies, there were no significant differences in the risk of preeclampsia between women receiving supplementation with vitamins C and E. compared to the placebo group. First, although oxidative stress plays a major role in the pathophysiology of preeclampsia, the causal causes of the disorder vary so that interventions to reduce oxidative stress do not reduce the risk of preeclampsia.

Further studies are needed to investigate the role of dietary supplements in preventing preeclampsia and to evaluate genetic variations of antioxidant

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

enzymes that contribute to this morbidity condition. It has been proposed that supplementation with vitamins C and E started in the early trimester of pregnancy after placentation has occurred to influence the pathological process of the condition. In another study it was suggested that further studies are needed, perhaps focusing on the effects of a-tocopheryl acetate or the phosphate form of Vitamin-E, recently proposed to be a more active form on other inflammatory markers such as IL-6, an important stimulus for P release -selectin in preeclampsia (Wangkheimayum, 2011). Antioxidant supplementation of vitamins E and C still requires further research to assess the benefits, dosages and appropriate derivatives.

AUTHOR CONTRIBUTION

The author concludes from the study of several studies of the effect of providing antioxidants, namely vitamin E and vitamin C on the incidence of pre-eclampsia.

FUNDING AND SPONSORSHIP

Nil

ACKNOWLEDGMENT

The authors thank the LPPM Muhammadiyah Kudus University for facilitating in participating in the 2021 ICPH activities and the 2021 ICPH committee who have reviewed the article manuscript.

CONFLICT OF INTEREST

There are no conflicts of interest

REFERENCES

Ardini DS (2005). Efek pemberian kombinasi vitamin e dan vitamin c terhadap kadar nitric oxide (no) pada pre eklampsi R (The effect of the combination of vitamin e and vitamin c on nitric oxide (no) levels in pre-eclampsia R). Medicine. Retrieved from: http://eprints.undip.ac.id/12522/1/2005MIB4400.pdf

Baktiyani SCW (2010). The changes of h202 level and glutathione/-glutathione dioxide ratio with the administration of N-acetylcystein, vitamin c, and vitamin e towards in vitro eclampsia human umbilical vein endothelial cell model. Indones J Obstet Gynecol. 2. 3(4).

Blum S, Vardi M, Levy NS, Miller-Lotan R, Levy AP (2010). The effect of vitamin E supplementation on cardiovascular risk in diabetic individuals with different haptoglobin phenotypes. Atherosclerosis 211: 25–27. doi: 10.1016/j.atherosclerosis.2010.02.018

Candra S, Widodo MA, Suwarto S, Muliartha IK (2007). Kadar MDA dan rasio GSH/GSSH pada kehamilan normal, preeklampsia berat dan eklampsia di Malang (MDA levels and ratio of GSH/GSSH in normal pregnancy, severe pre-eclampsia and eclampsia in Malang). Jurnal Kedokteran Brawijaya. 1(13):35-9. doi: https://-doi.org/10.21776/ub.jkb.2007.02-3.01.6

Conde-Agudelo A, Romero R, Kusanovic JP, Hassan SS (2011). Supplementation with vitamins C and E during pregnancy for the prevention of preeclampsia and other adverse maternal and perinatal outcomes: a systematic review and metaanalysis. Am J Obstet Gynecol. 204(6): 503.e1-12. doi: 10.1016/-j.ajog.2011.02.020.

https://doi.org/10.26911/ICPHmaternal.FP.08.2021.27

Hung J (2007) Oxidative stress and antioxidants in preeclampsia. J Chin Med Assoc. 70(10): 430-2. doi: 10.1016/S1726-4901(08)70032-7

Irmayanti (2019) Pengaruh pemberian kalsium terhadap perubahan tekanan darah dan kadar et-1 pada ibu hamil dengan riwayat pre eklampsi (Effect of calcium administration on changes in blood pressure and et-1 levels in pregnant women with a history of pre-eclampsia). Thesis-S2 thesis, Universitas Hasanuddin.

Kolusari A, Kurdoglu M, Yildizhan R, Adali E, Edirne T, Cebi A, Demir H, Yoruk IH (2008). Catalase activity, serum trace element and heavy metal concentrations, and vitamin A, D and E levels in pre-eclampsia. J Int Med Res. 36(6): 1335-41. doi: 10.1177/147323000803600622.

Levy AP, Gerstein HC, Miller-Lotan R, Ratner R, McQueen M, Lonn E, Pogue J (2004). The effect of vitamin E supplementation on cardiovascular risk in diabetic individuals with different haptoglobin phenotypes. Diabetes Care. 27(11): 2767. doi: 10.2337/diacare.27.11.2-767.

McCance DR, Holmes VA, Maresh MJ, Patterson CC, Walker JD, Pearson DW, Young IS (2010). Vitamins C and E for prevention of pre-eclampsia in women with type 1 diabetes (DAPIT): a randomised placebo-controlled trial. Lancet (London, England), 376(9737), 259–266. https://doi.org/10.1016-/S0140-6736(10)60630-7

Milman U, Blum S, Shapira C, Aronson D, Miller-Lotan R, Anbinder Y, Alshiek J, Bennett L, et al (008). Vitamin E supplementation reduces cardiovascular events in a subgroup of middle-aged individuals with both type 2 diabetes mellitus and the haptoglobin 2-2 genotype: a prospective double-blinded clinical trial. Arterioscler Thromb Vasc Biol. 2008 Feb;28(2):341-7. doi: 10.1161/ATVBAHA.107.153965.

Niki E (2009). Lipid peroxidation: physiological levels and dual biological effects. Free Radic Biol Med. 47(5): 469-84. doi: 10.1016/j.freeradbiomed.2009.05.032.

Rani N, Dhingra R, Arya DS, Kalaivani M, Bhatla N, Kumar R (2010). Role of oxidative stress markers and antioxidants in the placenta of preeclamptic patients. J Obstet Gynaecol Res. 36(6): 1189-94. doi: 10.1111/j.1447-0756.2010.01303.x.

Roberts JM, Myatt L, Spong CY, Thom EA, Hauth JC, Leveno KJ, Pearson GD, et al. (2010). Vitamins C and E to prevent complications of pregnancy-associated hypertension. N Engl J Med. 362(14): 1282-91. doi: 10.1056/NEJMoa0908056.

Rumbold A, Ota E, Hori H, Miyazaki C, Crowther CA (2015). Vitamin E supplementation in pregnancy. Cochrane Database Syst Rev. 2015(9):CD004069. doi: 10.1002/-14651858.CD004069.pub3.

Rumbold AR, Crowther CA, Haslam RR, Dekker GA, Robinson JS (2006) Vitamins C and E and the risks of preeclampsia and perinatal complications. N Engl J Med 354: 1796–1806. doi: 10.1056/NEJMoa0541-86

Sikumbang SR (2019). Faktor-faktor yang memengaruhi pre-eklampsi pada ibu hamil trimester III di rumah sakit umum daerah Dr. Zubir Mahmud Idi Aceh Timur Tahun 2017 (Factors that influence

preeclampsia in third trimester pregnant women at the Dr. Zubir Mahmud Idi East Aceh 2017). Gentle Birth. 2(1).

Taravati A, Tohede F (2018). Comprehensive analysis of oxidative stress markers and antioxidants status in preeclampsia. Taiwanese Journal of Obstet & Gynecol. 57: 779e790

Taravati A, Tohidi F (2018). Comprehensive analysis of oxidative stress markers and antioxidants status in preeclampsia. Taiwan J Obstet Gynecol. 57(6): 779-790. doi: 10.1016/j.tjog.2018.10.002.

Villar J, Purwar M, Merialdi M, Zavaleta N, Thi Nhu Ngoc N, Anthony J, et al. (2009). World Health Organization multicentre randomised trial of supplementation with vitamins C and E among pregnant women at high risk for pre-eclampsia in populations of low nutritional status from developing countries. BJOG. 116:780–8. [PubMed: 19432566]

Villar J, Purwar M, Merialdi M, Zavaleta N, Thi Nhu Ngoc N, Anthony J, et al (2009). WHO Vitamin C and Vitamin E trial group. World Health Organisation multicentre randomised trial of supplementation with vitamins C and E among pregnant women at high risk for pre-eclampsia in populations of low nutritional status from developing countries. BJOG. 116(6): 780-8. doi: 10.1111/j.1471-0528.2009-.02158.x.

Wahyuni F (2020). Faktor-faktor yang Mempengaruhi Pre-eklampsi pada Ibu Hamil Trimester III di Rumah Sakit Umum Daerah dr. Zubir Mahmud di Aceh Timur (Factors Affecting Pre-eclampsia in Third Trimester Pregnant Women at the Regional General Hospital dr. Zubir Mahmud in East Aceh). Excellent Widwifery Journal. 3(2)

Wangkheimayum S, Kumar S, Suri V (2011). Effect of vitamin E on sP-Selectin levels in pre-eclampsia. Indian J Clin Biochem 26(2): 169–171. doi: https://doi.org/10.1-007/s12291-010-0102-2

Weissgerber TL, Gandle RE, McGee PL, Spong CY, Myatt L, Laveno KJ, Thorp JM (2013). Haptoglobin phenotype, preeclampsia risk and the efficacy of vitamin C and E supplementation to prevent pre-eclampsia in a racially diverse population. Plos One. 3(4). doi: https://doi.org/10.1371/journal.pone.0060479

Xu H, Perez-Cuevas R, Xiong X, Reyes H, Roy C, Julien P, Smith G, et al. (2010). An international trial of antioxidants in the prevention of preeclampsia (INTAPP). Am J Obstet Gynecol. 202(3): 239.e1-239.e10. doi: 10.1016/j.ajog.2010-.01.050.

TOPIC III :
MATERNAL AND CHILD HEALTH

THE EFFECTIVENESS OF NEWBORN CARE PROMOTION ON INCREASING KNOWLEDGE, ATTITUDE, AND BREASTFEEDING PRACTICE AMONG MOTHERS IN NORTH JAKARTA

Intan Silviana Mustikawati[1)], Erlina Puspitaloka Mahadewi[1)], Mieke Wijaya[2)], Zelfino[1)]

[1)]Study Program in Public Health, Universitas Esa Unggul
[2)]Study Program in Health Information Management, Universitas Esa Unggul

ABSTRACT

Background: Breastfeeding is one of the most important contributors to the health, growth and development of the newborns. This study aimed to determine the effect of the promotion of newborn care by health cadres on increasing knowledge, attitude, and practice of breastfeeding among mothers.
Subjects and Method: This study was quasi-experimental design with one group pre-posttest in 2020. The population in this study were mothers who had newborns in Koja, Cilincing, and Tanjung Priok sub-districts, North Jakarta. A total of 50 mothers were selected. The dependent variables were knowledge, attitude, and practice. The independent variable was promotion of newborn care. Data was collected by questionnaire. Data were analyzed using paired-t test and Mc Nemar test.
Results: The mean score of breastfeeding knowledge was higher after intervention (Mean= 16.10; SD=1.11) than before intervention (Mean= 13.34; SD= 1.14) and it was statistically significant ($p < 0.001$). The mean score of breastfeeding attitude was higher after intervention (Mean= 15.38; SD= 1.25) than before intervention (Mean= 15.38; SD= 0.83) and it was statistically significant ($p<0.001$). Mothers were more likely to practice breastfeeding after participation in the promotion of the newborn care (OR= 2.00; 95% CI= 1.22 to 3.33; p= 0.008).
Conclusion: Promotion of newborn care by health cadres improves knowledge, attitude, and practice of breastfeeding.

Keywords: health promotion, breastfeeding, health cadres, newborn care.

Correspondence:
Intan Silviana Mustikawati. Study Program in Public Health, Universitas Esa Unggul. Jl. Arjuna Utara 9, Kebon Jeruk, Jakarta 11510. Email: intansilviana@esaunggul.ac.id. Mobile: +6281318501928.

BACKGROUND

Neonatal and child problems are challenges that needs to be overcome. Indonesian Demographic and Health Surveys (Penelitian and Pengembangan, 2013) showed that Neonatal Mortality Rate (NMR), Infant Mortality Rate (IMR), and Under-five Mortality Rate (UMR) are still high in Indonesia. The neonatal period was very critical time due to child mortality. The main problem of infant mortality occurred during neonatal period, which contributes to 59% of infant deaths in Indonesia (Kementerian Kesehatan RI, 2016). About 78.5% of the- deaths occurs in infants aged 0-6 days (Kementerian Kesehatan RI, 2018). Majority of NMR was caused by low birth weight (LBW) and prematurity (28%) and severe infections (26%) (Lawn, Cousens and Zupan, 2005; Lawn et al., 2010). Newborns or infants are risk for infectious diseases, growth delays and development, and death during

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.01

childhood (Ballot et al., 2012; Soleimani et al., 2014).

Neonatal deaths cannot be significantly decreased without the support to reduce maternal mortality and improve maternal health. Antenatal care and standard delivery assistance should be accompanied by adequate neonatal care and efforts to reduce infant mortality from low birth weight, post-natal infections (such as tetanus neonatorum, sepsis), hypothermia and asphyxia (Kementerian Kesehatan RI, 2010).

Neonatal care is a treatment used to support the health of newborns including cord care and post-natal care, prevention of hypothermia, early and exclusive infants, spontaneous breathing efforts and infection prevention efforts (Kementerian Kesehatan RI, 2010). Essential neonatal health care or services are part of comprehensive child health services with a health improvement maintenance approach (promotive), disease prevention (preventive), disease healing (curative), and dise-ase recovery (rehabilitative) (Kementerian Kesehatan RI, 2014).

Some important indicators for the achievement of infants' health include providing quality systems for health services and incorporating essential programs into maternal and child care programs, providing access to essential health services, and providing insight into essential neonatal health knowledge (Kementerian Kesehatan RI, 2014). The support and involvement of family and community is needed so that newborn health services can run well. The involvement of community elements such as community health workers is expected to increase public access to maternal and child health services.

Community health workers are officers who live in the communities in which they serve, are elected by that community, are accountable to the communities in which they work, receive certain short training and do not have to be attached to any formal institution (WHO, 2008). Community health workers or commonly called Posyandu cadres are members of the community who are willing, able and have time to organize Posyandu activities voluntarily (Kementerian Dalam Negeri RI, 2011).

The World Health Organization mentions that the role of community health workers in maternal and child health services is to promote pregnancy care, childbirth preparation, childbirth by health workers, nutritious food during pregnancy, reproductive health and family planning, exclusive breastfeeding, post-natal care, immunization, Kangaroo Mother Care (KMC) for LBW, newborn basic care and LBW care (WHO, 2012). In Indonesia, one of the health care coverage provided by community health workers along with health workers is related to the development of nutrition and maternal and child health, including counseling and counseling regarding the care of newborns, signs of danger in infants and toddlers (Kementerian Dalam Negeri RI, 2011).

North Jakarta is the region with the prevalence of child mortality rate at the age of < 1 year (25.96%) the 2nd highest in DKI Jakarta (DKI Jakarta Provincial Population and Civil Registry Office, 2019). (Dinas Kependudukan dan Pencatatan Sipil Provinsi DKI Jakarta, 2019). Based on observations found that mothers who have newborns have not practiced the care of newborns properly, such as the practice of clean and healthy living behaviors that have not been good such as un

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.01

hygienic home conditions and there are still mothers who provide breast milk with mixed other drinks. The neonatal care promotion by community health workers is expected to improve knowledge, attitudes, and practices of breastfeeding in North Jakarta. Objective of this study was to analyze the effect of neonatal care promotion by community health workers towards knowledge, attitude, and practice of breastfeeding in North Jakarta.

SUBJECTS AND METHOD

1. Study Design

This study was quasi-experimental design with one group pre-posttest in 2020.

2. Population and Sample

The population in this study were mothers who had newborns in Koja, Cilincing, and Tanjung Priok sub-districts, North Jakarta. A total of 50 mothers were selected by consecutive sampling.

3. Study Variables

The dependent variables were knowledge of breastfeeding, attitude toward breastfeeding and practice of breastfeeding. The independent variable was promotion of newborn care.

4. Operational Definition of Variables

Knowledge of breastfeeding was measured by interval scale; wrong answer 1 and right answer 2; Attitude of breastfeeding was measured by interval scale; very disagree 1, disagree 2, agree 3, and very agree 4; and practice of breastfeeding was measured by ratio scale; the frequency of mothers who practiced exclusive breastfeeding.

5. Study Instruments

Data was collected by questionnaire.

6. Data analysis

Data were analyzed using paired-t test and Mc Nemar test.

RESULTS

The mean age of respondents was 31 years old, mean parity was 2 children, the majority of them were low education (64%), not working (100%), and distance to health services was less than 1 km (56%).

1. Effect of neonatal care promotion towards knowledge of breastfeeding

Breastfeeding knowledge in this study include questions about the best drinking for the infants, benefit of breastfeeding, how to breastfeed the infants, frequency of breastfeeding, amount of breastfeeding, how to massage breast, and how to pumping breastmilk. On 1st measurement, majority of mothers can answer correctly questions about the best drinking for the infants, benefit of breastfeeding, how to breatfeed the infants, and frequency of breastfeeding. But they didn't know about amount of breastmilk, how to massage breast, and how to pumping breastmilk.

The promotion conducted by community health workers in this study was provided information, motivation, and reminded about neonatal care especially breastfeeding practice. In the home visit, community health workers provided information and education about the frequency and amount of breastmilk, how to massage breast, and how to pumping breastmilk.

After neonatal care promotion by community health workers, there was an increase in mothers' knowledge about the amount of breastmilk, how to massage breast, and how to pumping breastmilk. Overall, there was an improvement of mother's average total score of breastfeeding knowledge on 1st and 2nd second measurements. The average total score of breastfeeding knowledge on 1st measurement was (Mean= 13.34; SD= 1.14) and 2nd

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.01

measurement was (Mean= 16.10; SD= 1.11). It showed in Table 1.

Based on paired t-test, there was a difference in the mother's average total score of breastfeeding knowledge on first and second measurements (p <0.001). This explaines that neonatal promotion by community health workers improved the mother's knowledge of breastfeeding. The statistical results showed in Table 2.

2. Effect of neonatal care promotion towards attitude of breastfeeding

Breastfeeding attitude in this study include mothers' agreement that breastmilk is the best drinking for the infants, breastmilk has many benefit to infants' health, infants don't need additional drink to increase their weight quickly, and mothers has to massage their breast to increase breastmilk. On 1st measurement, majority of mothers agree that breastmilk is the best drinking for the infants and breastmilk has many benefit to infants' health. But they didn't agree that infants don't need additional drink to increase their weight quickly and mothers has to massage their breast to increase breastmilk.

After neonatal care promotion by community health workers, there was an increase in mothers' positive attitude that infants don't need additional drink to increase their weight quickly and mothers has to massage their breast to increase breastmilk. Overall, there was an improvement of mother's average total score of breastfeeding attitude on 1st and 2nd second measurements. The average total score of breastfeeding attitude on 1st measurement was (Mean=13.34; SD= 1.14) and 2nd measurement was (Mean= 16.10; SD= 1.11). It showed in the Table 3.

Based on paired t-test, there was a difference in the mother's average total score of breastfeeding attitude on first and second measurements (p <0.001). This explaines that neonatal promotion by community health workers improved the mother's attitude of breastfeeding. The statistical results showed in Table 4.

3. Effect of neonatal care promotion towards breastfeeding practice

Breastfeeding practice in this study was the feeding of breastmilk only to infants, without any additional drinks or foods. On 1st measurement, majority of mothers giving breastmilk by mixing with other drink such as formula milk to increase the infants' weight. Another reason is because the mother's breastmilk is lacking as well as the experience of formula feeding in previous children.

After neonatal care promotion by community health workers, there was an increase in the number of mothers who give breastmilk only on 2nd measurements. The number of mothers who give breastmilk only on 1st measurement is 35 people (70%) and 2nd measurement is 41 people (82%). It showed in the table 5.

Based on Mc Nemar-test, there was a difference in the number of mothers who practice breastmilk only on first and second measurements (p <0.05). This explaines that neonatal promotion by community health workers improved the mother's breastfeeding practice. The statistical results showed in the Table 6.

Table 1. Breastfeeding Knowledge Score at Each Measurement

Breastfeeding Knowledge	Mean	SD
1st Measurement	13.34	1.14
2nd Measurement	16.10	1.11

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.01

Table 2. Breastfeeding Knowledge Score Difference at Each Measurement

Time Measurement	Mean Difference		OR	95% CI	p
	Mean	SD			
1st and 2nd Measurement	-2.76	0.80	0.75	-2.99 to -2.53	<0.001

Table 3. Breastfeeding Attitude Score at Each Measurement

Breastfeeding Attitude	Mean	SD
1st Measurement	12.48	1.25
2nd Measurement	15.38	0.83

Table 4. Breastfeeding Attitude Score Difference at Each Measurement

Time Measurement	Mean Difference		OR	95% CI	p
	Mean	SD			
1st and 2nd Measurement	-2.90	1.04	0.57	-3.19 to -2.61	<0.001

Table 5. Breastfeeding Practice at Each Measurement

Time Measurement	Breastfeeding Practice		
	Category	N	%
1st Measurement	No	15	30
	Yes	35	70
2nd Measurement	No	9	18
	Yes	41	82

Table 6. Breastfeeding Practice Difference at Each Measurement

Time Measurement	OR	95% CI		p
		Lower limit	Upper limit	
1st and 2nd Measurement	2.00	1.22	3.33	0.008

DISCUSSION

1. Effect of Neonatal Care Promotion towards Knowledge of Breastfeeding

One of the efforts that can be done to improve health knowledge, attitudes, and behaviors is communication, information, and education about health (Notoatmodjo, 2012). Health education is an effort or activity to create community behavior conducive to health (Notoatmodjo, 2007). The promotion conducted by community health workers in this study is a communication of behavior changes to improve maternal knowledge about neonatal care. Behaviour change communication is an intervention that can be done to change behavior at the individual and family level (Notoatmodjo, 2012).

In the home visit, community health workers provided information and education about neonatal care by using information media in the form of back sheets and booklet as a material reading for mothers at home. Mothers in this study had an improvement of neonatal care knowledge after neonatal care promotion by community health workers. It can be explained that information provided by community health workers received well by the mothers and it is effective. Community health workers play a role as an informer and reminder of neonatal care.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.01

Interventions designed by health workers, policymakers, and health educators about the benefits of breast milk, breastfeed on-demand, and colostrum initiation immediately after birth is important to increase breastfeeding knowledge (Dukuzumuremyi et al., 2020). Study by Suryani et al. (2019) showed that there is effect of nutritional promotion and counseling on knowledge of breastfeeding.

Knowledge relates to the amount of information a person has. The more information a person has, the higher one's knowledge. According to Mubarak (2007), the goal of health education iss to improve health status, prevent disease and increasing health problems, maintain existing health status, and help people to overcome health problems. The more information the mothers had about the care of the newborn, the better knowledge and understanding about the newborn care.

Based on the study in India (Rasaily et al., 2017) most mothers have a good knowledge of neonatal care after being educated about neonatal care. Another study in India (Darmstadt et al., 2006) found that mothers and families learned of the benefits of neonatal care after being educated about neonatal care. Quasem et al., (2003) in his study in Bangladesh explained that mothers know the benefits of neonatal care after being educated about the care of neonatal.

2. Effect of Neonatal Care Promotion towards Attitude of Breastfeeding

Attitude is a reaction or response that is still closed from someone to a stimulus or object (Notoatmodjo, 2007). Attitude is also a readiness or willingness to act and is also the implementation of certain motives. Attitude is a person's closed response to a stimulus or object, both internal and external so that its manifestation cannot be directly seen, but can only be interpreted in advance from closed behavior. Attitudes in reality indicate the conformity of the response to a particular stimulus.

The promotion conducted by community health workers in this study was reminded and provided motivation about neonatal care especially breastfeeding practice. With the information and motivation, it will increase the mother's positive attitude about neonatal care especially breastfeeding practice.

The mothers in this study had an improvement of neonatal care attitude after neonatal care promotion by community health workers. It can be explained that information provided by community health workers received well by the mothers and it is effective. Community health workers play a role as an informer and educator to improve mothers' acceptance of neonatal care.

This research is in accordance with research in India (Rasaily et al., 2017; Darmstadt et al., 2006; Mazumder et al., 2017) that mothers had positive attitude regarding neonatal care after being educated about neonatal care.

One of the breastfeeding strategies is the availability of access to breastfeeding education and information (National Association of County and City Health Officials, 2018). Breastfeeding education usually occurs during the prenatal and intrapartum periods. The goals of breastfeeding education are to increase mothers' knowledge and skills, help them view breastfeeding as normal, and help them develop positive attitudes toward breastfeeding. Similarly, Jolly et al. (2012) said that educating the mother, increasing awareness in the whole community may

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.01

be essential to improve breastfeeding practice.

3. Effect of Neonatal Care Promotion towards Breastfeeding Practice

Breastfeeding practice is one of the neonatal care which is very important. Optimal breastfeeding practices are the cornerstone of child survival, nutrition and early childhood development. World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recommend initiation of breastfeeding within an hour of birth, exclusive breastfeeding for the first 6 months of life, and continued breastfeeding beyond 6 months and at least up to 2 years of age or more along with the introduction of nutritionally adequate and safe complementary foods (Zimmermann, 2004). Many studies have proven the benefits of breastmilk for the growth and development of babies. Optimal breastfeeding practices also improve mother and infant bonding, help achieve optimum growth and development, protect against non-communicable diseases and benefit maternal health (WHO, 2003, 2017).

Mothers in this study had an improvement of neonatal care attitude after neonatal care promotion by community health workers. It can be explained that information provided by community health workers received well by the mothers and it is effective. Mothers were practiced breastfeeding optimally. Community health workers play a role as an informer, educator and motivator to improve mothers' breastfeeding prasctive.

Study by Sinha et al. (2015) showed that in order to promote breastfeeding, interventions should be delivered in a combination of settings by involving health systems, home and family and the community environment concurrently. When counselling or education were provided concurrently in home and community, health systems and community, health systems and home settings, respecttively, there was a higher improvements in breastfeeding rates such aearly initiation of breastfeeding, exclusive breastfeeding and continued breastfeeding rates.

Enriquez et al. (2007) explained that combined facility and community based interventions resulted in greater improvements in breastfeeding rates. Educating family or society regarding breastfeeding and providing support to the mother may be useful to create a better breastfeeding milieu. The need for the engagement of multiple sectors and actors as part of a well synchronized engine to protect, promote and support optimal breastfeeding practices globally (Pérez-Escamilla et al., 2012). Support should be provided throughout the continuum in multiple settings by increasing community awareness regarding breastfeeding, followed by health system support and home and family support through counselling.

AUTHOR CONTRIBUTION

Intan Silviana Mustikawati: Responsible for the research, data quality and manuscript; Erlina Puspitaloka Mahadewi: Responsible for the research instruments and manuscript; Mieke Wijaya: Responsible for the research intervention; and Zelfino: Responsible for the data collection

ACKNOWLEDGMENT

Thank you to Universitas Esa Unggul who has supported for this research and publication.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.01

FUNDING AND SPONSORSHIP

Funding and sponsorship by Universitas Esa Unggul.

CONFLICT OF INTEREST

No conflict of interest.

REFERENCES

Ballot DE, Potterton J, Chirwa T, Hilburn N, Cooper PA (2012). Developmental outcome of very low birth weight infants in a developing country. BMC Pediatrics. 12(11): 1-10. doi: doi:10.1186/1471-2431-12-11.

Darmstadt GL, Kumar V, Yadav R, Singh V, Singh P, Mohanty S, Baqui AH, Bharti N, Gupta S, Misra RP, Awasthi S, Singh JV, Santosham M, the Saksham Study Group (2006). Introduction of community-based skin-to-skin care in rural Uttar Pradesh. India Journal of Perinatology. 26(10): 597–604. doi: 10.1038/-sj.jp.7211569.

Dinas Kependudukan dan Pencatatan Sipil Provinsi DKI Jakarta (2019) Kelahiran dan Kematian di Provinsi DKI Jakarta Tahun 2018.

Dukuzumuremyi JPC, Acheampong K, Abesig J, Luo J (2020). Knowledge, attitude, and practice of exclusive breastfeeding among mothers in East Africa: A systematic review. Int Breastfeed J. 15(1): 1–17. doi: 10.11-86/s13006-020-00313-9.

Enriquez G, Buyo Y, Hashimoto S (2007). Embodied communication between human and robot in route guidance. Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) 4557 LNCS (PART 1): 824–829. doi: 10.1007/9-78-3-540-73345-4_93.

Jolly K, Ingram L, Khan KS, Deeks JJ, Freemantle N, MacArthur C (2012). Systematic review of peer support for breastfeeding continuation: Metaregression analysis of the effect of setting, intensity, and timing. BMJ (Online). 344(7844): 18. doi: 10.11-36/bmj.d8287.

Kementerian Dalam Negeri RI (2011) Pedoman pengintegrasian layanan sosial dasar di pos pelayanan terpadu.

Kementerian Kesehatan Republik Indonesia (2016). Profil kesehatan indonesia tahun 2016. Profil Kesehatan Provinsi Bali.

Kementerian Kesehatan RI (2010). Buku saku pelayanan kesehatan neonatal esensial. Kementerian Kesehatan RI.

Kementerian Kesehatan RI (2014). Peraturan menteri kesehatan republik Indonesia No.53 tahun 2014 tentang pelayanan kesehatan neonatal esensial.

Kementerian Kesehatan RI (2018). Hasil Riset Kesehatan Dasar 2018'. Retrieved from: http://www.depkes.go.-id/resources/download/info-terkini/materi_rakorpop_2018/Hasil Riskesdas 2018.pdf.

Lawn JE, Gravett MG, Nunes TM, Rubens CE, Stanton C, GAPPS Review Group (2010). Global report on preterm birth and stillbirth (1 of 7): defi nitions description of the burden and opportunities to improve data. 10(1): 1471–2393.

Lawn JE, Cousens SZupan J (2005). 4 Million neonatal deaths: When? Where? Why? Lancet. 365(9462): 891–900. doi: 10.1016/S0140-6736-(05)71048-5.

Mazumder S, Taneja S, Dalpath SK, Gupta R, Dube B, Sinha B, Bhatia K, Yoshida S, Norheim OF, Bahl R, Sommerfelt H, Bhandari N, Martines J (2017). Impact of community-initiated kangaroo mother care on survival of low birth weight infants: study protocol for a randomized controlled trial. BMC Public Health. Trials. 18(1): 1–10. doi: 10.1186/s13-063-017-1991-7.

Mubarak W (2007). Promosi kesehatan sebuah pengantar proses belajar mengajar dalam pendidikan. Yogyakarta: Graha Ilmu.

National Association of County and City Health Officials (2018). Breastfeeding in the community : program implementation guide reducing disparities in breastfeeding through.

Notoatmodjo (2012). Promosi kesehatan dan perilaku kesehatan (edisi revisi 2012). Jakarta: Rineka Cipta.

Notoatmodjo S (2007) Promosi kesehatan: Teori dan Aplikasi.

Badan Penelitian dan Pengembangan Kementerian Kesehatan RI (2013). Riset Kesehatan Dasar Tahun 2013. Jakarta: Kementerian Kesehatan.

Escamilla RP, Curry L, Minhas D, Taylor L, Yale EB (2012). Scaling up of breastfeeding promotion programs in low-and middle-income countries: The "breastfeeding gear" model. Adv Nutr. 3(6): 790–800. doi: 10.3945/an.112.002873.

Quasem I, Sloan NL, Chowdhury A, Ahmed S, Winikoff B, Chowdhury AMR (2003). Adaptation of kangaroo mother care for community-based application. Perinatology. 23(8): 646–651. doi: 10.1038/sj.-jp.7210999.

Rasaily R, Ganguly KK, Roy M, Vani SN, Kharood N, Kulkarni R, Chauhan S, Swain S, Kanugo L (2017). Community based kangaroo mother care for low birth weight babies: A pilot study. Indian J Med Res. 145(11): 163–174. doi: 10.4103/ijmr.IJMR.

Sinha B, Chowdhury R, Sankar MJ, Martines J, Taneja S, Mazumder S, Rollins N, et al. (2015). Interventions to improve breastfeeding outcomes: A systematic review and meta-analysis. Acta Paediatr Scand. 104: 114–135. doi: 10.1111/apa.13-127.

Soleimani F, Zaheri F, Abdi F (2014). Long-Term neurodevelopmental outcomes after preterm birth. Iran Red Crescent Med J. 16(6): e17965. doi: 10.5812/ircmj.17965.

Suryani D, Kusdalinah, Jumiyati (2019). The effect of counseling on knowledge, attitudes, and practices of mothers breastfeeding in the work area of sawah lebar community health center, Bengkulu 2017. Atlantis Press. 14: 180-184. doi: 10.2991/icihc-18.2019.43.

WHO (2003). Global strategy for Infant and young child feeding. Fifthy-fourth world health assembly. (1): 8.

WHO (2008). Task shifting: global recomendations and guidelines, World Health Organization. doi: 10.1080/-17441692.2011.552067.

WHO (2012) Optimizing health worker roles to improve access to key maternal and newborn health interventions through task shifting, World Health Organization. Retrieved from: http://scholar.google.-com/scholar? hl=en&btnG=Search-&q=intitle:heal th+worker+roles+-to+improve+acce ss+to+key+mater-

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.01

nal+and+newborn +health+interventions+through+tas k+shifting#-0%5Cnhttp://scholar.go ogle.com/-scholar?hl=en&btnG=Sea rch&q=-intitle:Optimizing+health.

WHO (2017). Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services. World Health Organization WHO. Retrieved from: https://-apps.who.int/iris/bitstream/handle/10665/259386/9789241550086-eng.pdf.

Zimmermann M (2004). Managing debris flow risks: Security measures for a hazard-prone resort in Switzerland. Mt Res Dev. 24(1): 19–23. doi: 10.2-307/3674460.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.01

ANXIETY AND COPING SKILLS DURING COVID-19 EPIDEMIC AMONG MIDWIVES AT COMMUNITY HEALTH CENTERS IN CENTRAL JAVA: A DESCRIPTIVE STUDY

Noviyati Rahardjo Putri, Rufidah Maulina, Nurul Jannatul Wahidah, Siti Nurhidayati

Study Program in Midwifery, Medical Faculty,
Universitas Sebelas Maret, Surakarta, Indonesia

ABSTRACT

Background: The increase of COVID-19 cases in the second wave has affected the workload of health workers in Indonesia. More workload may increase the risk of stress and anxiety among healthcare workers. Coping skills are one of the important strategies to maintaining mental health status during the delivery of healthcare services. This study aimed to examine anxiety levels and coping skills among midwives.
Subjects and Method: This was a cross-sectional study conducted at Community Health Centers in Central Java, from July to August 2021. A total of 83 midwives was selected by total sampling. The dependent variables included anxiety and coping skill. The anxiety level was measured by Generalized Anxiety Disorder (GAD-7). The coping skills variable was measured using a questionnaire. The data were analyzed descriptively.
Results: A total of 83 midwives (100%) experienced anxiety with varying levels as follows: minimal (50.6%), mild (32.5%), moderate (13.3%), and high (3.6%). The majority of midwives had adaptive coping strategy (94%). Only a few midwives had maladaptive coping strategy (6%).
Conclusion: Anxiety is highly prevalent among midwives in Central Java. Fortunately, the majority of them has adaptive coping strategy to maintain mental health.

Keywords: anxiety, coping skill, COVID-19, midwives

Correspondence:
Noviyati Rahardjo Putri. Study Program in Midwifery, Medical Faculty, Universitas Sebelas Maret, Surakarta, Indonesia Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: novirahardjo@staff.uns.ac.id. Mobile phone: +6285742944794

BACKGROUND

The novel coronavirus 2019 (COVID-19) which first appeared in Wuhan, China is one of the pandemics that caused a high death number globally (Cabarkapa et al., 2020). Until 09 July 2021, the global number of confirmed COVID-19 reached 184,324,026 cases with the mortality number was 3,992,680 of confirmed COVID-19 cases. (World Health Organization, 2021). In Indonesia, COVID-19 is defined as a disease that causes a public health emergency. It does not only cause death but also causes substantial economic losses (Kementerian Kesehatan Republik Indonesia, 2020). The total number of confirmed COVID-19 in Indonesia reached 2,417,788 cases with a mortality number was 63,760 cases (2.6%) (World Health Organization, 2021).

During the pandemic of COVID-19, frontline healthcare workers are one of the vulnerable populations who often have an overexposure risk (Cabarkapa *et al.*, 2020). Based on the World Health Organization, about 8% of the

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.02

total confirmed cases or 1.29 million cases are health workers. In the period month of March to mid-May 2020, health workers have a three-fold risk of infection compared to the general population (World Health Organization, 2021). In Indonesia until July 10, 2021, the mortality number of confirmed COVID-19 in healthcare workers reached 1,133 cases (https://nakes.laporcovid19.org/, 2021).

Healthcare workers have a higher tendency for mental health problems because they can contact with confirmed cases (Aly *et al.*, 2021; Sahebi *et al.*, 2021). Some sources of a stressor for healthcare workers during the pandemic are the risk of virus contamination, limited staff, fatigue, lack of personal protective equipment (PPE) and mourning the death of another healthcare workers (Rowawi, 2021).

Several research in Indonesia concluded that healthcare workers in the COVID-19 isolation rooms have higher anxiety, depression, and insomnia compared to those who do not (Hanggoro et al., 2020). Mental health problems for healthcare workers cause not only a decrease in the healthcare services and patient safety aspect but also can affect the effort of handling the pandemic (Handayani et al., 2020; Rowawi, 2021).

Adaptive coping mechanisms are needed by healthcare workers to create a permanent adaptation as a new habit of dealing with anxiety and stress during the COVID-19 pandemic. Some adaptive coping mechanisms are praying, having enough time to take a rest, mindfulness, sharing and talking to cares person and having hobbies time (Rowawi, 2021). Meanwhile, only 5% of healthcare workers think quitting their jobs as a maladaptive coping mechanism in the face of the COVID-19 pandemic (Tunik et al., 2020).

The midwife is one of the healthcare workers who provide healthcare services at the public health center, Hospital or Independent Midwife Practices during a pandemic. They have risk of experiencing health problem such as anxiety and possibility of being exposed to COVID-19. In Indonesia until July 10, 2021, the death number of a midwife due to COVID-19 was ranked the third highest under doctors and nurses at 14.7% (https://nakes.laporcovid19.org/ 2021). Although most midwifery services do not directly treat patients with confirmed cases, the high mortality number can be a source of mental health problems for midwives. Based on this background, this study aimed to examine anxiety levels and coping skills among midwives.

SUBJECTS AND METHOD

1. Study Design

This was a descriptive study with cross-sectional design. Data collection was carried out in July to August 2021.

2. Population and Sample

The population in this study were midwives who worked in Java Island which have regulation Enforcement of Restrictions on Community Activities (PPKM) level 4. This study used total sampling technique. The sample in this study were 83 midwives.

3. Study Variables

The dependent variable was anxiety and coping skill.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.02

4. Operational definition of variables

Anxiety Level is an unclear fear accompanied by feelings of uncertainty, helplessness, isolation, and insecurity during the COVID-19 pandemic in Midwives. Anxieties measurement tool is the GAD-7 (Generalized Anxiety) questionnaire. This questionnaire values ranges from (not at all), 1 (several days), 2 (more than half of the days/ more often) and 3 (almost every day). The classification of anxiety levels; minimal, mild, moderate and severe anxiety.

Coping Mechanism is mechanisms to face and deal with changes. Coping mechanism measurements using a questionnaire. In this research, the coping mechanism was measured by questionnaire from expert panel. There were 20 statements which consists of 9 adaptive and 11 maladaptive statements.

5. Instruments

The data is in the form of primary data and secondary data. Primary data were obtainned using a questionnaire filled out by research subjects. The instrument used was a questionnaire.

6. Data Analysis

Univariate analysis was carried out to see the frequency distribution and characterristics of the study subjects.

RESULTS

Table 1 shows that characteristic of 83 sub¬j¬ects shows, most of them in early adult¬hood (26-35 years old), the avera¬ge is 34 years old. Most of the subjects work in Com¬m¬unity Health Center (45,8%) and Hos¬¬pital for COVID-19 referral (27.7%) and the majority had >10 years in health work field with the averages about 11 years experiences in health care area.

Table 1. Characteristic of the sample

Characteristics	Category	n	%
Age	≤25 years old (late adolescence)	8	9.6
	26-35 years old (early adulthood)	51	62.4
	36-45 years old (late adulthood)	15	18
	>45 years old (elderly)	9	10
Workplace	Clinic	5	6.0
	Midwifery private clinic	7	8.4
	Primary Health Care	38	45.8
	Hospital for non-covid referral	5	6.0
	Hospital for covid referral	23	27.7
	Others	5	6.0
Work duration	≤ 5 years	21	25.3
	< 10 years	11	13.3
	≥ 10 years	51	61.4

Table 2. Description of Anxiety Level among Midwives

Anxiety Level	Frequency (n)	Percentage (%)
Minimal	42	50,6
Mild	27	32,5
Moderate	11	13,3
Severe	3	3,6
Total	83	100,0

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.02

Table 2 showed the majority of subjects experienced anxiety with varying levels as follows: minimal (50.6%), mild (32.5%), moderate (13.3%), and high (3.6%).

Table 2. Description of Coping Mechanism among Midwives

Coping Mechanism	Frequency (n)	Percentage (%)
Adaptive	78	94,0
Maladaptive	5	6,0
Total	83	100,0

Table 3 shows the majority of midwives had adaptive coping strategy (94%). Only a few midwives had maladaptive coping strategy (6%).

DISCUSSION

1. Anxiety level

The results showed that most of the respondents experienced minimal anxiety, which was 50.6% and there were 3 respondents with severe anxiety. The instrument for measuring the level of anxiety in the study used GAD–7 (Generalized Anxiety Disorder). GAD–7 consists of 7 questions that describe anxiety as a feeling of worry, inability to control anxiety, difficulty relaxing and sitting still, being irritable and afraid of things that seem like bad things will happen.

Anxiety is defined as a vague fear accompanied by feelings of uncertainty, helplessness, isolation, and insecurity. Anxiety is fueled by the unknown and accompanies all new experiences (Stuart, 2016). The high and massive spread rate is accompanied by an increasing death rate, the COVID-19 pandemic can be a triggering factor for anxiety, especially for health workers who serve patients. Several contributing factors for health workers include high demand for care, mortality rate, increasing number of cases, high workload, risk of transmission to self and family to widespread the media information (Alnazly et al., 2021).

In addition, research related to the mental health of health workers in the second wave of the Covid-19 pandemic illustrates that most health workers in China experience symptoms of depresssion (60,2%), anxiety symptoms (49,6%) and insomnia (41,1%). However, correlation studies show that anxiety is not related to the department of work and profession, but is related to the race of the respondents (Zhao et al., 2021).

Research in Italy illustrates that the nursing profession in the ICU experiences symptoms of anxiety and insomnia greater than other professions during the service during the COVID-19 pandemic. Factors that affect anxiety and insomnia are fears of transmitting the virus to families who live in the same house. While the factors of age, length of work and gender and length of work did not affect. However, more than half of the research respondents feel protected while providing services because of the policies imposed by stakeholders (Stocchetti et al., 2021).

Research that describes the anxiety of health workers working in hospitals in Indonesia concludes that there is no anxiety experienced by respondents based on the gender, age, work unit and length of work.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.02

Researchers conclude that health workers have adapted psychologically because of the adequacy of PPE, knowledge and experience in dealing with COVID-19 (Apriliany, 2020). Other studies also illustrate that 70% of health workers do not experience anxiety during health services during a pandemic (Musyarofah et al., 2021).

In this study, half of the subjects (50.6%) experienced a minimal level of anxiety. Minimal anxiety is categorized if the respondent gets a score of 0-4 on the GAD-7 questionnaire. So, most of the 7 questions in GAD-7 are answered with no choice at all. The anxiety experienced by respondents has a strong attachment to coping adaptations made by individuals. In table 1.6 most of the respondents fall into the category of adaptive coping mechanisms in dealing with the COVID-19 pandemic.

2. Coping mechanism

The results of the study describe that most of the respondents perform adaptive coping mechanisms. The adaptive coping mechanisms used by most of the subjects include, instilling optimism that the pandemic will end soon, spiritual approaches by worship and prayer, practicing relaxation techniques to reduce anxiety before work and sharing anxiety with family and closest friends to receive social support.

Activities categorized as maladaptive coping mechanisms carried out by most of the subejcts were diverting attention with social media which were categorized as unproductive actions, increasing the frequency of sleep, being alone and silent. Coping mechanism is an individual response to the changes experienced. Adaptive coping mechanisms are defined as those that support the function of integration, growth and learning to achieve goals. Categories of adaptive coping mechanisms include talking to others, solving problems effectively, relaxation techniques, balanced exercises and constructive activities. Mean¬while, maladaptive mechanisms are defined as activities that are the opposite of adaptive coping mechanisms (Nasir and Muhith, 2011).

The cross-sectional multi-countries study on the types of coping mechanisms for health workers during the pandemic illustrates that 70% of health workers received family support and continue to instill a "positive way of thinking" during health service activities. Spiritual approaches in the form of praying, maintaining healthy eating patterns and sleeping patterns are also carried out to support adaptive coping mechanisms (Htay et al., 2021).

Effective and sustainable coping strategies are very important to keep health workers feeling capable during the work. Based on a systematic review of the mental health of health workers during the pandemic, some of the main coping mechanisms include psychological support from relatives, colleagues, patients and stakeholders, availability of PPE (Personal Protective Equipment), spiritualism and time for hobbies (Scortegagna et al., 2021).

In this study, the adaptive coping mechanism included in the external factor is social support from the closest system in life. This support is given to people around who have a close emotional relationship. These external factors encourage individuals to have optimism to prevent mental health threats. Social support from the closest system is an interpersonal interaction

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.02

of positive affection, affirmation and assistance in the form of attention and opinion assistance (Santoso, 2020).

AUTHOR CONTRIBUTION

Noviyati Rahardjo Putri was the main author who collected and processed the data. Rufidah Maulina, Nurul Jannatul Wahidah and Siti Nurhidayati examined the conceptual framework and the study methodology.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGMENT

The author would like to thank to the lectures at midwifery program, medical faculty, Universitas Sebelas Maret.

REFERENCES

Alnazly E, Khraisat OM, Al-Bashaireh A, Bryant CL (2021). Anxiety, depression, stress, fear and social support during COVID-19 pandemic among Jordanian healthcare workers, PLOS ONE. 16(3): e0247679. https://10.1371/journal.pone.0247679.

Aly HM, Nemr NA, Kishk RM, Elsaid NMAB (2021). Stress, anxiety and depression among healthcare workers facing COVID-19 pandemic in Egypt: a cross-sectional online-based study, BMJ Open, 11(4): e045281. https://10.1136/-bmjopen-2020-045281.

Cabarkapa S, Nadjidai SE, Murgier JNCH (2020). The psychological impact of COVID-19 and other viral epidemics on frontline healthcare workers and ways to address it: A rapid systematic review. Brain, behavior, & immunity - health, 8, 100144. https://doi.org/10.1016-/j.bbih.2020.100144.

Handayani RT, Suminanto, Darmayanti AT, Widiyanto A, Atmojo JT (2020). Kondisi dan strategi penanganan kecemasan pada tenaga kesehatan saat pandemi COVID-19, Jurnal Ilmu Keperawatan Jiwa, 3(3): 367–376.

Hanggoro AY, Suwarni L, Selviana S, Mawardi M (2020). Dampak Psikologis Pandemi COVID-19 pada Petugas Tenaga Kesehatan: A Studi Cross-Sectional di Kota Pontianak, Jurnal Kesehatan Masyarakat Indonesia, 15(2), pp. 13–18. DOI: https:-//doi.org/10.26714/jkmi.15.2.2020.13-18

Htay M, Marzo RR, Bahari R, AlRifai A, Kamberi F, El-Abasiri RA, Nyamache JM, et al. (2021). How healthcare workers are coping with mental health challenges during COVID-19 pandemic? - A cross-sectional multi-countries study. Clinical epidemiology and global health. 11: 100759. https://doi.-org/10.1016/j.cegh.2021.100759.

https://nakes.laporcovid19.org/ (2021) Terima Kasih Pahlawan Kesehatan Indonesia (Thank you Indonesian Health Hero), https://nakes.laporcovid19.org/.

Kementerian Kesehatan Republik Indonesia (2020). Keputusan Menteri Kesehatan Republik Indonesia Nomor HK.01.07/Menkes/413/2020 Tentang Pedoman Pencegahan Dan Pengendalian Coronavirus Disease 2019 (COVID-19), Kementerian Kesehatan Republik Indonesia. Indonesia.

Kementrian Kesehatan Republik Indonesia (2017). PMK No. 40 Tahun 2017 Tentang Pengembangan Jenjang Karir Profesional Perawat Klinis. Indonesia.

Musyarofah S, Maghfiroh A, Abidin Z (2021). Studi Kecemasan pada Tenaga Kesehatan di Masa Pandemi COVID-19 (Anxiety Study on Health Workers during the COVID-19 Pandemic), Jurnal Profesi Kesehatan Masyarakat, 2(1): 81–86. DOI: 10.47575/jpkm.v2i1.210.

Nasir A, Muhith A (2011). Dasar-Dasar Keperawatan Jiwa : Pengantar dan Teori. Pertama. Jakarta: Salemba Medika.

Rowawi H (2021). Kesehatan Jiwa Tenaga Kesehatan Pada Masa Pandemi COVID-19, Rumah Sakit Jiwa Provinsi Jawa Barat. Bandung.

Sahebi A, Nejati ZB, Moayedi S, Yousefi K, Torres M, Golitaleb M (2021). The prevalence of anxiety and depression among healthcare workers during the COVID-19 pandemic: An umbrella review of meta-analyses. Progress in neuro-psychopharmacology & biological psychiatry, 107: 110247. https://-doi.org/10.1016/j.pnpbp.2021.110247.

Santoso, MDY (2020). Review Article: Dukungan Sosial Dalam Situasi Pandemi COVID-19, Jurnal Litbang Sukowati : Media Penelitian dan Pengembangan, 5(1): 11–26. DOI:https://doi.org/10.32630/sukowati.v5i1.184.

Scortegagna SA (2021). Mental health in health professionals facing COVID-19: A systematic review, Psicological-Teoria e Prática, 23(1): 1–20. https://doi.org/10.5935/1980-6906/ePTPC1913976.

Stocchetti N, Segre G, Zanier ER, Zanetti M, Campi R, Scarpellini F, Clavenna A, Bonati M (2021). Burnout in Intensive Care Unit Workers during the Second Wave of the COVID-19 Pandemic: A Single Center Cross-Sectional Italian Study. International journal of environmental research and public health, 18(11), 6102. https://doi.-org/10.3390/ijerph18116102.

Stuart, G. W. (2016) Prinsip dan Praktik Keperawatan Kesehatan Jiwa Stuart Buku 2. Edisi Kedu. Elsevier (Singapore) Pte Ltd.

Tunik, Yulidaningsih, E Hariyanto, A (2020). Gambaran Kecemasan, Depresi dan Mekanisme Koping Perawat Menghadapi Masa Pandemi (Overview of Anxiety, Depression and Coping Mechanisms for Nurses Facing a Pandemic Period in Trenggalek). Poltekkes Kemenkes Malang.

WHO (2021a). COVID-19 Weekly Epidemiological Update, World Health Organization, (December), pp. 1–3. Available at: https://covid19.who.-int/table.

WHO (2021b). WHO Coronavirus (COVID-19) Dashboard, https://covid-19.who.int/2021. Available at: https://covid19.who.int/table.

Zhao Y, Guo J, Liu S, Aizezi M, Zeng Q, Sidike A, Abliz R, et al (2021). Prevalence and Related Factors of Depression, Anxiety, Acute Stress, and Insomnia Symptoms Among Medical Staffs Experiencing the Second Wave of COVID-19 Pandemic in Xinjiang, China, Frontiers in Public Health, 9. https://doi.org-/10.3389/fpubh.2021.671400.

THE CORRELATION BETWEEN MOTTO "DOCTOR FOR THE NATION" AND LEARNING MOTIVATION WITH LEARNING EXPERIENCES: A STUDY OF MEDICAL EDUCATION DURING PANDEMIC

Virga Nurfitria Dewi[1)], Hikmah Muktamiroh[1)], Nurfitri Bustamam[1)], Anisah[2)]

[1)]Faculty of Medicine, Universitas Pembangunan Nasional Veteran Jakarta
[2)]Faculty of Medicine, Universitas Pertahanan

ABSTRACT

Background: The COVID-19 pandemic has made us aware that the toughness of a doctor who is willing to sacrifice and fight behind threats to his safety is needed. Therefore, a medical education institution has a very important role in forming doctors in accordance with these demands, and the medical student need encouragement that can trigger enthusiasm to learn that can be pursued through socializing the motto "doctor for the nation" and learning motivation. This study aimed to determine the relationship between motto "doctor for the nation" and learning motivation with student's learning experiences.
Subjects and Methods: The research design used was the cross sectional method. The sample size was 144 respondents from medical students batch 2nd, 3rd, 4th UPN Veteran Jakarta. The data were collected using questionnaires. The independent variable were motto "doctor for the nation" and learning motivation and the dependent variable was student's learning experiences.
Results: The result of the univariate analysis showed that the students had moderate perception of motto "doctor for the nation" 75.7%, moderate learning motivation 65.3% and enough learning experience 70.8%. The result of the Chi-Square test showed that there was correlation between the motto "doctor for the nation" (OR=9.00; CI 95% 2.72 to 29.70, p=0.001) and learning motivation (OR=3.63; CI 95% 1.26 to 10.47; p=0.020) with learning experiences. The multivariate showed results that the motto "doctor for the nation" has an effect of 7.17 times on the learning experience.
Conclusion: This study showed that the motto "doctor for the nation" and learning motivation has impact to increase student's learning experience.

Keywords: motto, learning motivation, learning experiences

Correspondence:
Virga Nurfitria Dewi, Faculty of Medicine, Universitas Pembangunan Nasional Veteran Jakarta. Jl, Rumah Sakit Fatmawati, Pondok Labu, South Jakarta, Indonesia. E-mail: virganurfitriad@upnvj.ac.id. Mobile: 085161711331.

BACKGROUND

The COVID-19 pandemic has made us aware that the toughness of a doctor who is willing to sacrifice and fight behind threats to his safety is needed. So, Medical education institutions have a critical role in developing qualified, professional, and competent doctors who have the spirit of nationalism and national awareness (Idris, 2007; Lestari, 2012). The learning experience gained will be determined by the quality of a learning process or system in order to induce changes in knowledge and behavior in accordance with its goals (Sugihartono,

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.03

2007). A learning experience is a series of activities carried out by a person in order to obtain competence, information and to also make it easier to understand the content to be studied, consequently affecting learning outcomes and the process of skill development (Sanjaya, 2010). Medical students face high learning demands during the learning process since they must master a large amount of material quickly, which is accompanied by very intensive lecture routines. This need is related to the responsibility of doctors who must help people. Motivation is required in this situation. Learning motivation is defined as something that stimulates and sustains a person's desire to learn (Demolingo, 2018). Medical students who are highly motivated can complete all phases of their study and accept work in any location that fits with society's needs (Dewi, 2015).

Students at UPN Veteran Jakarta's Faculty of Medicine are also motivated to become doctors who serve the country by the motto "doctor for the nation." This motto is based on the history of the Indonesian doctor movement during the colonial period, when doctors prioritized improving public health and participating in many forms of nation-building in order to attain an independent and healthy nation (Pols, 2019). Students are urged to remember the role of doctors as not just healers, but also as pioneers of change and development of a nation, in order to inspire enthusiasm and motivation in achieving their goals (Idris, 2007).

A previous study by Aryanty (2010), students better perceive Problem-Based Learning as a process that is motivated by its own desire. Based on Aryanty's description, motivation plays a very important role, because motivation can trigger encourage learning processes. According to Lisiswanti's 2015 study, a drop in learning motivation causes students to lose enthusiasm, concentration, and interest in ongoing lessons. Furthermore, the motto “doctor for the nation” should be able to remind people of the role of a doctor so that they can learn with excitement, commitment, and dedication. According to Fachry's research in 2010, there is a change in behavior after implementing the motto. Meanwhile, the learning experiences contribute to the development and improvement of self-skills, reflective thinking abilities (Sanjaya, 2010; Iskandar, 2009).

SUBJECT AND METHOD

1. Study Design

This was a analytical research with a cross-sectional design to determine the relationship between motto “doctor for the nation” and learning motivation with medical students' learning experiences.

2. Population and Sample

The population of this study were all Preclinical student of Faculty Medicine UPN Veteran Jakarta. The subjects of this study were Preclinical student of Faculty Medicine UPN Veteran Jakarta who met the criteria. The inclusion criteria in this study were active pre-clinical students of the Faculty of Medicine batch 2nd, 3rd, and 4th, students who were willing to become respondents after informed consent, students who knew

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.03

the meaning of doctors for the nation, and students who had a conducive learning environment. Meanwhile, the exclusion criteria were preclinical level 1 students, respondents who filled out the questionnaire completely, and students who were not physically or psychologically healthy. The sampling technique used a Proportional Stratified Random Sampling with the required sample size was 144 students.

3. Study Variables

The independent variable were Motto "Doctor for The Nation" and Learning Motivation. The dependent variable was learning experiences.

4. Study Instrument

The type of data used is primary data with data collected via google form questionnaires for students in the 2nd, 3rd and 4th years. The instruments in this study are using a motto doctor for the nation questionnaire from Muktamiroh et al research in 2020, using the Motivated Strategies of Learning Questionnaire was adapted from Lisiswanti in 2015, and the Student Experience Questionnaire (SEQ) form Sari in 2018. All questionnaire has been tested and declared valid and reliable.

5. Data Analysis

In this study, researchers used univariate, bivariate, and multivariate data analysis. The variables studied were unpaired categorical data with n x k (2 x 3) tables, so the tests carried out were Chi square tests and alternative tests by combining cells. This research has obtained approval (ethical clearance) from the Research Ethics Committee of the UPN Veteran Jakarta and was carried out after obtaining approval through informed consent which was carried out before data collection.

RESULTS

1. Sample Characteristics

Most of the respondents were female (80.6%). The age of respondents was dominated by 21 years (42.6%) and the largest sample population was from the 4th year batch (35.4%).

Table 1. Characteristics of Study Subject

Characteristics of Subjects	n	%
Gender		
Male	28	19.4%
Female	116	80.6%
Age (years)		
≤ 19 years	34	23.6%
20 years	49	34%
≥ 21 years	61	42.4%
Batch		
2nd	45	31.3%
3rd	48	33.3%
4th	52	35.4%
System		
CVS	45	31.3%
NBS	48	33.3%
Matra	51	35.4%

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.03

2. Univariate Analysis

Table 2 presents that most students have a medium perception of the motto doctor for the nation 109 people (75.7%), moderate learning motivation is the most common among students (65.3%), and the majority of respondents have sufficient learning experience as many as 102 respondents or 70.8%.

Table 2. Distribution of The Each Variable Level

Independent Variable	n	%
Motto Doctor for The Nation		
Low	14	9.7
Moderate	109	75.7
High	21	14.6
Learning Motivation		
Low	23	16
Moderate	94	65.3
High	27	18.7
Learning Experiences		
Less	20	13.9
Sufficient	102	70.8
Good	22	15.3

3. Bivariate Analysis

Table 3 shows that most of students, approximately 117 persons have high perception of motto doctor for the nation and had good learning experiences (90%).

Table 3. Bivariate Analysis of Correlation of Motto Doctor for the Nation with Student's Learning Experience

Motto Doctor For The Nation	Learning Experiences				Total		OR (95% CI)	p
	Less + Sufficient		Good					
	n	%	n	%	n	%		
Low+Moderate	7	50	7	50	14	100	9.00 (2.7-29.7)	0.001
High	13	10	117	90	130	100		

Table 4. Bivariate Analysis of Correlation of learning Motivation with Student's Learning Experience

Learning Motivation	Learning experience				Total		OR (95% CI)	p
	Less + Sufficient		Good					
	n	%	n	%	n	%		
Low+Moderate	7	30.4	16	69.6	23	100	3.64 (1.26-10.47)	0.020
High	13	10.7	108	8.3	121	100		

Table 4 shows that the majority of respondents have high motivation and have good learning experiences, 108 people (75%) with p= 0.020 in the bivariate analysis so that it can be concluded that there is a relationship between learning motivation and learning experience.

4. Multivariate Analysis

The doctor's motto for the nation has an effect of 7.17 times on the learning experience while learning motivation has no significant effect on the learning experience (Table 5).

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.03

Tabel 5. Multivariate Analysis of Correlation of Motto Doctor For The Nation and Learning Motivation with Student's Learning Experience

No	Variable	OR	p
1	Motto Doctor for The Nation	7.17	0.002
2	Learning Motivation	2.48	0.126

DISCUSSION

Furthermore, the results of the analysis also obtained a value of OR= 9.00, meaning that students who have high learning motivation have 9.0 times the opportunity to have a good learning experience. With a p value of 0.001 in the bivariate analysis, it can be stated that there is a relationship between learning motivation and learning experience.

Accordance with Marthalena's research (2017) that a motto should contribute as a motivating force for reaching the motto's goals. The motto doctor for the nation serves to motivate, as a reminder (reminder), for self-improvement (development), and as a commitment to position and prepare to become a nation's doctor who not only heals, but also as a pioneer of change and development.

So that it could stimulate students' interest, determination, and sincerity in their studies, and so improve the quality of individuals' learning experiences in order to achieve information and skills in accordance with their aims (Sari, 2018. In addition, the results of the bivariate analysis also obtained a value of OR= 3.64, meaning that students who have high learning motivation have 3.6 times the opportunity to have a good learning experience.

According to Muhammad (2016), someone with a strong desire or motivation will have a positive impact on academic performance and the achievement of learning goals in the learning process. Also, will ultimately form a good learning experience at the end of the learning program in the form of knowledge, skills, changes attitude or in the form of satisfactory achievement or learning outcomes (Muhammad, 2016).

Learning motivation is connected with the learning process because motivation causes students to desire or urge to participate in learning activities. Furthermore, motivation impacts the learning's direction and belief, as well as ensuring its continuity (Sardiman, 2014).

The researcher opine that the results of the analysis cannot be explained because there has been no research that has examined the same variable before. However, this may be due to the fact that in this study that respondents who have a high perception of motto doctor for the nation with a good learning experience are more dominant, compared to respondents who have high learning motivation with a good learning experience.

According to Fachry (2010), the motto has a considerable influence if it is implemented properly, by being understood, internalized, actualized and manifested in the form of behavior. The absence of the influence of learning motivation on the learning experience compared to the doctor's motto for the nation can be caused by

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.03

many other contributing elements, such as teaching and learning methods, and time management. In addition, there are quite a lot of learning motivation questionnaire items so that students are not motivated again when filling out the questionnaire (Iskandar, 2009).

Based on the results of the research and discussion that have been described, it can be concluded that the perception of motto "doctor for the nation" in students is dominated by the moderate level, the moderate level of learning motivation and sufficient learning experience. In addition, there is a relationship between motto "doctor for the nation" and learning motivation with learning experiences for students of the Faculty of Medicine.

REFERENCES

Aryanty N, Rahayu GR (2010). Pengalaman belajar mahasiswa tahun pertama Fakultas Kedokteran Universitas Gadjah Mada menggunakan problem-based learning. Universitas Gajah Mada.

Demolingo DPA, Kalalo F, Katuuk M (2018). Hubungan stres dengan motivasi belajar pada mahasiswa semester V Program Studi Ilmu Keperawatan Fakultas Kedokteran Universitas Sam Ratulangi Manado. Jurnal Keperawatan. 6(1). https://doi.org/-10.35790/jkp.v6i1.19467.

Dewi SP, Arya IF, Achadiyani, Achmad TH (2015). Gambaran motivasi menjadi dokter pada mahasiswa tahun pertama Fakultas Kedokteran Universitas Padjadjaran. Jurnal Sistem Kesehatan. 1(1):6. https://doi.org/-10.24198/jsk.v1i1.10338.

Fachry M (2010). Keterkaitan Motto Pengabdian Brimob "Jiwa Ragaku Demi Kemanusiaan Pada Perubahan Perilaku Personel Korps Brimob Polri. Universitas Indonesia.

Idris F (2007). Semangat Kebangkitan Nasional adalah Semangat Dokter Indonesia Membangun Kehormatan dan Ketahanan Bangsa. Orasi Ilmiah Hari Ulang Tahun Ikatan Dokter Indonesa ke-59. http://idionline.org/upload/kiprah_dokter/OrasiIlmiah etum IDI.pdf.

Iskandar (2009). Psikologi Pendidikan Sebuah Orientasi Baru. Jakarta: Gaung Persada Press.

Lestari R (2012). Kebijakan Pendidikan Kedokteran di Indonesia. Jurnal Info Singkat Kesejahteraan Sosial; IV(08/II/P3DI).

Pols H (2019). Merawat Bangsa, Sejarah Pergerakan Para Dokter Indonesia. PT Kompas Media Nusantara.

Lisiswanti R, Sanusi R, Prihatiningsih TS (2015). Hubungan Motivasi dan Hasil Belajar Mahasiswa Kedokteran. Jurnal Pendidikan Kedokteran Indonesia. 4(1):1–6.

Marthalena (2017). Studi dampak implementasi motto kota serang dengan pendekatan teori fenomenologi Husserl. Jurnal Administrasi Negara. 5(1):6. https://-doi.org/10.30656/sawala.v5i1.467.

Muhammad M (2016). Pengaruh Motivasi Dalam Pembelajaran. Jurnal Lantanida; Vol 4(2):11.

http://dx.doi.org/10.22373/lj.v4i2.1881.

Sanjaya W (2010). Perencanaan dan Desain Sistem Pembelajaran. Jakarta; Kencana Media Grup.

Sardiman AM (2014). Interaksi dan Motivasi Belajar Mengajar. Jakarta: Rajawali Pers.

Sari AG (2018). Pengalaman Belajar Mahasiswa Fakultas Kedokteran Universitas Lampung pada Blok Emergency Tahun 2018. Universitas Lampung.

Sugihartono, Fathiyah KN., Harahap F, Setiawati FA, Nurhayati SR. (2007). Psikologi pendidikan. Yogyakarta: UNY Press.

FACTORS ASSOCIATED WITH LOW PARTICIPATION OF COVID-19 VACCINATION PROGRAM IN THE ELDERLY, IN KARANG ANYAR HEALTH CENTER, SOUTH LAMPUNG: A QUALITATIVE STUDY

Dian Isti Angraini, Fitria Saftarina, Bagus Pratama

Faculty of Medicine, Universitas Lampung, Indonesia

ABSTRACT

Background: Older adults are more likely to get very sick from COVID-19. Getting very sicks means that older adults with COVID-19 might need hospitalization, intensive care, or a ventilator to help them breathe, or they might even die. According to World Health Organization, older people should be prioritized for vaccination. However, previous studies have reported COVID-19 vaccination hesitancy and low participation in older adults. This study aimed to determine factors associated with low participation in COVID-19 vaccination among the elderly at Karang Anyar Health Center, South Lampung.
Subjects and Method: This was a qualitative study with phenomenological approach conducted at Karang Anyar Health Center, South Lampung, from June to July 2021. A sample of 15 elderly was selected by purposive sampling. The data were collected by in-depth interview and analyzed descriptively.
Results: The majority of subjects were 66-70 years of age (53.33%) and female (60%). The factors associated with low participation in COVID-19 vaccination included: (1) Lack of knowledge, attitudes and behavior of the elderly; (2) Lack of support from their families for COVID-19 vaccination; and (3) Weak implementation of the COVID-19 vaccination for the elderly.
Conclusion: The factors associated with low participation in COVID-19 vaccination include lack of knowledge, attitudes and behavior of the elderly and family, as well as weak implementation of the COVID-19 vaccination program for the elderly.

Keywords: low participation, vaccination, COVID-19, elderly

Correspondence:
Dian Isti Angraini. Faculty of Medicine, Universitas Lampung. Jl. Prof. Soemantri Brojonegoro 1 Bandar Lampung, Indonesia. Email: riditie@gmail.com. Mobile: +6281279061921

BACKGROUND

Corona Virus Disease 2019 (COVID-19) as a non-natural disaster. Since the announcement of the first confirmed case in March 2020, within a period of one month, all provinces have reported confirmation cases. The spread of COVID-19 has not only occurred in the Special Capital Region of Jakarta and other densely populated cities, but has spread to rural areas in remote areas. As of July 21, 2021, a total of 2,983,830 confirmed cases of COVID-19 have been reported in Indonesia and a total of 77,583 people have died (Ministry of Health of the Republic of Indonesia, 2021a). Meanwhile, Lampung Province recorded 29,519 confirmed cases with 1,670 deaths as of 21 July 2021 (Covid-19 Task Force, 2021a). The Karang Anyar Health Center recorded that from January 2021 to June 2021 there were a total of 158 confirmed cases, with PCR examinations totaling 122 cases and 36 cases with antigen testing

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.04

with 3 deaths (Karang Anyar Health Center, 2021).

The COVID-19 pandemic poses a major challenge in efforts to improve the health status of the Indonesian people and has an impact on the Indonesian health system as seen from the decline in performance in several health programs. This is due to the priority in dealing with the COVID-19 pandemic as well as the concerns of the public and officers regarding the transmission of COVID-19. In some areas, the COVID-19 pandemic situation has even resulted in temporary closures and/or delays of health services, especially at posyandu and puskesmas. Therefore, it is necessary to immediately intervene not only in terms of implementing health protocols but also other effective interventions to break the chain of disease transmission, namely through vaccination efforts (*Kemenkes RI*, 2021). For years, vaccines have been proven to reduce the incidence of infectious diseases through the mechanism of the human body's immunity (Mortellaro & Ricciardi, 2011).

The COVID-19 vaccine was developed to assist the formation of individual body immunity so that the administration of the COVID-19 vaccine is expected to accelerate the formation of group immunity (herd immunity) which will have an impact on reducing the number of infected cases (WHO, 2020). Efforts to develop an ideal vaccine for the prevention of SARS-CoV-2 infection with various platforms have been carried out, namely inactivated virus vaccines, live attenuated virus vaccines, virus vector vaccines, nucleic acid vaccines, and virus-like vaccines), and protein subunit vaccine (*Kemenkes RI*, 2021a).

The COVID-19 vaccination aims to reduce the transmission/ transmission of COVID-19, reduce morbidity and mortality due to COVID-19, achieve herd immunity and protect the community from COVID-19 in order to remain socially and economically productive. Herd immunity can only be formed if vaccination coverage is high and evenly distributed throughout the region. Prevention efforts through the provision of vaccination programs if assessed from an economic point of view, will be much more cost-effective, when compared to treatment efforts (Ministry of Health of the Republic of Indonesia, 2021a).

The COVID-19 vaccination program in Indonesia began on January 13, 2021. For the first batch, the vaccine was given to health workers, public officials, and the elderly. In the second wave, the targets of vaccination are vulnerable groups and the general public. The government targets 181.5 million people to have received the COVID-19 vaccination by March 2022 (Ministry of Health of the Republic of Indonesia, 2021b). To meet the targets that have been set, the Indonesian government is trying to ensure the availability of vaccines. The types of vaccines that have been and will be used in Indonesia are AstraZeneca, Moderna, Pfizer, Sinopharm and Sinovac (*Kemenkes RI*, 2020a). The five types of vaccines have different efficacy based on clinical trials that have been carried out.

The World Health Organization (WHO) explained that vaccine performance can be seen from three

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.04

measurements, namely through the efficacy, effectiveness, and impact of vaccines (WHO, 2021). Vaccine efficacy measures the reduced risk of infection occurring in vaccinated individuals in controlled situations. These efficacy data were obtained from a randomized control trial. While vaccine effectiveness measures the reduction in the risk of infection occurring in vaccinated individuals related to the implementation of vaccination in the community or in the real world using observational studies. Furthermore, the impact of vaccines is to reduce the risk of infection or disease in a population where some of the people have been vaccinated.

Studies showing the effectiveness of vaccines in several countries have been carried out (Amit et al., 2021; Dagan et al., 2021; Hall et al., 2021). However, data is not yet available showing how the impact of the vaccine has on the Indonesian people, especially with regard to the five types of vaccines used. A study measuring the impact of vaccines on the population was carried out in the UK using two types of vaccines namely AstraZeneca and Pfizer (Pritchard et al., 2021).

The Indonesian government until April 2021 targets that 40.3 million people have been vaccinated with the complete dose (twice the injection dose). Three types of vaccines namely Sinovac, AstraZeneca and Sinopharm have been used in Indonesia, but the achievement of vaccine delivery until the end of April 2021 only reached 19% of the target (Covid-19 Task Force, 2021b). In addition to the low speed of vaccine delivery, another thing that causes the low coverage of the COVID-19 vaccine is the lack of public acceptance of the vaccine itself. Harapan et al., found that vaccine acceptance would be higher in high-efficacy vaccines (Harapan et al., 2020). In the first stage, the type of vaccine that is widely used is Sinovac which is considered to have low efficacy. If we refer to the performance of vaccines according to WHO, we need information on how the vaccine impacts at the community level.

The elderly (elderly) are an age group that is vulnerable to COVID-19 transmission and morbidity, so the government includes the elderly in the priority group for COVID-19 vaccination recipients. As of July 21, 2021, the vaccination achievement in Indonesia was 20.58% for dose 1 and 8.03% for dose 2. Meanwhile, the vaccination achievement for Lampung Province for dose 1 was 8.76% and dose 2 was 4.11%. In the elderly group, the national vaccination achievement was 21.90% for dose 1 and 13.86% for dose 2. The vaccination achievement for the elderly group in Lampung Province was still very low, namely 6.77% for dose 1 and 4.31% for dose 2. Based on data from the Karang Anyar Health Center it is known that the achievement of COVID vaccination -19 in the elderly group in the work area amounted to 187 people, still low. This study aims to determine the factors associated with the low participation of COVID-19 vaccination in the elderly at the Karang Anyar Health Center, South Lampung.

SUBJECTS AND METHOD

1. Study Design

This was an exploratory qualitative study with a phenomenological

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.04

approach. This qualitative research was conducted using a descriptive phenomenological method, the researchers tried to explore the meaning and significance and tried to explore the phenomenon of the factors that caused the low coverage of COVID-19 vaccination in the elderly in the working area of the Karang Anyar Health Center, South Lampung.

This study was conducted in the Karang Anyar Health Center, South Lampung, fom June to July 2021.

2. Study informants

The selection of informants in this study used purposive sampling, the technique of determining samoel by considering certain criteria.

Inclusion criteria:

1. Elderly >60 years old
2. Can communicate fluently
3. Do not have impaired cognitive function

The number of informants selected in this study were 15 elderly people.

3. Data Analysis

The instrument used is a qualitative research instrument, namely an in-depth interview guide that contains questions used in data collection, field notes and a recording device. The process of collecting data in this study was carried out by in-depth interviews with participants/informants, namely the elderly (age group > 60 years).

Data analysis is carried out simultaneously with the process of collecting data, making interpretations and writing reports. Data analysis in qualitative research is an activity that is carried out continuously during the research, starting from collecting data to the stage of writing reports. Activities in the analysis include: data reduction (data reduction), data presentation (data display) as well as drawing conclusions and verification (conclusion drawing or verification) (Afrizal, 2015).

Validity and reliability tests are carried out by a triangulation process and member checking. Triangulation technique with source and theory triangulation. Source triangulation was carried out by interviewing the village head (Kades), health cadres, family members of informants, and health officers/program holders at the Karang Anyar Health Center.

RESULTS

Sociodemographic characteristics of informants

Characteristics of 15 elderly people, the majority of informants are 66-70 years old, 8 people (53.33%), 9 people (60%), female, most of the informants have no partner (widower or widow) as many as 11 people (73.33%, most of the informants live with their children/families, as many as 12 people (80%) (Table 1).

Based on the thematic analysis of the results of in-depth interviews with the elderly group, three themes were identified related to the factors causing the low coverage of COVID-19 vaccination for the elderly group in the Karang Anyar Health Center, South Lampung, namely the knowledge of the elderly and their families regarding the COVID-19 vaccination program, attitude and behavior of the elderly. and families regarding the COVID-19 vaccination, and the support system in the implementation of the COVID-19 vaccination for the elderly.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.04

Table 1. Sociodemographic characteristics of informants

Characteristics	Category	Frequency (n)	Percentage (%)
Age	60-65 years	5	33.33
	66-70 years	8	53.33
	71-75 years	2	13.33
Gender	Male	6	40
	Female	9	60
Marital	Married	4	26.67
Status	Widow/widower	11	73.33
Domicile	Home alone apart from children	3	20
	Living with children	12	80

1. Knowledge of the elderly and families about the COVID-19 vaccination program

Knowledge of the elderly and their families regarding the COVID-19 vaccination program for the elderly is still not good. Almost all of the informants already know about the definition and symptoms of the COVID-19 infectious disease, but the prevention of COVID-19 is only limited to 3M, namely wearing masks, washing hands and keeping a distance, and the informants' knowledge about vaccination is still not good. According to informants, COVID is a disease caused by a corona virus that is transmitted from person-to-person contact with the most commonly recognized symptoms being fever, cough and shortness of breath. According to the informant, prevention of COVID-19 based on interview results is still limited to 3M, namely wearing masks, washing hands and maintaining distance. Respondents' knowledge about vaccination is not good, namely the vaccination process is to inject the virus into the body with the aim of increasing immunity and preventing.

2. Attitudes and behavior towards the COVID-19 vaccination program

The attitude and behavior of the elderly to carry out COVID-19 vaccination is not good. They are still reluctant to participate in vaccinations because they are still afraid of being injected, they don't need to be vaccinated because they are old and vaccines will cause COVID-19 and other diseases or aggravate existing diseases to cause death. In addition, it was also known that the informant's family members, namely the informant's children or grandchildren, also did not allow the informant to carry out the COVID-19 vaccination for fear of causing COVID-19 disease, other diseases and even death. In addition, the behavior of other families related to the behavior of treating and preventing disease complications that exist in the informants is also not good. It is the fact the family does not want or is reluctant to take their parents or grandparents to seek treatment at the Puskesmas, doctor or other health facilities on the grounds that they will later be sentenced to suffer from COVID-19 whatever the disease.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.04

3. Family support in the implementation of COVID-19 vaccination

Support in the implementation of the COVID-19 vaccination program for the elderly in the working area of the Karang Anyar Health Center is also still not good. The support system in question is lack of family support (not allowed, no one can deliver vaccines at the Puskesmas), lack of support from community leaders or local government officials, limited access and delivery of correct information related to COVID-19 vaccination, availability of vaccines in hospitals. Karang Anyar Health Center which is still low, the location of the COVID-19 vaccination is still limited to the Puskesmas so that it cannot reach the elderly whose homes are far from the Puskesmas, the limitations of vaccination services by the Puskesmas, and the process of selecting COVID-19 vaccination targets for the elderly who are still lacking.

DISCUSSION

According to Law Number 13 of 1998, an elderly person is someone who has reached the age of 60 (sixty) years and over. The elderly population continues to experience an increase in line with progress in the health sector, which is marked by an increase in life expectancy and a decrease in mortality. These demographic developments can have an impact in the health, economic, and social fields. For this reason, data related to aging are needed as mapping material and policy strategies so that the growth of the elderly population becomes a potential that helps build the nation (BPS, 2020).

Most of the informants in this study were young elderly, aged 60-69 years and female. This is in accordance with BPS data (2020), which states that there are more female elderly than male elderly (52.29% compared to 47.71%). When viewed from the age group, the percentage of the elderly in Indonesia is mostly filled by the young elderly (age group 60-69 years) with a percentage of 64.29%, followed by the middle elderly (age group 70-79 years) at 27.23 percent and finally the elderly. (80+ years age group) by 8.4%. The Ministry of Health of the Republic of Indonesia (2016) also states that the elderly population is mostly women, which indicates that the highest life expectancy is elderly women.

Based on the results of in-depth interviews with informants, it is known that the knowledge of elderly informants about COVID-19 and vaccination is still lacking. According to the Indonesian Ministry of Health (2020c), COVID-19 is an infectious disease of the Coronavirus, a new type of disease that has never been previously identified in humans. The virus that causes COVID-19 is called Sars-CoV-2. Corona virus is zoonotic (transmitted between animals and humans).

Research says that SARS was transmitted from civet cats to humans and MERS from camels to humans. Meanwhile, the animal that is the source of the transmission of COVID-19 is still unknown. Common signs and symptoms of COVID-19 infection include symptoms of acute respiratory distress such as fever, cough and shortness of breath. The average incubation period is 5-6 days with the longest incubation period being 14 days. In

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.04

severe cases of COVID-19 it can cause pneumonia, acute respiratory syndrome, kidney failure, and even death. The clinical signs and symptoms reported in the majority of cases were fever, with some cases having difficulty breathing, and X-rays showing extensive pneumonia infiltrates in both lungs.

The informant's knowledge about preventing the transmission of COVID-19 is also still not good, the informant only knows 3M, namely wearing masks, washing hands with soap and keeping a distance. The informants did not know in more detail about 3M, for example, regarding what types of masks can be used, when and how to wash hands using soap properly and how to keep a distance. In addition, informants do not know that the prevention of COVID-19 transmission is at least 5 M, namely wearing masks, washing hands with soap, maintaining a minimum distance of 1 meter, staying away from crowds and reducing mobility or at home (Kemenkes RI, 2020c).

Informants' knowledge about COVID-19 vaccination is also not good. According to the informant, the vaccination process is to inject the virus into the body with the aim of increasing immunity and preventing it. According to the Ministry of Health of the Republic of Indonesia (2021b) vaccination is a process in the body, where a person becomes immune or protected from a disease so that if one day he is exposed to the disease he will not get sick or only experience mild illness, usually by giving the vaccine. Vaccines are biological products containing antigens in the form of microorganisms or parts thereof or substances they produce which have been processed in such a way that they are safe, which when given to a person will cause active specific immunity against certain diseases. Vaccines are not drugs, they encourage the formation of specific immunity in the body to avoid contracting or possibly getting seriously ill. As long as there is no definitive cure for COVID-19, a safe and effective COVID-19 vaccine is accompanied by preventive behavior. Vaccination is not only aimed at breaking the chain of disease transmission and stopping the outbreak, but also in the long term to eliminate and even eradicate the disease itself.

The attitude and behavior of the elderly to carry out COVID-19 vaccination is not good. They are still reluctant to participate in vaccination because they are still afraid of being injected. This fear or concern can arise because of incorrect/hoax information related to the procedures and side effects of vaccination and the safety of the COVID-19 vaccine itself. According to the Indonesian Ministry of Health (2021b) mass-produced vaccines have gone through a long process and must meet the main requirements, namely: Safe, Effective, Stable and Efficient in terms of cost. Aspects of vaccine safety are ensured through several stages of clinical trials that are correct and uphold the rules of science, science and health standards. The Indonesian government only provides COVID-19 vaccines that are proven safe and have passed clinical trials, and have received Emergency Use of Authorization (EUA) from BPOM.

Informants do not want to be vaccinated because they think that if vaccinated it will cause COVID-19 and

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.04

other diseases or worsen existing diseases to cause death. The COVID-19 vaccine used worldwide is effective in preventing severe illness and death from the coronavirus, but some people can still become infected after being vaccinated. With cases of infection after being vaccinated, health experts say that the vaccine will help reduce the severity of the disease. Experts are also trying to find answers whether cases of COVID-19 after being vaccinated can cause Long COVID. Some studies estimate that about 30 percent of unvaccinated COVID-19 patients experience Long COVID symptoms such as shortness of breath, fatigue, difficulty concentrating, insomnia, and brain fog. Similar symptoms can also develop after other viral infections.

Other family behaviors related to the behavior of treating and preventing disease complications that exist in the informants are also not good, namely the family does not want or is reluctant to take their parents or grandparents for treatment to the Puskesmas, doctor or other health facilities on the grounds that later they will be sentenced as COVID-19 sufferers regardless of the disease. This is because the informants and their families received false/hoax information regarding the COVID-19 vaccination. According to UNICEF (2021) there are many hoaxes circulating in the community that refuse to be vaccinated because being told the COVID-19 vaccine causes the recipient to die within three years of the vaccine being given. Some people who believed this information have now died because they did not want to be vaccinated and did not apply health protocols and the family members left behind began to realize that the hoax had taken their loved ones. This family behavior is one of the main things that support the behavior of informants, because most of the informants live with their families, namely children, daughters-in-law and grandchildren, so that most of the informants' behavior is also influenced by the behavior of other family members.

The support system in the implementation of the COVID-19 vaccination program for the elderly in the working area of the Karang Anyar Health Center is also still not good. The support system in question is lack of family support (not allowed, no one can deliver vaccines at the Puskesmas). Family support for the elderly is very important, because without family support, almost all elderly activities outside the home cannot be done independently. According to Mulyati (2015), family support is needed so that the elderly feel that their lives are useful. Especially for the elderly who live with family children, they must pay attention and encourage the elderly to be active in activities that are in the environment where the elderly live. Families are also expected to give more attention to the elderly because the elderly also want a sense of love and care, not only the material provided. Families are expected to provide good information to the elderly who live alone. According to Notoadmojo (2010), there is a relationship between the family and the independence of the elderly with the help and assistance of the family, the elderly will be easy to do their independence in daily life because the elderly feel cared for so that they achieve good independence.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.04

The lack of support from community leaders or local government officials in COVID-19 vaccination for the elderly is due to the lack of proper information and binding rules. The location for the implementation of the COVID-19 vaccination is still limited to the health center so that it cannot reach the elderly whose homes are far from the health center, causing the elderly to not be able to participate in the COVID-19 vaccination program, plus elderly family members are reluctant or unable to deliver informants to the Puskesmas to get COVID-19 vaccinations. The limitations of vaccination services by Puskesmas, and the process of selecting COVID-19 vaccination targets for the elderly are still lacking due to the unequal distribution of COVID-19 vaccination services from the central government.

AUTHOR CONTRIBUTION

Dian Isti Angraini is the main writer who chooses topics, processes data and writes articles. Fitria Saftarina as coauthor plays a role in processing and analyzing the data. Bagus pratama as coauthor plays a role in data collection.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGMENT

The researcher thanks the Village Head and the Preceptor of the Karang Anyar Health Center for Education who have helped and provided suggestions for this manuscript.

REFERENCES

Afrizal (2015). Metode Penelitian Kualitatif (Qualitative Research Methods). Jakarta: PT RajaGrafindo Persada.

Amit S, Regev YG, Afek A, Kreiss Y, Leshem E (2021). Early rate reductions of SARS-CoV-2 infection and COVID-19 in BNT162b2 vaccine recipients. The Lancet, 397(10277), 875–877. DOI: https://doi.org/10.1016/-S0140-6736(21)00448-7

Badan Pusat Statistik (BPS) (2020). Statistik Penduduk Lanjut Usia (Elderly Population Statistics). Jakarta: Badan Pusat Statistik.

Dagan N, Barda N, Kepten E, Miron O, Perchik S, Katz MA, Hernán MA et al (2021). BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Mass Vaccination Setting. New England Journal of Medicine, 384(15), 1412–1423. DOI: https://doi.org/10.1056/-nejmoa2101765.

Hall VJ, Foulkes S, Saei A, Andrews N, Oguti B, Charlett A, Wellington E et al. (2021). COVID-19 vaccine coverage in health-care workers in England and effectiveness of BNT162b2 mRNA vaccine against infection (SIREN): a prospective, multicentre, cohort study. The Lancet, 397(10286), 1725–1735. DOI: https://-doi.org/10.1016/S0140736(21)00790-X

Harapan H, Wagner AL, Yufika A, Winardi W, Anwar S, Gan AK, Setiawan AM et al. (2020). Acceptance of a COVID-19 Vaccine in Southeast Asia: A

Cross-Sectional Study in Indonesia. Frontiers in Public Health, 8: 1–8. https://doi.org/10.3389/-fpubh.-2020.00381.

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2016). Infodatin Situasi Lanjut Usia Di Indonesia (Infodatin Situation of Elderly in Indonesia). Jakarta: Kemenkes RI.

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2020a). Keputusan Menteri Kesehatan Republik Indonesia Nomor Hk.01.07/Menkes/12757-/2020 Tentang Penetapan Sasaran Pelaksanaan Vaksinasi Corona Virus Disease 2019 (Covid-19) (Decree of the Minister of Health of the Republic of Indonesia Number Hk01.-07/Menkes/1275-7/2020 concerning the Determination of Targets for the Implementation of the Corona Virus Disease 2019 (Covid-19) Vaccination). In Keputusan Menteri Kesehatan Republik Indonesia No. Hk.01.07/Menkes/12757/-2020 Tentang Penetapan Sasaran Pelaksanaan Vaksinasi Corona Virus Disease 2019 (Covid-19).

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2020b). Frequently Asked Question Seputar Pelaksanaan Vaksinasi COVID-19. https://k0esmas.-kemkes.go.id/assets/uploads/contents/others/FAQ_VAKSINASI_COVID__call_center.pdf. Accessed Agustus 2021.

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2020c). Pedoman Pencegahan dan Pengendalian Corona Virus Disease (COVID-19) (Guidelines for the Prevention and Control of Corona Virus Disease (COVID-19)). Jakarta: Kemenkes RI.

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2021a). Petunjuk Teknis Pelaksanaan Vaksinasi dalam Rangka Penanggulangan Pandemi Corona Virus Disease 2019 (COVID-19). Jakarta: Kemenkes RI.

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2021b). Pelaksanaan Vaksinasi COVID-19 di Indonesia Membutuhkan Waktu 15 Bulan Sehat Negeriku (Implementation of COVID-19 Vaccination in Indonesia Takes 15 Months Healthy My Country). https://sehat-negeriku.kemkes.go.id/baca/rilis media/20210103/2536122/pelaksanaan-vaksinasi-covid-19-indonesiamembutuhkan. Diakses Juli 2021.

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2021c). Peraturan Menteri Kesehatan Republik Indonesia Nomor 10 Tahun 2021 Tentang Pelaksanaan Vaksinasi Dalam Rangka Penanggulangan Pandemi Corona Virus Disease 2019 (COVID-19) (Regulation of the Minister of Health of the Republic of Indonesia Number 10 of 2021 concerning the Implementation of Vaccination in the Context of Combating the Corona Virus Disease 2019 (COVID-19) Pan-demic). Jakarta: Kemenkes RI.

Mortellaro A, Ricciardi CP (2011).

From vaccine practice to vaccine science: The contribution of human immunology to the prevention of infectious disease. Immunology and Cell Biology, 89(3): 332–339. https://doi.org/-10.1038/icb.2010.152.

Mulyati (2015). Dukungan Sosial dan ekonomi Keluarga terhadap Kualitas Hidup dan Kesejahteraan Lansia di Kota Bogor (Family Social and Economic Support for Quality of Life and Welfare of the Elderly in Bogor City). Tesis. Bogor: Institut Pertanian Bogor.

Notoadmodjo S (2010). Komunikasi dalam Keperawatan Genetik (Communication in Genetic Nursing). Jakarta: Buku Penerbitan Buku Kedokteran EGC.

Pritchard E, Matthews PC, Stoesser N, Eyre DW, Gethings O, Vihta KD, Jones J. et al. (2021). Impact of vaccination on SARS-CoV-2 cases in the community: a population-based study using the UK's COVID-19 Infection Survey. MedRxiv. https://doi.org/10.1101/-2021.04.22.21255913.

Puskesmas Karang Anyar. (2021). Data COVID-19 dan Vaksinasi Puskesmas Karang Anyar (Data on COVID-19 and Vaccination of Karang Anyar Health Center). Jati Agung: Puskesmas Karang Anyar.

Satuan Tugas Penanganan (Satgas) COVID-19. (2021a). Peta Sebaran (Distribution Map). https://covid19.go.id/peta-sebaran-covid-19. Diakses Juli 2021.

Satuan Tugas Penanganan (Satgas) COVID-19. (2021b). Berita Terkini Data Vaksinasi COVID-19 (Update per 1 Mei 2021) (Latest News COVID-19 Vaccination Data (Update as of May 1, 2021). https://covid19.go.id/p/berita/-data-vaksinasicovid-19-update-1.mei-2021. Diakses Agustus 2021.

United Nations International Children's Emergency Fund (UNICEF). (2021). Hoaks Membunuh Ayahku: Menyingkap pandemi lain di Indonesia (Hoax Killed My Father: Uncovering another pandemic in Indonesia). https://-www.unicef.org/indonesia/id/-coronavirus/cerita/hoaksmembunuhayahkumenyingkappandemilaindiindonesia?gclid=EAIaIQobChMIpovR6L_O8w¬IV0RwrCh3W9QmKEAAYASAAEgLgh_D_BwE.Diakses Juli 2021.

World Health Organization (WHO). (2020). Global srveillance for human infection with novel Coronavirus (2019-nCoV). https://-www.who.int/publications/i/-item/globalsurveillance-for-human-infection-with-novel-coronavirus-(COVID-19). Diakses Juli 2021.

World Health Organization. (2021). Evaluation of COVID-19 vaccine effectiveness.https://www.who.-int/publications/i/item/WHO-2019nCoVvaccine_effectiveness-measurement-2021.1. Accessed Agustus 2021.

THE THEORY OF PLANNED BEHAVIOR ON ADOLESCENTS SEXUAL BEHAVIOR IN MALANG, EAST JAVA

Santy Irene Putri[1)], Dian Jayantari Putri K. Hedo[2)], Rayi Aprianandа[3)]

[1)]Midwifery Study Program, University of Tribhuwana Tunggadewi Malang
[2)]National Population and Family Planning Board (BKKBN)
[3)]Wilujeng General Hospital, Padangan, Kediri

ABSTRACT

Background: The adolescents' reproductive organs function begins to be active and develops during this phase. It will elicit adolescents' curiosity about sexuality that can impact their behavior. One of them is sexual behavior. Because adolescents' risky sexual behavior hurts health, it is crucial to study sexual behavior further. This study aimed to determine adolescents' sexual behavior using the Theory of Planned Behavior.
Subjects and Method: This observational analytic study with a cross-sectional design was conducted in Malang in September 2021. A total of 300 adolescents aged 15-24 years old was selected by simple random sampling. The dependent variable was adolescents' sexual behavior. The independent variables were attitude, subjective norm, perceived behavioral control, and intention. The data were collected by questionnaire and analyzed by multiple logistic regression.
Results: Adolescents' sexual behavior has correlation with positive attitude (OR= 1.80; 95% CI = 1.09 to 2.97; p = 0.022), supportive subjective norm (OR= 2.75; 95% CI = 1.66 to 4.55; p<0.001), strong perceived behavioral control (OR= 2.45; 95% CI = 1.48 to 4.08; p = 0.001), and strong intention (OR= 2.06; 95% CI = 1.25 to 3.39; p = 0.005).
Conclusion: There was a significant relationship between positive attitude, supportive subjective norm, strong perceived behavioral control, and strong intention with adolescents' sexual behavior.

Keywords: adolescents, sexual behavior, theory of planned behavior

Correspondence:
Santy Irene Putri. Midwifery Study Program, University of Tribhuwana Tunggadewi Malang. Jl. Telaga Warna, Tlogomas, Malang, East Java. Email: santyirene@gmail.com. Mobile: +6285785836884

BACKGROUND

Risky sexual behavior among adolescents is a global public health problem that continues to happen these days (Warner, 2018; Guzzo, Lang and Hayford, 2019). In Indonesia, someone starts their first relationship with the opposite sex in their teens (Setiowati, Pamungkasari and Prasetya, 2019).

In general, adolescents have their first relationship with the opposite sex at a median age of 15 years. Women start having relationship at the age of 15-17 years (33.3%). In addition, men start having a relationship at the age of 15 years (34.5%) (Kementerian Kesehatan RI, 2015; BKKBN, 2019). The opposite sex relationship in adolescents can lead to some forms of sexual behavior. The forms of sexual behavior in adolescents are feeling sexually

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.05

attracted to the opposite sex, dating, holding hands, hugging, kissing cheeks, kissing lips, touching, stimulating, and having unsafe sex (Lehmiller, 2014; BKKBN, 2019). Risky sexual behavior include unprotected sex, having multiple sexual partners, early sexual behavior, sexual relations with commercial sex workers, and sex transactions for money, goods, or other (Lehmiller, 2014; Silva *et al.*, 2018; Setiowati, Pamungkasari and Prasetya, 2019). Adolescent boys in Indonesia have risky sexual intercourse for the first time at a median age of 18 years, while the median age for female adolescents is 17-19 years. In East Java, 0.3% of 2,837 adolescent boys and 0.2% of 2,463 adolescent girls have had risky sexual behavior (BKKBN, 2019).

Risky sexual behavior can increase adolescents' susceptibility risks of sexually transmitted infections (STIs) (Lehmiller, 2014; Mori *et al.*, 2019; Gibson *et al.*, 2020), HIV/AIDS (Do *et al.*, 2020), unwanted pregnancies (BKKBN, 2019; Leung and Lin, 2019; Hedo, 2020), and some psychological problems. Adolescents who engage in risky sexual behavior tend to experience psychological problems such as posttraumatic stress disorder, depression, anxiety, low psychological well-being, prolonged trauma, negative emotions, suicidal ideation, guilty feeling, fear, shame, and low self-esteem (Lehmiller, 2014; Silva *et al.*, 2018; Taylor, 2018; Warner, 2018; Werner *et al.*, 2018; Guzzo, Lang and Hayford, 2019; Leung and Lin, 2019). Adolescents' lack of knowledge about risky sexual behavior and also accompanied by poverty, are some predictors of adolescents' risky sexual behavior (Fetene and Mekonnen, 2018; Warner, 2018; Tseng *et al.*, 2020).

The adolescents' conditions are also related to sexual behavior. In accordance with the task of development, in the adolescent phase there is a strong urge to explore oneself and the environment, including exploration related to sexuality because in the adolescent phase the sexual organs are undergoing significant development. Negative sexual exploration can lead to risky sexual behavior (Erikson, 1994; Bongardt *et al.*, 2014; Werner *et al.*, 2018; Hedo, 2020). Related to these conditions, sexual education and health promotion can be one of the preventive efforts to control risky sexual behavior in adolescents (Green *et al.*, 2017; Taylor, 2018). Health workers have important role in reproductive health's promotion and orientation towards contraception. In addition, parents of adolescents need to be involved in discussion or dialogue about sexuality with adolescents (Miranda *et al.*, 2018; Silva *et al.*, 2018; Leung and Lin, 2019; Steele *et al.*, 2020). It is also important to conduct further study of the factors that underlie adolescents' sexual behavior, especially risky sexual behavior that can have a negative impact on themselves.

Adolescents' risky sexual behavior can be reviewed using the Theory of Planned Behavior (TPB). According to Taylor (Taylor, 2018), Theory of Planned Behavior is one of the theories that can be used in studying sexual behavior, especially in adolescents. TPB explains that attitude, subjective norm, and perceived behavioral control affect individual's intention to elicit certain behavior. According to this theory, health-related behavior is the direct result of a behavioral intention (Taylor, 2018). The first construct of this theory is behavioral intention, which is the motivational factor that influences behavior. The

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.05

stronger intention to engage in a particular behavior, the more likely someone to perform that behavior. The second construct of TPB is attitude towards behavior, which is the extent to which person has favorable or unfavorable evaluation of particular behavior. Attitude consists of behavioral beliefs and evaluation results. Subjective norms are the third construct of TPB, which is defined as social pressure to perform or not to perform certain behaviors. The combination of normative beliefs and motivation to comply elicit a subjective norm. The forth construct of TPB is perceived behavioral control, which is refers to people's perceptions that one can perform or cannot perform certain behavior and that the behavior will have the intended effect (Protogerou *et al.*, 2012; Asare and Heights, 2015; Darabi *et al.*, 2017; Setiowati et al., 2019; Gibson *et al.*, 2020).

Adolescents' physiological, psychological, social, cultural, educational, and environmental conditions can trigger risky or unsafe sexual behavior among them. As explained before, that adolescents' risky or unsafe sexual behavior can bring negative impact to them. It makes sexual behavior in adolescents need to be understood and studied further because it relates to the adolescents' potency as an asset for the development of nation's human resources and generation (BKKBN, 2020b, 2020a). In order to study adolescents' sexual behavior, several constructs in TPB can be implied to the study. This study aimed to determine adolescents' sexual behavior using Theory of Planned Behavior.

SUBJECTS AND METHOD

1. Study Design

This was an observational analytic study with cross-sectional design. The study was conducted in Malang on September 2021.

2. Population and Sample

The population in this study were adolescents in Malang. Sample in this study were adolescents aged 15-24 years old with total of 300 subjects. The sampling technique used in this study was simple random sampling.

3. Study Variables

There were five variables in this study consisting of dependent and independent variables. The dependent variable was adolescent sexual behavior. The independent variables were attitudes, subjective norms, perceived behavioral control, and intention.

4. Operational Definition of Variables

Adolescent sexual behavior was all adolescent activities based on impulses sex from within to achieve sexual satisfaction and fulfillment done with oneself or with others.

Attitudes was the response and judgment adolescents on sexual behavior.

Subjective norms were the adolescents' perceptions or opinion of other people's expectations that can influence adolescents' decisions to perform or not to do sexual behavior.

Perceived behavioral control was adolescent's perception of the ability to control themselves to do or not to do sexual behavior

Intention was an estimation of how likely to display a behavior that indicates the presence or absence of adolescents' planning intentions and efforts to try to show sexual behavior

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.05

5. Instruments

The data were collected by questionnaire.

6. Data Analysis

Univariate analysis was carried out to see the distribution of the frequency and percentage of each variable, while multivariate analysis described the relationship of the effect among variables. Multivariate analysis was conducted using multiple logistic regression.

RESULTS

1. Univariate Analysis

The univariate analysis (dichotomous data) included age, mother's education, mother's occupation, family income, attitude, subjective norms, perceived behavioral control and intention. It demonstrated the percentage of respondents in each category of the required variable.

Table 1. Characteristic of the sample

Variable	Category	(n)	(%)
Age	< 20	82	27.3
	20-24	218	72.7
Mother's education	< Senior High School	80	26.3
	≥ Senior High School	220	73.7
Mother's occupation	Unemployed	31	10.3
	Employed	71	89.7
Family income	< regional minimum wage	125	41.7
	≥ regional minimum wage	175	58.3
Attitude	Negative	118	39.3
	Positive	182	60.7
Subjective norms	Non-supportive	161	53.7
	Supportive	139	46.3
Perceived behavioral control	Weak	133	44.3
	Strong	167	55.7
Intention	Weak	125	41.7
	Strong	175	58.3

Table 1 shows that subjects' most dominant age in this study were 20-24 years (218 subjects or 72.7%). Most of mothers' education of the subjects in this study were diploma (125 subjects or 41.7%). Most of subjects' mothers work in private sector (158 subjects or 52.7%). The most dominant subjects' family income was greater than or equal to the regional minimum wage (175 subjects or 58.3%). Most of the study subjects had positive attitude (182 subjects or 60.7%), non-supportive subjective norms (161 subjects or 53.7%), strong perceived behavioral control (167 or 55.7%), and strong intention (175 subjects or 58.3%).

2. Multivariate Analysis

Multiple logistic regression explained the effect of more than one independent variable, namely attitude, subjective norms, attitudes, perceived behavioral control, intention toward the dependent variable, namely adolescent sexual behavior.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.05

Table 2. Multiple linear regression analysis of the theory of planned behavior on adolescents' sexual behavior

Independent variables	OR	95 % CI		p
		Lower limit	Upper limit	
Positive attitude	1.80	1.09	2.97	0.022
Supportive subjective norms	2.75	1.66	4.55	<0.001
Strong perceived behavioral control	2.45	1.48	4.08	0.001
Strong intention	2.06	1.25	3.39	0.005
N Observation = 300				
-2 log Likelihood = 371.43				
Negelkerke R^2 = 0.18%				

Table 2 shows some research results which can be explained as follows. There is relationship between positive attitudes and adolescent sexual behavior. Adolescents with positive attitudes are 1.80 times more likely to engage in safe sexual behavior than adolescents with negative attitudes (OR= 1.80; 95% CI = 1.09 to 2.97; p = 0.022).

There is relationship between supportive subjective norms and adolescent sexual behavior. Adolescents with supportive subjective norms are 2.75 times more likely to engage in safe sexual behavior than adolescents with non-supportive subjective norms (OR= 2.75; 95% CI = 1.66 to 4.55; p<0.001). There is relationship between perception of strong perceived behavioral control with adolescent sexual behavior. Adolescents with strong perception of behavioral control are 2.45 times more likely to engage in safe sexual behavior than adolescents with weak perception of behavioral control (OR= 2.45; 95% CI = 1.48 to 4.08; p = 0.001).

There is relationship between strong intention and adolescent sexual behavior. Adolescents with strong intention are 2.06 times more likely to engage in safe sexual behavior than adolescents with weak intention (OR= 2.06; 95% CI = 1.25 to 3.39; p = 0.005).

DISCUSSION

1. Relationship between attitude and sexual behavior in adolescents

Attitude emphasizes on what possible results will be obtained if the individual performs certain behavior, and evaluation of the individual's assessment about behavioral outcome (Taylor, 2018). Adolescents' risky sexual behavior occurs in the context of sexuality. Sexuality begins its extensive development in adolescent phase. Sexuality is related to the involvement of sexual behavior and sexual experiences experienced by adolescents. These will affect adolescents' beliefs and attitudes about sexuality and also determine whether adolescents tend to internalize positive or negative attitudes regarding their sexual behavior. Efforts are needed to encourage adolescents to have positive attitudes towards sexual behavior through health promotion of positive attitudes and healthy sexual

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.05

behavior, in order to avoid the destructive impact produced by negative attitude towards sexual behavior. Adolescents internalize positive attitudes related to sexual behavior by understanding and being aware about reproductive health and benefits of using proper contraception to prevent unwanted pregnancies and sexually transmitted diseases (Pringle *et al.*, 2017; BKKBN, 2019).

Adolescents with positive attitudes regarding sexual behavior will also tend to postpone engaging in risky sexual behavior. Adolescents who have disapproving attitude regarding risky sexual behavior are also less likely to engage in this behavior, compared to adolescents who have approving attitude (BKKBN, 2019). Results obtained in this study are also in line with study conducted by Lee et al (2011) which states that attitudes have correlation with sexual behavior. This study state that positive attitude towards condom predicts the use of condoms by adolescents in their sexual behavior as a form of avoiding risky sexual behavior.

2. Relationship between subjective norms with sexual behavior in adolescents

Adolescence is a critical phase related to sexual development (Silva *et al.*, 2018). At this phase, sexual behavior needs to be considered because of its negative impact in adolescent (Srahbzu and Tirfeneh, 2020). Adolescents who understand and realize that risky sexual behavior lead to sexually transmitted infections, HIV infection, unwanted pregnancies, and belief that they need to protect themselves, tend to be motivated to pay attention to their sexual behavior (BKKBN, 2019). This refers to subjective norm that is held by adolescents. Subjective norms are beliefs about certain references that adolescents need to perform particular behavior to fulfill the normative beliefs of others around them about what they should do. (Taylor, 2018). Adolescents form and develop subjective norms according to self-evaluation of what they should do, which is accompanied by socialization and internalization from figures in their social environment such as parents, peers, teachers, and religious leaders (Bongardt *et al.*, 2014; Padilla-Walker, 2018; Leung and Lin, 2019).

In sexual context, subjective norms also contribute to adolescents' safe sexual behavior that can protect them from negative effects of risky sexual behavior (Kalolo & Kibusi, 2015). In the adolescent phase, social environment has important role in contributing to the norms believed by adolescents. Adolescents increase their social interaction and absorb the values and norms around them. Adolescents also tend to adapt and internalize their behavior with the influences from their social environment (Erikson, 1994; Monks, Knoers and Hadinoto, 2014). Previous study related to subjective norms conducted by Kalolo & Kibusi (2015) also explained similar results regarding the understanding above. The study explains that there is influence of subjective norms on adolescent sexual behavior. Subjective norms are the determinants for adolescents in doing or not doing safe sexual behavior.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.05

3. Relationship between perceived behavioral control with sexual behavior in adolescents

Perceived behavioral control is individual's perception of the control one has regarding certain behaviors. Perceived behavioral control also can be understood as perception that one can perform the action and that the action will have intended effect (Taylor, 2018). Adolescents gain control by the availability of resources, skills, knowledge, and opportunities to perform certain behaviors. In the context of sexual behavior, adolescents who believe that they have sufficient resources, skills, knowledge, and opportunities to perform safe sexual relations, will have strong perceived behavioral control and also strong intention to behave in positive way (Lehmiller, 2014; Warner, 2018; Leung and Lin, 2019). On the other hand, adolescents who have limited knowledge regarding sexuality tend to have difficulty and lack cognitive and emotional readiness in performing safe and healthy sexual behavior such as agreement with their partner to use condoms because they believe that they are not capable enough to do these behaviors. (Lehmiller, 2014; Silva *et al.*, 2018; Taylor, 2018; Guzzo, Lang and Hayford, 2019).

Previous study related to perceived behavioral control conducted by (Kalolo and Kibusi, 2015; Lin *et al.*, 2021) explains similar results regarding the understanding above. Results of the study stated that perceived behavioral control has the greatest influence on adolescents' intentions to do safe sexual behavior.

4. Relationship between intention with sexual behavior in adolescents

One's behavior is influenced by the intentions of the individual. Behavior is a direct result of the intention to perform the behavior. Attitude, subjective norm, and perceived behavioral control within individuals produce intentions that trigger certain behavior (Taylor, 2018). The stronger intention to engage in certain behavior, the more likely the behavior is performed. Intention influenced by attitudes, perceptions, individual subjective evaluation, and individual backgrounds (Setiowati, Pamungkasari and Prasetya, 2019).

Intention is combination of attitude that individuals have regarding certain behaviors, norms that support behavior, and individual beliefs in doing or not doing certain behavior (Taylor, 2018). In the context of sexuality, adolescents who have positive attitudes, norms, and perceptions regarding sexual behavior, tend to have intention to avoid risky sexual behavior and perform behaviors that can protect their health, for example using condoms when having sex (Green *et al.*, 2017; Gibson *et al.*, 2020). Based on the study conducted by Shek & Leung (2016), it is known that adolescents with positive social function have weaker intentions to engage in sexual behavior. Adolescents with good family function also tend to have intention to perform safe sexual behavior (Steele *et al.*, 2020).

Adolescents from families with low economic status tend to have intention to engage in risky sexual behavior. In addition, the intention of adolescents to

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.05

do sexual behavior is also related to adolescents' age. Older adolescents have higher intention to do sexual behavior than younger adolescents. This is in line with the results of BKKBN survey which states that risky sexual behavior is performed by 5% of adolescents in their aged of 20-24 years old, 1% in their aged of 15-19 years old, and 0.1% in their aged of 10-14 years old. The older group of adolescent boys (20-24 years old) have greater proportion in doing risky sexual intercourse four times more often than the younger age group (15-19 years old) (BKKBN, 2019).

Low self-control in adolescents also influence adolescents to act inconsistently with their intentions. In terms of risky sexual behavior, adolescents who have weak perceived behavioral control that maybe caused by their unconscious bodily state or increased sexual arousal, tend to engage in risky sexual behavior even though they did not initially intend to do that behavior (Turchik and Gidycz, 2012). Positive attitudes, supportive subjective norms, strong perceived behavioral control and strong intentions have positive correlation with sexual behavior in adolescents and are statistically significant. Positive attitudes regarding sexual behavior help adolescents to postpone performing risky sexual behavior. In line with that, disapproving attitude regarding risky sexual behavior also help adolescent become less likely to engage in this behavior. Subjective norms are also become the determinants of adolescents' sexual behavior.

Adolescents internalized and evaluate their social environment norm related to what they should do in terms of sexuality and sexual behavior. Adolescents who perceived that they have sufficient control over themselves because of the availability of resources, skills, knowledge, and opportunities to perform safe sexual behavior, tend to have strong intention to behave in positive way related to sexual behavior. Having positive attitudes, supportive subjective norms, and perceptions regarding sexual behavior control, help adolescents to have intention to perform safe sexual behavior, which will lead to the action of the behavior itself.

AUTHOR CONTRIBUTION

Santy Irene Putri and Dian Jayatri Putri K Hedo made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data, involved in drafting the manuscript or revising it critically for important intellectual content, also given final approval of the version to be published. Rayi Aprianandа agree to be accountable for all aspects of the work in ensuring that questions.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGMENT

Our gratitude goes to respondents for their valuable information and its awareness to participate in this research.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.05

REFERENCES

Asare M, Heights H (2015). Using the Theory of Planned Behavior To Determine. American Journal of Health Psychology, 30(1): 43–50.

BKKBN (2019). Survei Kinerja dan Akuntabilitas Program KKBPK (SKAP) Remaja, Badan Kependudukan dan Keluarga Berencana Nasional. Jakarta.

BKKBN (2020a). Program GenRe dalam Penyiapan Kehidupan Berkeluarga bagi Remaja, BKKBN. Jakarta.

BKKBN (2020b). Rencana Strategis BKKBN 2020-2024. Jakarta: BKKBN.

Bongardt D, Reitz E, Sandfort T, Deković M (2015). A Meta-Analysis of the Relations Between Three Types of Peer Norms and Adolescent Sexual Behavior. Personality and social psychology review: an official journal of the Society for Personality and Social Psychology, Inc, 19(3), 203–234. https://doi.org/10.1177/-1088868314544223.

Darabi F, Kaveh MH, Khalajabadi, Farahani F, Yaseri M, Majlessi F, Shojaeizadeh D (2017). The Effect of a Theory of Planned Behavior-based Educational Intervention on Sexual and Reproductive Health in Iranian Adolescent Girls: A Randomized Controlled Trial. Journal of Research in Health Sciences, 17(4), 400.

Ngoc D, Ngoc ND, Quynh TNH, Tuan NA, Duy NH, Phuong BT, Bich TV, et al. (2020). Patterns of Risky Sexual Behaviors and Associated Factors among Youths and Adolescents in Vietnam. International journal of environmental research and public health, 17(6): 1903. https://doi.org/10.3390/ijerph17061903.

Erikson EH (1994) Identity and the Life Cycle. New York: W. W. Norton & Company.

Fetene N, Mekonnen W (2018). The prevalence of risky sexual behaviors among youth center reproductive health clinics users and non-users in Addis Ababa, Ethiopia: A comparative cross-sectional study. PLoS ONE, 13(6): 1–15. doi: 10.137-1/ journal.pone.0198657.

Gibson LP, Gust CJ, Gillman AS, Bryan AD, Feldstein ESW (2020). Mechanisms of Action for Empirically Supported Interventions to Reduce Adolescent Sexual Risk Behavior: A Randomized Controlled Trial. The Journal of adolescent health. 67(1): 53–60. https://doi.org/10.1016/-j.jadohealth.2020.01.004.

Green J, Oman RF, Vesely SK, Cheney M, Carroll L (2017). Beyond the effects of comprehensive sexuality education: The significant prospective effects of youth assets on contraceptive behaviors. The Journal of adolescent health. 61(6): 678–684. https://doi.org/10.1016-/j.jadohealth.

Guzzo KB, Lang VW, Hayford SR (2019). Teen Girls' Reproductive Attitudes and the Timing and Sequencing of Sexual Behaviors Journal of Adolescent Health. 65(4): 507–513. doi: 10. 1016/j.jadhealth.2019.05-.018.

Hedo DJPK (2020). Kajian Perkawinan Usia Muda di Jawa Timur. Pancanaka Jurnal Kependudukan, Keluarga, dan Sumber Daya Manusia, 1(2): 97–107. doi: 10.37269/ pancanaka.v1i2.77.

Kalolo A Kibusi SM (2015) 'The influence of perceived behaviour control, attitude and empowerment on reported condom use and intention to use condoms among adolescents in rural Tanzania', Reproductive Health. Reproductive Health, 12(1), pp. 1–9. doi: 10.1186/ s12978-015-0097-5.

Kementerian Kesehatan RI (2015) Situasi Kesehatan Reproduksi Remaja. Jakarta.

Lee FA, Lewis RK, Kirk CM (2011). Sexual attitudes and behaviors among adolescents. Journal of prevention & intervention in the community, 39(4): 277–288. https://doi.org/10.1080/10852352.2011.606399.

Lehmiller JJ (2014) The Psychology of Human Sexuality, Wiley Blackwell. West Sussex: John Wiley & Sons, Ltd.

Leung H, Lin L (2019). Adolescent sexual risk behavior in Hong Kong: Prevalence, protective factors, and sex education programs. Journal of Adolescent Health. 64(6): S52–S58. doi: 10.1016/j.jadohealth. 2018.12.007.

Lin CL, Ye Y, Lin P, Lai XL, Jin YQ, Wang X, Su YS (2021). Safe Sexual Behavior Intentions among College Students: The Construction of an Extended Theory of Planned Behavior. International journal of environmental research and public health, 18(12): 6349. https://doi.org/10.3390/ijerph18126349

Miranda P, Aquino J, Monteiro R, Dixe M, Luz A, Moleiro P (2018). Sexual behaviors: study in the youth.-Einstein (Sao Paulo, Brazil), 16(3), eAO4265.https://doi.org/10.1590/S1679-45082018AO4265

Monks FJ, Knoers AMP Hadinoto SR. (2014) Psikologi Perkembangan. Yogyakarta: Gadjah Mada University Press. Yogyakarta: Gadjah Mada University Press.

Mori C, Temple JR, Browne D, Madigan S (2019). Association of sexting with sexual behaviors and mental health among adolescents: A systematic review and meta-analysis. JAMA pediatrics, 173(8): 770–779. https://doi.org/10.1001/jamapediatrics.2019.1658.

Padilla WLM (2018). Longitudinal change in parent-adolescent communication about sexuality. Journal of Adolescent Health. 63(6): 753–758. doi: 10. 1016/j.jadohealth.2018.06.031.

Pringle J, Mills KL, McAteer J, Jepson R, Hogg E, Anand N, Blakemore SJ (2017). The physiology of adolescent sexual behaviour: A systematic review. Cogent social sciences, 3(1), 1368858.https://doi.org/10.1080/23311886.2017.1368858.

Protogerou C, Flisher AJ, Aar LE, Mathews C (2012). The theory of planned behaviour as a framework for predicting sexual risk behaviour in sub-Saharan African youth: A

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.05

critical review. Journal of child and adolescent mental health, 24(1),15–35. https://doi.org/10.2989/172-80583.2011.621067.

Setiowati TA, Pamungkasari EP Prasetya H (2019). Application of theory of planned behavior on sexual behavior in female adolescents. J Health Promot Behav. 4(2): 126–136. doi: 10.26911/ thejhpb.2019.-04.02.05.

Shek DTL, Leung H (2016). Do Adolescent sexual behavior and intention to engage in sexual behavior change in high school years in Hong Kong?. J Pediatr Adolesc Gynecol. 29(1): S49–S60. doi: 10.1016/j.jpag.2015.10.008

Nogueira AESR, Bongardt VDD, Baams L, Raat H (2018). Bidirectional associations between adolescents' sexual behaviors and psychological well-being. The Journal of adolescent health: official publication of the Society for Adolescent Medicine, 62(1): 63–71. https://doi.org-/10.1016/j.jadohealth.2017.08.008

Srahbzu M, Tirfeneh E (2020). Risky sexual behavior and associated factors among adolescents aged 15-19 years at governmental high schools in Aksum Town, Tigray, Ethiopia, 2019: An Institution-Based, Cross-Sectional Study', Bio-Med Research International, 2020. doi: 10.1155/2020/3719845.

Steele ME, Simons LG, Sutton TE, Gibbons FX (2020). Family context and adolescent risky sexual behavior: An examination of the influence of family structure, family transitions and parenting. Journal of youth and adolescence, 49(6), 1179–1194. https://doi.org/10.10-07/s10964-020-01231-z

Taylor SE (2018) Health Psychology. Tenth Edit. New York: McGraw Hill Education.

Tseng YH, Cheng Cp, Kuo SH, Hou W, Li C, Te F, Chou FH (2020). Safe sexual behaviors intention among female youth: The construction on extended theory of planned behavior. J Adv Nursing, 76(3): 814–823. doi: 10.1111/jan.14277.

Turchik JA Gidycz CA (2012). Exploring the intention-behavior relationship in the prediction of sexual risk behaviors: Can it be strengthened?. J Sex Res. 49(1): 50–60. doi: 10.10-80/00224499.2011.578220.

Warner TD (2018). Adolescent sexual risk taking: The distribution of youth behaviors and perceived peer attitudes across neighborhood contexts. Journal of Adolescent Health. 62(2): 226–233. doi: 10.-1016/j.jadohealth. 2017.09.007.

Werner KB, Cunningham WRM, Sewell W, Agrawal A, McCutcheon VV, Waldron M, Heath AC et al (2018). The impact of traumatic experiences on risky sexual behaviors in black and white young adult women. Women's health issues: official publication of the Jacobs Institute of Women's Health, 28(5), 421–429. https://doi.org/10.1016-/j.whi.2018.04.011.

MEDICAL STUDENT PERCEPTION ABOUT COVID-19 AND HEALTH PROTOCOL IN TASIKMALAYA, WEST JAVA: A MIXED-METHOD

Ida Sugiarti, Dedi Setiadi

Department of Medical Record and Health Information
Health Polytechnic, Ministry of Health Tasikmalaya

ABSTRACT

Background: Higher education in health institution has an important role in the prevention and health care activities during the COVID-19 pandemic. In order to play this role, there is a need for medical and health students had positive perception, attitude, and behavior. However, there is a lack of information on the medical student perception about COVID-19 pandemic and health protocols. This study aimed to provide an overview of medical student perceptions about COVID-19 and health protocol in Tasikmalaya, West Java.
Subjects and Method: A mix-method study was conducted in Tasikmalaya, West Java, from October to December 2020. A total of 320 medical student was selected by purposive sampling. The key informants were six medical students. The study variable was medical students perception of COVID-19 and health protocols. The triangulation of data was taken from COVID-19 task force and regional disaster management agency. The quantitative data were analyzed descriptively (frequency and percent). The qualitative data were analyzed by content analysis.
Results: Half of the medical students had a good perception of COVID-19 and health protocols (56.9%). They looked for information on COVID-19 and health protocols from trusted sources, such as the World Health Organization and Ministry of Health Indonesia website.
Conclusion: Half of the medical students have a good perception of COVID-19 and health protocols and they seek trusted sources of information.

Keywords: health protocols, perceptions, COVID-19, medical students

Correspondence:
Ida Sugiarti. Department of Medical Record and Health Information, Health Polytechnic, Ministry of Health Tasikmalaya. Jl. Cilolohan 35, Tasikmalaya, West Java. Email: ida.sugiarti-@dosen.poltekkestasikmalaya.ac.id. Mobile: +6285320340014.

BACKGROUND

The Coronavirus Disease (COVID-19) pandemic is sweeping across the nation, and all governments are being forced to work hard to deal with it. Currently, the number of COVID-19 cases is starting to decline, but the situation is not stable and there is a risk of increasing the number of cases or the threat of a third wave, so you must remain vigilant. The total number of cases in Indonesia infected with the corona virus has now reached 4,240,479 (Positive), 4,240,479 (Recovered) and 143,235 (Died) as of October 25, 2021. The Tasikmalaya City Health Office reports as of October 25, 2021 the number of confirmed COVID-19 namely 14,706 people. 7937 sympto-matic, asymptomatic 6769 people, a total of 544 deaths. The city of Tasikmalaya is

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.06

in a strategic position in the southeastern part of West Java Province, namely as a liaison and also the center of the East Priangan region. The distance of Tasikmalaya City from the capital of West Java Province, Bandung, is 105 km and from the state capital, Jakarta, 255 km (BPS Kota Tasikmalaya, 2019). This makes the mobility of the people of Tasikmalaya City quite high, so they are at risk of being infected. In 2018, the population of Tasikmalaya City reached 662,723 people, an increase of 0.20% from the previous year. The productive age population reached 67.43% (BPS Kota Tasikmalaya, 2019). The high number of young people shows the huge potential for human resources (HR) to be involved in prevention and health care, especially during the COVID-19 pandemic. A healthy young generation has a good immune system as the main capital to face COVID-19.

The younger generation, especially health students, can play a role in preventing and handling COVID-19, because it has many advantages including, more time, an understanding of health issues, and excellent physical condition at a young age. Students can be involved directly as volunteers, or indirectly through prevention activities, for example through social media conducting COVID-19 prevention campaigns, inviting other millennial young people not to hang out, gather in groups, etc. Socialization must continue to be improved, especially in the current situation, when people are starting to ignore and assume the situation is starting to return to normal, and are starting to abandon health protocols. The survey results show that 95.2% of the public are aware of the implementation of health protocols during the Adaptation of New Habits (IMR). However, only 64% of the community knows the procedures for implementing health protocols (Muchtaridi et al., 2021). It is hoped that the approach by young people will also be more effective for their group, because they understand more about effective approaches and media models. COVID-19 has had short- and long-term psychosocial and mental health implications for children and adolescents (Singh et al., 2020). Therefore, a more humane approach is needed and in accordance with the conditions. The role of peers who understand health problems is expected to be more effective.

The government, especially the local health office and puskesmas, has limited resources in the management of health services. The COVID-19 pandemic situation also requires special attention and significant resources. Therefore it is important to involve community participation, especially in prevention and early detection. Locally at the regional level can also involve health students in collaboration with local Health Colleges. In Tasikmalaya City, there are several Health Universities including the Health Polytechnic of the Ministry of Health Tasikmalaya, Bhakti Tunas Husada Health College, Tasikmalaya Muhammadiyah University, Mitra Kencana Health College, and the Faculty of Health Sciences at Siliwangi University. Students and lecturers can be empowered as part of community service. Health Poly-

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.06

technics Kemenkes Tasikmalaya is currently appointed as one of the vaccination centers in West Java, routinely holding vaccination activities, involving lecturers and students.

The activities of lecturers and students are in the form of the Tri Dharma of Higher Education, namely Community Service. The active participation of students in this activity during the COVID-19 pandemic at Jenderal Sudirman University (UNSOED) through Real Work Lectures by using an android application for COVID-19 independent detection. The results obtained are that residents can self-diagnose COVID-19, information related to COVID-19 and its relation can be known to the public, concern for residents has increased, and the response of residents is satisfied with the results of the detection of the application (Judge, 2019).

The government through the Ministry of Health has issued guidelines for the prevention and control of COVID-19. The government has also issued several health protocols related to COVID-19. It is important to know these health guidelines and protocols in order to better understand and be able to implement the prevention and handling of COVID-19 (Ministry of Health, Technical Instructions for the Use of Personal Protective Equipment (PPE) in Facing the COVID-19 Outbreak, Jakarta; 2020). This health protocol is very important to spread to help prevent the spread of COVID-19. Students with a background in health knowledge are expected to be the right agents for prevention by spreading the COVID-19 prevention protocol. However, the COVID-19 problem has only occurred at the end of 2019 until now, so the COVID-19 material is really a new thing, although of course, basic knowledge about the virus and its spread should be known by health students.

A study shows that there is a large number of students willing to volunteer during a pandemic. However, they may not be ready for this role because knowledge is generally poor, and this may be due to the lack of teaching about disasters in medical schools. During the current COVID-19 pandemic and future disasters, medical students may be asked to volunteer as support staff. There is a need to develop infrastructure to facilitate this process as well as provide education and training to ensure students are adequately prepared to perform these roles safely (Byrne et al., 2020).

Perception is an opinion, judgment, and belief that arises in a person about a particular object. Perception is giving meaning to sensory stimuli (sensory stimuli) (Rachmat, 2011). The choice to become a volunteer depends on the student's perception of COVID-19 and the perception of health protocols. Of course, it is not an easy choice to make the choice to become a volunteer, because there is a high chance of getting infected. Even official health workers can experience mental stress, especially volunteers who work voluntarily. The COVID-19 pandemic is likely to place healthcare professionals around the world in an unprecedented situation, having to make impossible decisions and work under extreme pressure. Decisions may include how to allocate fewer

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.06

resources to patients in need, how to balance their own physical and mental health care needs with those of patients, how to align their wishes and obligations to patients with those of their family and friends, and how to provide care. for all severely unwell patients with limited or inadequate resources. This can lead to some experiencing moral injury or mental health problems (Greenberg et al., 2020). The purpose of this study was to provide an overview of the perceptions of health students about COVID-19 and the COVID-19 health protocol in the City of Tasikmalaya, West Java.

SUBJECTS AND METHOD

1. Study Design

This was a qualitative quantitative mix method. A descriptive survey research method followed by a qualitative approach using in-depth interviews. This study describes the picture of health student perceptions of COVID-19 and the COVID-19 Health protocol.

2. Population and Sample

The population in this study were health students in Tasikmalaya, West Java from October – December 2020. The total sample was 320 health students selected by purposive sampling.

3. Study Variables

The study variables were the health students' perceptions of COVID-19 and the COVID-19 protocol.

4. Operational Definition of Variables

The perception of health students about COVID-19 is the perception of health students about COVID-19. Perceptions of health students about health protocols are feelings of agreement or disagreement based on oneself or the participation of others towards COVID-19 and the COVID-19 protocol.

5. Instruments

The data collection technique in this study was to distribute questionnaire sheets online via google form to obtain information from respondents. Questionnaire sheet containing closed questions/ statements about student perceptions of the COVID-19 protocol. Furthermore, in the second stage, interviews were conducted with 5 students who had been selected. Interviews were also conducted with the COVID-19 Task Force and BPBD elements.

The instrument was made by referring to the Health Protocol set by the Ministry of Health in the form of a google form. The questionnaire used has been tested for validity and reliability, so that the questions or statements on the questionnaire are valid and reliable. Another research instrument used is the interview guide, to collect qualitative data.

6. Data Analysis

Data from quantitative research were analyzed univariately to produce descriptive data on the frequency distribution and qualitative data was analyzed by content analysis, starting with a data transcript, namely transferring the interview recordings into writing or narrative, then reading and rereading and marking and noting important things in the transcript. Then determine and map the interrelationships of the interview results described in narrative form. Sum-

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.06

marized, reduced, interpreted and or given meaning presented in the form of narrative (content analysis).

7. Research Ethics

Description of Ethical Eligibility No. e-KEPK/-POLKESYO/0690/XII/2020 from KEPK Health Polytechnic, Ministry of Health Yogyakarta.

RESULTS

1. Sociodemographic characteristics of informants

Table 1 shows the sex distribution of the most respondents, namely for female sex as many as 288 people (90%) and male as many as 32 people (10%).

Table 2 shows that the distribution of major respondents came from health information medical records as many as 93 people (29.1%), while for Nursing, Midwifery, Nutrition, Pharmacy, and Dental Nursing, respectively, 3.1%, 11.6%, 18.1%. , 15.3%, and 16.9%.

Table 1. Characteristics of the sample by gender

Gender	Total	Percentage (%)
Male	32	10
Female	288	90
Total	320	100%

Table 2. Characteristics of the sample by major

Jurusan	Jumlah	Presentase (%)
Nursing	29	9.1
Midwivery	37	11.6
Medical record health information	93	29.1
Nutrition	58	18.1
Pharmacy	49	15.3
Dental nurse	54	16.9

Table 3. Distribution of respondents' perceptions of COVID-19 and health protocols in the Tasikmalaya Region, West Java

Category of perception	Total	Percentage (%)
Lacking	138	43.1
Good	182	56.9

Table 3 shows the distribution of respondents who have a bad perception about COVID-19 and the COVID-19 Health Protocol. In the City of Tasikmalaya, 138 people (43.1%) and 182 people (56.9%) have a good perception. The results of interviews conducted on the COVID-19 task force are as follows:

The statement that if you have followed the health protocol, there will be no transmission of covid-19, answered agreeably by respondents, 1, 2 and 5, and respondents disagreed with 3 and 4. Respondents 1, 2 and 5 felt that they really implemented the protocol. healthy eating the lower the risk of transmission.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.06

Meanwhile, respondent 3 conveyed his perception;

"Well, that's okay. So, we can be infected with COVID by people who are at home even though we have maintained health protocols. But if for example people at home or people closest to us are ignored, they continue to be exposed, and we don't necessarily wear masks at home."

Respondent 4 stated;

"Yes, ma'am, I've read on twitter that there are people who still adhere to health protocols, such as using hand sanitizer, wearing masks, but still contracting COVID"

Respondents did not agree with the statement that every case of COVID-19 can cause death, because many cases of COVID-19 can be cured.

Respondents believe that the procedures for preventing the transmission of Covid-19 in public facilities have been carried out in several places, but there could be transmission if someone is infected. The following is the statement of respondent 3;

"Yes, ma'am, because we have implemented health protocols well, but in public facilities there are many people who may be ignorant of it, and they could be transmitting the virus to us.".

Respondent 4 stated;

"I often see that public facilities have been provided but are not used by the surrounding community. There are also those who have no place to wash their hands, and there are still many crowds.".

Respondents do not agree if COVID-19 sufferers are considered to give negative stigma to society and the environment.

Respondent 3 answered doubtfully, and explained the reasons as follows;

"Yes, ma'am, because there are covid ones, if there are those in society that cause negative stigma, some don't. I tend not to, it's normal. Thank God, there are some people in my community who don't have a bad stigma.".

DISCUSSION

Almost all students agree on the importance of health protocols for the prevention of COVID-19, but it does not guarantee that they will avoid Covid-19. Students also think that it is important to continue to socialize protocols and enforce rules so that people obey health protocols. Students argue that there is a need for more massive socialization through social media and with a more attractive appearance. The implementation of health protocols is also expected to be accompanied by strict supervision. Dissemination of information through social media is an effective and efficient thing to be implemented in the community, especially in conditions of the COVID-19 pandemic because there is no need to meet in person (Shodikin and Kristen, 2021).

Perception is a process that occurs in humans where the stimuli received by the senses through the learning process or experience are organized and interpreted first before the stimulus can be understood and responded to. In other

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.06

words, perception is the opinion, judgment, and belief that arises in a person about a particular object. The statement made describes the opinion, assessment, and interpretation of the respondent about an object. The distribution of respondents who have a bad perception of the COVID-19 Health Protocol in the City of Tasikmalaya Region, as many as 138 people (43.1%) and as many as 182 people (56.9%) have a good perception. This illustrates that the majority of respondents as health students have a good perception of 56.9%. There are still unfavorable perceptions because among them there are different interpretations of the statement items.

Students are an idealistic community because they have not been overwhelmed by organizational interests, etc. The role of students is very much needed, students contribute to dealing with covid-19 by partnering with covid-19 volunteers, they automatically offer to volunteer to help the community (Khusairi, 2020). The formation of a volunteer team will strengthen the COVID-19 Task Force in enforcing health protocols through education, outreach and mitigation (Hasibuan, Simanjuntak and Sinaga, 2021).

There were 14 students who had volunteered showing positive perceptions. Medika and Rochmawati's (2011) shows that being a health volunteer provides benefits and positive experiences. The results showed that in general, being a health volunteer provided several benefits and all undergraduate nursing students expressed a positive experience as a health volunteer. Additional research could further evaluate the effectiveness of health volunteering and its application in different situations. In addition, undergraduate nursing students believe that personal attributes, including honesty, empathy, and kindness, are important teamwork skills to become good health volunteers during disasters (Medika and Rochmawati, 2011).

Health students can play a role in prevention efforts through official activities coordinated by the government, so that they have the same and systematic movement. Respondent 6 said:

> *"Yes, it is very possible, even some good sentences from the PMK minister, stating that student participation can be an educator for the community, it can be disseminated to all levels of society, because there is no single treatment for Covid. Various kinds of efforts in dealing with COVID-19, for health students how should they be able to socialize, and educate the public at least from the RW to the RT, in the scope where he is like that, even the minister of education, yes, some of his KKN are also directed also to the alleviation of COVID, a resilient village against COVID. So it is clear and can be an important factor for this health protocol to continue to be socialized to the public. Apart from that, actually community discipline, judging from the defense from the pandemic is the responsibility of the individual individually, then there is a shared responsibility, so if there is a shared responsibility, such as regulations for*

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.06

adaptation, there are already regulations, right, joint regulations already exist."

Ideas and innovations born from students' minds are very helpful in dealing with COVID-19. Especially in the education and economic sectors which are very worrying, ideas distributed by students are very much needed and help the government in overcoming the spread of COVID-19. The ideas that can be given by students include: first, conveying aspirations to the authorities so that if they can provide free quotas and reduce tuition fees for students. Second, providing free internet or WiFi services voluntarily to students. Third, helping merchants to promote their merchandise and services through social media. Finally, providing a shuttle service for goods purchased by buyers from traders (Abdillah, Hafidzi and Sulistyoko, 2020). The description of the perceptions of health students about the COVID-19 Health Protocol in the Tasikmalaya City Region is as follows; The distribution of respondents who have a bad perception of the Covid-19 Health Protocol in the City of Tasikmalaya Region, as many as 138 people (43.1%) and as many as 182 people (56.9%) have a good perception. The results of the interviews showed that students had good perceptions and were diligent in reading information related to covid-19 and health protocols, this was evident from several statements made. Students know that health protocols can help prevent COVID-19 but do not guarantee that the implementation of protocols can prevent COVID-19. Therefore, it is necessary to be vigilant and continue to be careful and remain obedient to Health protocols and the importance of continuous socialization.

Students with good perceptions about COVID-19 and the COVID-19 health protocol, are expected to be willing to become health volunteers. This is in line with research; Systematic review of medical student willingness to volunteer and preparedness for pandemics and disasters. The average weighted willingness to volunteer during a disaster was 68.4%, and there was a significant difference between those who planned to volunteer and those who actually volunteered ($p<0.001$) (Byrne et al., 2020).

This research shows that there is a large number of students willing to volunteer during the pandemic. However, they may not be ready for this role due to poor overall knowledge, and this may be due to a lack of teaching about disasters (Byrne et al., 2020).

AUTHOR CONTRIBUTION

Ida Sugiarti prepares proposals and prepares research instruments and conducts research. Dedi Setiadi takes care of research permits, helps retrieve research data and process data.

CONFLICT OF INTEREST

There may be a conflict of interest because the respondent is a student and the researcher is a lecturer at the same institution. Handling problems with an explanation at the beginning that this research is not binding and is not required to participate, respondents are allowed not to fill it out.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.06

FUNDING AND SPONSORSHIP

This study was funded by DIPA Poltekkes Tasikmalaya.

ACKNOWLEDGMENT

Our gratitude goes to the Director of Poltekkes Tasikmalaya, and all parties involved.

REFERENCES

Abdillah MT, Hafidzi A Sulistyoko A (2020). Peran Mahasiswa dalam Mengatasi Penyebaran COVID-19 Melalui Sektor Pendidikan dan Ekonomi (The Role of Students in Overcoming the Spread of COVID-19 Through the Education and Economic Sector). Journal of Islamic and Laws Studies, 4(1): 75–81. https://dx.doi.org/10.18592/-jils.v4i1.

Byrne MHV, Ashcroft J, Alexander L, Wan JCM, Harvey A (2020). Systematic review of medical student willingness to volunteer and preparedness for pandemics and disasters. Emerg Med J. 7: emermed-2020-211052. http://dx.doi.-org/10.1136/emermed-2020-211-052.

Greenberg N, Docherty M, Gnanapragasam S, Wessely S (2020). Managing mental health challenges faced by healthcare workers during covid-19 pandemic BMJ. 368: m1211. https://doi:10.1136/bmj.-m1211.

Hakim (2019). Pencegahan penularan COVID-19 berbasis aplikasi android sebagai implementasi kegiatan kkn tematik COVID-19 di sokanegara purwokerto banyumas (Prevention of COVID-19 transmission based on Android applications as the implementation of COVID-19 thematic community service activities in Sokanegara Purwokerto Banyumas), Community engagement & emergence journal. https://doi.org/10.37385/ceej.-v2i-1.125.

Hasibuan EK, Simanjuntak YTO Sinaga LRV (2021). Edukasi Penerapan Protokol Kesehatan Dalam Pencegahan COVID-19 Pada Relawan Di Wilayah Kerja Medan (Education on the Implementation of Health Protocols in Preventing COVID-19 for Volunteers in the Medan Work Area), Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM), 4: 1025–1033. https://-doi.org/10-.33024/jkpm.v4i5.3935.

Khusairi H (2020). Peran Masyarakat Dan Mahasiswa Dalam Mengatasi COVID-19 Melalui Pembentukan Kelompok Relawan Satuan Gugus (The Role of Communities and Students in Overcoming COVID-19 Through the Formation of Cluster Volunteer Groups), Al Dzahab Islamic Economy Journal, 1(1): 18–38.

Medika M, Rochmawati E (2011). Undergraduate Nurse Student's Perceptions of Being Health Volunteer during Merapi Mountain Eruption 2010 Persepsi Menjadi Relawan Kesehatan Mahasiswa Ilmu Keperawatan Selama Letusan Gunung Merapi 2010, 11(1): 19–24. https:-//doi.org/10.18196/mmjkk.v11i1.9

24.
Muchtaridi M, Suhendi C, Wathoni S, Megantara S, Halimah E (2021). Sosialisasi protokol adaptasi kebiasaan baru di masyarakat desa sayang melalui media sosial dan temu maya (Socialization of protocol for adaptation of new habits in sayang village community through social media and maya gathering), Dharmakarya, 10(3): 182. https://doi.org/10.24198/-dharmakarya.v10i2.3114.
Notoatmodjo S (2010) Kesehatan Masyarakat Ilmu & Seni (Public Health Sciences & Arts). Jakarta: PT Rineka Cipta.
Rakhmat J (2011). Psikologi Komunikasi (Communication Psychology). Bandung: PT Remaja Rosdakarya.
Shodikin, Kristiani D (2021). Sosialisasi Cara Mencuci Tangan Sesuai Protokol Kesehatan Melalui Media Sosial (Socialization of how to wash hands according to health protocols through social media), Intelektiva: Jurnalekonomi, Sosial & Humaniora, 2(10): 20–23. Available at: https://www.jurnalintelektiva.-com/index.php/jurnal/article/view/473/341.
Singh S, Roy D, Sinha K, Parveen S, Sharma G, Joshi G (2020). Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. Psychiatry research. 293: 113429. https://doi.-org/10.1016/j.psych-res.2020.113-429.
Sujarweni VW (2014). Metode Penelitian: Lengkap, Praktis, dan Mudah Dipahami (Research Methods: Complete, Practical, and Easy to Understand). Yogyakarta: Pustaka Baru Press.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.06

CHANGES IN THE ROLE OF PARENTS FOR ONLINE LEARNING OF ELEMENTARY SCHOOL CHILDREN AT HOME DURING THE CORONA VIRUS -19 PANDEMIC IN 2021

Novia Nuraini, Aticeh, Nurdahlia

Faculty of Health Promotion, Health Pollytecnic Jakarta III

ABSTRACT

Background: The role of parents is also very necessary to provide education to their children who still do not understand about the pandemic that is endemic to stay at home so as not to be infected and transmit this pandemic outbreak. The role of parents in this Covid-19 pandemic situation has a fundamental position. The study aim to find out the changes in the role of parents in assisting distance learning for elementary school children at home.
Subject and Method: The quantitative descriptive research method used a pre-test and post-test group design. The research sample was 4 elementary schools consisting of 2 public elementary schools and 2 private elementary schools, parents of students from grades 1 to grade 3 were 160 respondents using random sampling. The respondent's criteria are that all parents work and their children study online at home. Sampling with zoom meeting is divided into 2 meetings.
Results: there were 103 (70.5%). Those who did not experience a change in roles were 43 (29.5%). There were 10 male parents (70.6%) who experienced changes in their roles and 4 (29.4%) roles did not change.
Conclusion: parents can participate in assisting children in learning at home with patience and sincerity. For schools, it is recommended to provide learning modules and parent meetings at least once a month.

Keywords: Change, online learning, elementary school, covid-19, parents

Correspondence:
Novia Nuraini. Faculty of Health Promotion, Health Pollytecnic Jakarta III, Bekasi, West Java. Email: n2p_bunga@yahoo.co.id. Mobile: +6281280083279.

BACKGROUND

December 2019, precisely in the city of Wuhan, China, the Covid 19 disaster occurred which infected almost all countries in the world, on March 9, 2020, this pandemic entered Indonesia (CDC, 2002; Chen, 2020). The mode of transmission of Covid 19 is through droplets, the potential risk of transmission is direct contact with an infected person at a distance of less than 1 (one) meter or through droplets of an infected person when coughing or sneezing, crowds of many people do not wear masks (Chen, 2020; CDC, 2002). School is one of the places where people gather and is a high-risk factor for the transmission of covid 19. The Indonesian government has taken several policies to prevent the transmission of this covid 19, one of which is the issuance of a policy by diverting learning in schools with learning at home (Kholil, 2020).

Government policies during the pandemic – 19 learning patterns that should be in the classroom become distance learning or online (Kholil, 2020). Limited knowledge of technology is an obstacle in the online

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.07

learning system. The role of parents is required to guide their children in online learning. For parents who are accustomed to using technology, they can adjust it, but for parents who are not accustomed to using technology, it becomes a problem and a challenge in itself in accompanying their children to learn online (Slameto, 2020); (Puspitasari, 2020).

An important element in teaching is that teachers and educators are required to make an unprecedented large-scale migration from traditional face-to-face education to online education or distance education (Bao, 2020; Basilaia, 2020).

Online learning as a knowledge transfer experience using video, audio, images, text communication, software (Basilaia, 2020) and with the support of the internet network (Zhu & Liu, 2020). This is a modification of knowledge transfer through website forums (Basilaia, 2020) and digital technology trends as a hallmark of the industrial revolution 4.0 to support learning during the COVID-19 pandemic. Technology integration and various innovations are the hallmarks of online learning (Bagur, 2018). In addition, the most important thing is the readiness of parents, teachers and students to interact online.

The main responsibility that parents have in the process of growth and development of their children. An education given by good or bad parents will affect the development and growth of the child itself. The family environment for each child, all behavior and those that appear in the child will exemplify these two parents (Fadillah, 2012). Valeza (2017) shows that the role of parents in determining student achievement is very large. Parents who do not pay attention to their children's education can cause children to be less or even unsuccessful in their studies. In the beginning, many parents refused online learning for their children, because they were each with technology. But over time, parents began to accept this online learning (Shereen et al, 2020).

SUBJECT AND METHOD

a. Study Design

We used a descriptive quantitative. Pre-test dan post-test group design was conducted from February to July in 2021, in east Jakarta, DKI Jakarta, Indonesia.

b. Population and sampel

The study population 4 elementary school students aged 6 – 9 years, grades 1 to 3 in East Jakarta with primary data. Random Sampling with school representatives as many as 40 parents so the total sample of respondents is 160.

c. Study variabel

Group 1 intervention variable changes the role of parents in terms of age, sex, and economy with 1 favorite public elementary school and 1 favorite private elementary school. Group 2 variable changes in the role of parents in terms of age, sex, and economy with 1 elementary school not being a favorite of the state and 1 not being a favorite of a private elementary school.

d. Study instruments

The side case was carried out by a total sampling and control sampling method based on education, sex, and economics.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.07

e. Data Analysis

The data were analyzed using univariate, bivariate and multivariate analysis.

RESULTS

From table 1, it is found that from 160 respondents, the sex of the parent's companion is mostly female as many as 146 people (91.3%). Parental education is high school at most 99 people (61.9%). Economic income of parents <Rp 2,000,000 was 59.4%. Parents of students who experienced a change in their roles during online learning said yes as many as 133 parents (70.6%) but there were also 47 people who said there was no change (29.4%).

Table 1. Distribution of Gender, Education, Economy, and Changes in Parents

Research Variable		Frequency (n)	Percentage (%)
Sex	Female	146	91.3
	Male	14	8.8
Education	Elementary school-Junior high school	50	31.3
	Senior high school	99	61.9
	Diploma III – Postgraduate	11	6.9
Economy	< Rp 2 million	95	59.4
	Rp 2 – 4 million	46	28.8
	>Rp 4 million	19	11.9
Change of parental roles	Yes	133	70.6
	No	47	29.4

Table 2. Relationship of sex, education and income to changes in the role of parents in assisting children to learn online at home

Changes in the role of parents	OR	95% CI		p
		Lower limit	Upper limit	
Sex	0.01	0.29	3.22	0.958
There has been a change in roles	0.01	0.70	1.40	0.988
Not changing roles	0.08	0.43	2.45	1.031
Parent's education	0.45	1.67	1.85	<0.001
Parent's income	0.55	1.42	1.63	<0.001

Table 2 show that there was a relationship between change inroles of parents, education and income (p< 0.001). In the sex variable there is no relationship with change inroles of parents (p = 0.958).

DISCUSSION

Parents consider that learning at home is still considered to be able to improve the quality of children's learning, but there are some parents who think that learning at home is not beneficial for children, because at school children can interact directly with teachers and socialize with their friends. Although many parents agree that learning at home can increase knowledge, not a few also feel that they are still having difficulties with the technology used during the home learning process for elderly/senior

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.07

teachers. This is in accordance with the opinion of Slameto (2020) that during learning at home, it is necessary to be able to use a computer or cellphone and the internet, which has not been mastered by many children, including teachers.

Many parents help provide motivation as long as students are required to study from home because of the government's appeal regarding covid-19, this is also what makes not a few parents deliberately take the time to help their child's learning process while at home. Parents who agree that during learning at home, it is the parents who also help do the assignments given by the teacher.

Although not a few also feel that this is an additional activity for parents besides doing household chores, especially for both working parents. Based on this, it is in line with Kholil (2020) that accompanying children to study from home, while parents do work that must be completed from the office or from home is indeed a challenge in itself, what needs to be remembered is that parents at home are not to replace all the roles of teachers at school.

Learning at home is also considered to have a greater impact on spending, namely for credit and internet connections, and requires parents to be technology literate to support the learning process at home. This is in accordance with Purwanto et al. (2020) that the obstacles faced by parents are the increase in the cost of buying internet quotas, online technology requires a network connection to the internet and quotas, therefore the level of use of internet quotas will increase and will increase the burden of spending on parents, to conduct online learning during a few months, of course, more quota will be needed and will automatically increase the cost of buying internet quota.

Parents can participate in assisting children in learning at home with patience and sincerity. For schools, it is recommended to provide learning modules and parent meetings at least once a month.

Many parents change roles if during learning at home, it is the parents who also help do the tasks given by the teacher, although not a few also feel that this is an additional activity for parents besides doing household work. Learning at home is also considered to have more expenses for credit and internet quota to support the learning process. As an effort to break the chain of transmission of COVID-19, many parents consider that parents can increase the attachment relationship with their children and parents can see firsthand the development of their children's abilities.

REFERENCES

Banggur MDV (2018). Pengembangan Pembelajaran Berbasis Blended Learning pada Mata Pelajaran Etimologi Multimedia. Jurnal Teknologi Pendidikan, 20(2), 152 - 165. https://doi.org/10.21-009/jtp.v20i2.8629.

Bao W (2020). COVID-19 and online teaching in higher education: A case study of Peking University. 113-115. https://doi.org/10.100-2/hbe2.191.

Basilaia G, David K (2020). Transition to online education in school during a SARS-CoV-2 Coronavirus (COVID-19) Pandemic in Georgia. Pedagogical Research 5(4). https://doi.org/10.-29333/pr/7937.

Chen X, Li H, Lucero-Prisno III DE, Abdullah AS, Huang J, Laurence C, Liang X, et al. (2020). What is global health? Key concepts and Clarification of misperceptions: Report of the 2019. Glob Health Res Policy. 5:14. http://dx.doi.-org/10.1186/s41256-020-0014-2-7.

Fadillah M (2012). Desain Pembelajaran Paud. Jogjakarta: Jogjakarta: Ar- Ruzz Media.

Kholil, A (2020). Panduan Orangtua Mendampingi Anak Belajar dari Rumah dengan MIKIR. Jakarta: Kementerian Pendidikan dan Kebudayaan (Guru Berbagi).

Purwanto A, Wijayanti LM, Hyun CC, Asbari M (2020). The effects of transformational, transactional, authentic, authorotarian leadership style toward lecture performance of private University in Tangerang. Dinasti Internasional Journal of Digital Bisnis Management. 1(1): 29-42. http://doi.org/10.31933/dijbm.v1i1.88.

Puspitasari R (2020). Hikmah Pandemi Covid-19 Bagi pendidikan Di Indonesia. https://iain-surakarta.ac.id/hikmah-pandemi-covid-19-bagi-pendidikan-di-indonesia/. Diakses Mei 2021.

Shereen MK, Khan S, Kazmi A, Bashir N, Siddique R (2020). COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. Journal of Advanced Research, 24: 91-98. https://doi.org/10.1016/j.jare.-2020.03.005.

Slameto (2020). 5 Fakta Pendidikan ditengah Wabah Corona. https:-//news.detik.com/kolom/d-49-69335/5-fakta-pendidikan-di-tengah-wabah-corona. Accessed May 2021.

Valeza AR (2017). Peran orang tua dalam meningkatkan prestasi anak di Perum Tanjung Raya Permai Kelurahan Pematang Wangi Kecamatan Tanjung Senang Bandar Lampung. Lampung: Skripsi UIN Raden Intan Lampung.

Zhu X, Liu J (2020). Education in and After Covid-19: Immediate Responses and Long-Term Visions. China. Postdigital Science and Education. https://doi.org/10.-1007/s42438-020-00126-3.

REUTILIZATION OF COVID-19 WASTE MASK AS AN EFFORT TO REDUCE ENVIRONMENTAL POLLUTION

Hanin Fitria, Tita Latifah Ahmad

Department of Industrial Engineering, Faculty of Science and Technology,
Universitas Muhammadiyah Kudus

ABSTRACT

Background: Masks are essential personal protective equipment used as the main barrier to protect against viruses that spread through these droplets. Wearing a mask has become daily life for many people. This has led to a significant increase in the demand for disposable face masks worldwide. Mishandling of these materials threatens the environment with new forms of plastic pollution. This study aimed to describe two options for recycling COVID-19 mask waste and explain product planning using the quality function deployment method.
Subjects and Method: This was a qualitative study. The study variables were reutilization of covid-19 waste mask and environmental pollution. The data were collected by in-depth interview and reported accordingly.
Results: Green and highly efficient pathway for the catalysis of waste mask carbonization reported into high-value carbon nanomaterials. The pyrolysis stream generated in the first stationary reactor passed through the second reactor, filled with a catalyst bed. Without a catalyst, the masked CFP did not produce aromatic compounds but branched hydrocarbons (C8eC46). QFD the product design team plays an essential role in driving sustainability by incorporating relevant requirements early in the design process.
Conclusion: Conventional QFD's limited focus on customer needs and analytical approach lacks understanding and assumes certainty in decision making. Several integrated approaches to product design have been proposed in the literature to overcome the limitations of conventional QFD in the context of creating a framework for sustainable product design.

Keywords: garbage masks, environment, QFD, COVID-19

Correspondence:
Hanin Fitria. Department of Industrial Engineering, Faculty of Science and Technology, Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No. 1, Purwosari, Kudus 59316, Central Java. Email: haninfitria@umkudus.ac.id. Mobile: +62 81391190314.

BACKGROUND

In December 2019, infection with the new Corona virus (COVID-19) spread rapidly throughout the world, including Indonesia. COVID-19 is a variant of SARS or commonly called (SARS-Cov-2). Like other SARS variants, namely MERS, COVID-19 also attacks the human respiratory system (Lai et al., 2020). The virus is known to cause respiratory infections ranging from the common cold, to more severe illnesses. COVID-19 is transmitted through droplets or splashes that come out when an infected person coughs, sneezes or talks either directly from person to person or through objects that have been touched by the droplets (WHO, 2020).

On March 11, 2020, the world health organization or WHO (World

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.08

Health Organization) declared the Corona COVID-19 virus outbreak a global pandemic (WHO, 2020). Judging from the active cases and the death rate that is still growing, the COVID-19 case in Indonesia itself is quite worrying. Loaded on kompas.com, the total number of COVID-19 cases in Indonesia until July 14, 2021 reached 2,670,046 people since the first case was announced by President Joko Widodo on March 2, 2020. Of the total cases, 2,157,363 people were declared cured. and 69,210 people died. since the start of the pandemic. With the increasing number of COVID-19 cases, Indonesia was once the country with the highest number of COVID-19 cases in Southeast Asia.

WHO calls on countries to take immediate and aggressive action to prevent and contain the spread of this virus. The Indonesian government requires the implementation of health protocols for the entire community. The COVID-19 health protocol and maintaining endurance refers to the 5th Revision COVID-19 Prevention and Control Guidelines issued by the Indonesian Ministry of Health, namely using a mask, washing hands with water and soap or hand sanitizer, avoiding touching the face and shaking hands, avoid gathering/gathering, avoid touching objects in public places, avoid public transportation and keep a distance (WHO, 2021).

Masks are one of the most important types of personal protective equipment as the last barrier to protect against viruses that spread through these droplets. Wearing a mask has become a daily routine for many people. This has led to a significant increase in the demand for disposable face masks globally (Fadare and Okoffo, 2020). Disposable masks are basically made of poly-propylene and high-density polyethylene, and may contain other polymeric materials such as polyester, poly-urethane, poly-styrene, and polyacrylony-trile.(Prata et al., 2021).

Garbage Mask Collection During the COVID-19 Pandemic

The ongoing COVID-19 pandemic has resulted in the mass consumption of personal protective equipment (PPE) worldwide (Torres and DelaTorre, 2021). Disposable face masks are one of the most common types of PPE used to prevent viral infections. However, mismanagement of these materials threatens the environment with new forms of plastic pollution. Ignoring the seriousness of this problem could result in the release of large amounts of microplastics in landfills and the marine environment, which could have serious implications for flora and fauna (Dharmaraj et al., 2021).

The amount of medical waste generated in different hospitals is proportional to the number of infected people and the average amount of waste generated per bed. Preliminary studies show that the daily accumulation of medical waste in Jordan is 2.69 kg/bed/day (Minoglou et al., 2017). Meanwhile, according to estimates and analysis of medical waste in the city of Istanbul, the annual average unit of medical waste per day in hospitals was 0.43 kg/bed/day in 2000 to 1.68 kg/bed/bed in 2017. by day(Korkut, 2018). In April 2020, the maximum production level of medical waste during the COVID-19 pandemic

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.08

is estimated to be around 14,500 tonnes (Sangham, 2020)

Another aspect of the COVID-19 epidemic is the improper disposal of solid waste. Improper disposal of waste can spread viruses. As a result, the number of confirmed cases has skyrocketed, and the amount of medical waste associated with COVID-19 has also increased significantly (Peng et al., 2020). In addition, the existing operational protocols for the disposal of SARSCoV2 sewage and municipal sewage (MSW)216 have special precautions, to reduce the potential risk of SARSCoV2 infection due to improper waste management processes.

Examples of Using COVID-19 Garbage Masks

As the coronavirus (COVID-19) is spreading rapidly around the world, wearing a mask has become the last barrier to protect people from the virus that spreads through droplets, and it has become a daily routine for everyone to wear a mask. However, masks that are disposed of carelessly can cause many environmental problems such as microplastics that are harmful to various ecosystems (Rai et al., 2021a, b). Therefore, it is very necessary to develop a method for handling discarded masks. This study proposes a way to produce value-added chemicals (e.g., aromatic compounds) from high amounts of masks through catalytic rapid pyrolysis (CFP). CFPs have been developed to make high-value aromatic compounds from carbonaceous substances (eg, biomass and organic waste) such as benzene, toluene, ethylbenzene and xylene (BTEX). The main body of the mask (inner, middle, outer and filter) is made of polypropylene (PP) which is pyrolyzed with various zeolite catalysts (HBeta, HY, and HZSM-5) to make BTEX. The mask was pyrolyzed in a fixed bed reactor, and the pyrolysis gas evolved in the reactor was directed to a secondary reactor where the zeolite catalyst was loaded. Without a catalyst, the masked CFP does not produce any aromatic compounds but branched hydrocarbons. The use of a catalyst generally decreases the oil yield and increases the gas yield without much change in the amount of residual solids. The catalyst also results in the production of aromatic compounds from the mask. The large pore zeolite groups HBeta and HY accounted for 134% and 67% higher BTEX concentrations than HZSM-5, likely because they had larger pores, higher surface area, and higher acid site density than HZSM-5. HZSM-5. These different factors (i.e., porosity, surface area, and acidity) synergistically contribute to the higher production of aromatic compounds from the mask.

Polypropylene (PP) is the main composition of face masks, so the recycling of mask waste is exactly the same as that of PP waste recycling. As one of the most promising recycling strategies, catalytic carbonization provides an easy, economical and efficient way to produce carbon nanomaterials from polymer waste through thermochemical conversion. It is noted that the elemental carbon content reaches 85.7% by weight in PP, which means that PP is a promising carbon raw material for producing

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.08

carbon-based nanomaterials. Meanwhile, PP catalytic carbonization is also a sustainable concept and prevents PP waste from being directly dumped into landfills or incinerators. To convert PP into carbon nanomaterials, a series of combined catalysts was developed consisting of organically modified clay (OMC)/nickel (Ni-Cat) catalysts, zeolite/NiO, chlorinated compounds/Ni2O3, activated carbon/Ni2O3, carbon black/Ni2O and C60/ Ni(OH)2. Our results reveal that this catalyst can promote the decomposition of PP to selectively produce more aromatic compounds, which are then dehydrogenated and reassembled into carbon nanotubes (CNTs). Our previous work reported on the catalytic carbonization of PP waste to a magnetic carbon/Fe3O4 hybrid, which was used as an adsorbent to effectively remove dye pollutants from water. In particular, carbon/metal hybrids are also one of the promising types of microwave absorbent materials due to their synergistic effect between dielectric and magnetic loss. Our results show that the resulting product is a CNT/Ni hybrid, and the highest carbon yield is 64.4 g/100 g WM. Due to the synergistic effect of CNT and Ni.

SUBJECTS AND METHOD

1. Study Design

This research is a qualitative research.

2. Population and Sample

The population of this study is the worldwide contamination of COVID-19 waste masks. The sample of this study was taken from several journals discussing the contamination of COVID-19 waste masks.

3. Variable

The research variables are the reutilization of COVID-19 waste masks and environmental pollution.

4. Operational Definition of Variable

The operational definition of the variable in this study is the problem of pollution of COVID-19 mask waste in the environment.

5. Instrument

The research instrument used is a literature study by dissecting several journals regarding the contamination of COVID-19 waste masks in several journals and their handling solutions.

6. Data Analysis

Data analysis was carried out by outlining the problem of contamination of COVID-19 waste masks in several journals. The analysis is continued by reviewing several ways of reprocessing COVID-19 waste masks.

7. Research Ethics

The research ethic applied is the effort to reduce pollution to the environment on COVID-19 waste masks around the world.

DISCUSSION

The study says a green and highly efficient pathway is reported for the catalysis of the carbonization of waste masks into high-value carbon nanomaterials. The results showed that the product obtained was a CNT/Ni hybrid, and the highest carbon yield was 64.4 g/100 g WMs. Due to the synergistic effect of CNT and Ni, the resulting hybrid exhibits outstanding microwave absorption with a high reflection loss of 56.3 dB and a bandwidth of 4.3 GHz at 2.0 mm thickness, equivalent to or much better than most

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.08

C hybrids. / Ni. Considering the convenience and feasibility of recycling WM from different environments, it is believed that this strategy will be extended to the actual large-scale industrial production. In addition, the recycling target is not limited to used masks, but also includes polymer waste or other biowaste, so that more valuable carbon nanomaterials will be produced and applied. It is more promising to be developed.

The second study investigated for the first time the effect of zeolite properties on BTEX production from COVID19 mask waste via CFP. The mask mainly consists of PP which has been pyrolyzed with a different zeolite catalyst (HBeta, HY or HZSM5) to produce BTEX. The pyrolysis steam generated in the first stationary reactor passes through the second reactor which is filled with a catalyst bed. Without a catalyst, the masked CFP did not produce aromatic compounds but branched hydrocarbons (C8eC46). The highest oil yield (80.7% by weight) was obtained at 550 °C, which was accounted for in all CFP experiments. The use of a catalyst usually reduces the oil yield and increases the gas yield without significantly changing the residual solids. The catalyst also leads to the production of aromatics from the mask. HBeta and HY catalysts showed significantly higher selectivity towards BTEX than HZSM5. HBeta and HY zeolite catalysts have larger pores, higher surface area and larger number of acid sites compared to HZSM5. The pore sizes of HBeta and HY are larger than the kinetic diameter of the branched hydrocarbons, allowing the thermally derived branched hydrocarbons to diffuse within the pores and thus transform into aromatic hydrocarbons above the acidic sites located mainly within the pores. HBeta has a higher acidity than HY, and this leads to more aromatic formation. These different factors (i.e., porosity, surface area, and acidity) synergistically contribute to the higher production of aromatic compounds from the mask. Higher surface area and greater number of acid sites compared to HZSM5. The pore sizes of HBeta and HY are larger than the kinetic diameter of the branched hydrocarbons, allowing the thermally derived branched hydrocarbons to diffuse within the pores and thus transform into aromatic hydrocarbons above the acidic sites located mainly within the pores. HBeta has a higher acidity than HY, and this causes more aromatic formation. These different factors (i.e., porosity, surface area, and acidity) synergistically contribute to the higher production of aromatic compounds from the mask. Higher surface area and larger number of acid sites compared to HZSM5. The pore sizes of HBeta and HY are larger than the kinetic diameter of the branched hydrocarbons, allowing the thermally derived branched hydrocarbons to diffuse within the pores and thus transform into aromatic hydrocarbons above the acidic sites located mainly within the pores. HBeta has a higher acidity than HY, and this causes more aromatic formation. These different factors (i.e., porosity, surface area, and acidity) synergistically contribute to the higher production of aromatic compounds from the mask. allows the thermally derived branched

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.08

hydrocarbons to diffuse within the pores and thus transform into aromatic hydrocarbons over acidic sites located mainly within the pores. HBeta has a higher acidity than HY, and this causes more aromatic formation. These different factors (i.e., porosity, surface area, and acidity) synergistically contribute to the higher production of aromatic compounds from the mask. Allows the thermally derived branched hydrocarbons to diffuse within the pores and thus transform into aromatic hydrocarbons over the acidic sites located mainly within the pores. HBeta has a higher acidity than HY, and this causes more aromatic formation. These different factors (i.e., porosity, surface area, and acidity) synergistically contribute to the higher production of aromatic compounds from the mask.

In the two studies conducted, further research can be done by analyzing the planning and development of products that can be produced from mask waste. The method that can be used is Quality Function Deployment (QFD). Traditionally, Quality Function Deployment (QFD) has been the main framework for product design. However, due to the limited focus of conventional QFD on customer requirements and the analytical approach lacking understanding and assuming certainty in decision making, several integrated approaches to product design have been proposed in the literature to overcome the limitations of conventional QFD in the context of creating a framework. for sustainable product design (Ocampo et al., 2020). Previous models include green QFD (Zhang et al., 1999; Wong and Jupiter, 2002), QFDEnoi (Masui et al., 2003; Otani and Yamada, 2011; Younesi and Roghanian, 2015), analysis of the impact of QFD failure modes (Chen and Ko, 2009), QFD design for the environment (Rahimi and Weidner, 2002), ecological QFD (Ernzer and Birkhofer, 2003; Kuo et al., 2009; Utne, 2009), QFDLife cycle evaluation (Sakao) et al., 2005; Sakao, 2007), environmentally conscious QFD (Vinodh and Rathod, 2010), among others.

With Quality Function Deployment (QFD) as the basis, the product design team plays an important role in driving sustainability by incorporating relevant requirements early in the design process. However, the literature in this area has significant gaps, especially regarding mask waste. First, the current document does not take into account the requirements of all relevant stakeholders, which are critical for sustainability. Second, while some offer different models of QFD Fuzzy-Multiple Attribute Decision Making (QFD-MADM), they do not comprehensively address the fundamental interdependencies of the decision parameters in QFD. Moreover, most of the work on QFD-MADM is limited to product planning while losing control over the later stages of product development. Therefore, this work attempts to fill this gap by proposing an integrated multiphase fuzzy QFD-MADM framework that combines QFD, Analytical Hierarchy Process (AHP), Evaluation and Test Lab. (DEMATEL) and Analytical Network Process (ANP) with fuzzy set theory.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.08

There are several ways to handle mask waste. The main parts of the mask (inner, middle, outer, and filter) are made of polypropylene (PP) pyrolyzed with various zeolite catalysts (HBeta, HY, and HZSM- 5) to make BTEX. The mask is pyrolyzed in a fixed bed reactor, and the pyrolysis gas developed in the reactor is directed to a secondary reactor where the zeolite catalyst is loaded. Rapid catalytic pyrolysis (CFP) has been developed to prepare high value aromatic compounds from carbonaceous substances (eg, biomass and organic waste) such as benzene, toluene, ethylbenzene and xylene (BT-EX).

Polypropylene (PP) is the main composition of face masks, so recycling mask waste is exactly the same as recycling PP waste. As one of the most promising recycling strategies, catalytic carbonization provides an easy, economical and efficient way to produce carbon nanomaterials from polymer waste through thermochemical conversion. The results showed that the resulting product was a CNT/Ni hybrid, and the highest carbon yield was 64.4 g/100 g WM. Due to the synergistic effect of CNT and Ni, the resulting hybrid exhibits an outstanding microwave absorption capacity of a strong reflection loss of -56.3 dB and a wide bandwidth of 4.3 GHz at a thickness of 2.0 mm, which is comparable or far better than most other C/Ni hybrids.

In the two studies conducted, further research can be done by analyzing the planning and development of products that can be produced from mask waste. The method that can be used is Quality Function Deployment (QFD). Traditionally, Quality Function Deployment (QFD) has been the main framework for product design. However, due to the limited focus of conventional QFD on customer requirements and the analytical approach lacking understanding and assuming certainty in decision making, several integrated approaches to product design have been proposed in the literature to overcome the limitations of conventional QFD in the context of creating a framework. for sustainable product design.

AUTHOR CONTRIBUTION

Hanin Fitria and Tita Latifah Ahmad were in charge of providing the ideas presented. Hanin Fitria develops theory and performs calculations. Tita Latifah Ahmad verified the analytical method. Hanin Fitria encouraged Tita Latifah Ahmad to investigate certain aspects and oversee the findings of this work. All authors discuss the results and contribute to the final manuscript.

ACKNOWLEDGMENT

The completion of this research has been assisted by many parties involved. Thus, the authors would like to thank the previous research cited in this study. The authors also thank the University of Muhammadiyah Kudus for supporting the completion of the research. We would also like to thank the International Conference on Public Health for organizing the event.

FUNDING AND SPONSORSHIP

Acknowledgments are given by the University of Muhammadiyah Kudus for facilitating the implementation of

this research so that it can run smoothly.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Chen LH, Ko WC (2009). Fuzzy linear programming models for new product design using QFD with FMEA. Appl Math Model. 33(2), 533-647. doi: 10.1016/j.apm.-2007.11.029.

Dharmaraj S, Ashokkumar V, Hariharan S, Manibharathi A, Show PL, Chong CT, Ngamcharussrivichai, C (2021). The COVID-19 pandemic face mask waste: A blooming threat to the marine environment. Chemosphere 272: 1296-01. doi: 10.1016/j.chemosphere.-2021.129601.

Fadare OO, Okoffo ED (2020). Covid-19 face masks: A potential source of microplastic fibers in the environment. Sci Total Environ. 737: 140279. doi: 10.1016/j.scitotenv.2020.140279.

Korkut EN (2018). Estimations and analysis of medical waste amounts in the city of Istanbul and proposing a new approach for the estimation of future medical waste amounts. Waste Manag. 81: 168-176. doi: 10.1016/j.wasman.2018.10.004.

Lai C-C, Shih T-P, Ko W-C, Tang HJ, Hsueh P-R (2020). Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and the challenges. Int. J. Antimicrob. Agents. 55(3), 105924. doi: 10.-1016/j.ijantimicag.2020.105924.

Masui K, Sakao T, Kobayashi M, Inaba A. (2003). Applying quality function deployment to environmentally conscious design. Int. J. Qual. Reliab. 20(1), 90-106. doi: 10.1108/02656710310453836.

Minoglou M, Gerassimidou S, Komilis D (2017). Healthcare waste generation worldwide and its dependence on socio-economic and environmental factors. Sustainability. 9(2): 220. doi: 10.3390/s-u9020220.

Ocampo LA, Labrador JJT, Jumaoas AMB, Rama AMO (2020). Integrated multiphase sustainable product design with a hybrid quality function deployment-multi-attribute decision-making (QFD-MADM) framework. Sustain. Prod. Consum. 24. 62-78. doi: 10.1016/j.spc.2020.06.013.

Otani S, Yamada S (2011). Application of QFDE on greenhouse gas reduction strategy. Int. J. Qual. Serv. 3(3): 285-303. doi: 10.11-08/17566691111182843.

Peng J, Wu X, Wang R, Li C, Zhang Q, Wei D (2020). Medical waste management practice during the 2019-2020 novel coronavirus pandemic: Experience in a general hospital. Am. J. Infect. Control. 48(8): 918–921. doi: 10.10-16/j.ajic.2020.05.035.

Prata JC, Silva ALP, Duarte AC, Rocha-Santos T (2021). Disposable over reusable face masks: Public safety or environmental disaster? Environments. 8(4): 1110. doi: 10.3390/environments8040031.

Sangkham S (2020). Face mask and medical waste disposal during the novel COVID-19 pandemic in Asia. Case Studies in Chemical and Environmental Engineering. 2, 100052. doi: 10.1016/j.cscee.-2020.100052

Torres FG, De-la-Torre GE (2021). Face mask waste generation and management during the COVID-19 pandemic: An overview and the Peruvian case. Sci. Total. 786, 147628. doi: 10.1016/j.sci-totenv.2021.147628.

Vinodh S, Rathod G. (2010). Integration of ECQFD and LCA for sustainable product design. J. Clean. Prod. 18(8): 833-842. doi: 10.10-80/19397038.2010.547624.

WHO (2020). WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. https://www.who.-int/director-general/speeches/-detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

WHO (2021). Advice for the public: Coronavirus disease (COVID-19). https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

Younesi M, Roghanian E (2015). A framework for sustainable product design: a hybrid fuzzy approach based on quality function deployment for environment. J. Clean. Prod. 108: 385–394.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.08

PARENTAL EFFORT TO SHAPE CHILD HEALTHY BEHAVIOR IN THE PREVENTION OF COVID-19 TRANSMISSION: A QUALITATIVE STUDY

Ratih Sakti Prastiwi[1)], Juhrotun Nisa[1)], Meyliya Qudriania[1)], Suryo Ediyono[2)]

[1)]Diploma III Program in Midwifery, School of Polytechnics Harapan Bersama
[2)]Graduate School, Universitas Sebelas Maret

ABSTRACT

Background: COVID-19 disease does not only attack adults and the elderly but also children. Confirmed COVID-19 cases in Indonesia were found as many as 10.1% in children and as many as 2.9% in toddlers. That said, although COVID-19 cases are rare in children, it does not mean that children are safe from contracting COVID-19. This study aimed to explore the parental effort to shape child healthy behavior in the prevention of COVID-19 transmission.
Subjects and Method: This was a qualitative study using ethnographic approach. The study was conducted in the outskirt of Tegal Regency, Central Java. A sample of 8 parents who had children aged 0-11 years was selected by snowballing technique. The themes of this study were the parental effort in educating children in the prevention of COVID-19 transmission such as the use of facemask, handwashing practice, and other parental effort to increase child immunity. The data were collected by observation and in-depth interview. The data were analyzed using reduction-verification-conclusion method.
Results: On the positive aspects, most parents taught and educated their children on healthy behavior, including facemask use in public places, handwashing, changing dietary intake, and consuming multivitamins and herbs. However, on the negative aspects, children were often influenced by unhealthy behavior of peers. Children only did the healthy behavior just because of fear from parents and teachers. There was a tendency for children to eat more exceeding daily nutritional needs, which can lead to obesity and metabolic disorders. In addition, children were forced to drink herbs, which could cause trauma to the children.
Conclusion: On the positive aspects, most parents have taught and educated their children on healthy behavior such as wearing facemask in public places, handwashing, changing dietary intake, and consuming multivitamins and herbs. On the negative aspects, some inadvertent effort occurred which resulted in undesirable effects such as over eating and trauma among the children.

Keywords: prevention, behavior, COVID-19, children, parents

Correspondence:
Ratih Sakti Prastiwi. Diploma III Program in Midwifery. School of Polytechnics Harapan Bersama. Jalan Mataram No. 9 Tegal, Central Java, Indonesia. Email: ratih.sakti@poltek-tegal.ac.id. Mobile: 082134442594.

BACKGROUND

Corona virus (COVID-19) since its inception at the end of 2019 has continued to increase in cases where as many as 37 million cases have been confirmed and more than 1 case has died (McCormack et al., 2020). Although several countries have begun to experience a decline in cases, in Indonesia there has been a spike in confirmed cases from April to July 2021 by more than 1 million cases. Based on data from the Task Force for Handling COVID-19 of the Republic of Indonesia, 2.9% of children under five and 10.1% of children under 18 years of age were confirmed to have COVID-19 (Task Force for Handling COVID-19 of the

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.09

Republic of Indonesia, 2020). From these data, it is known that although the number of cases in children is quite small compared to cases in adults, it does not mean that children are not susceptible to contracting COVID-19 (Lee et al., 2020) (Lee et al., 2020).

The least confirmed cases of COVID-19 in children can be caused by the lack of children's activities outside or traveling between cities or internationally. In addition, children will only be screened for COVID-19 if they show signs and symptoms. Meanwhile, children who are in close contact with confirmed COVID-19 patients and do not show symptoms are rarely screened but are immediately advised to self-isolate (Dong et al., 2020).

According to Bappenas, children are categorized as vulnerable based on their age and social identity. The study of SUSENAS data in 15 provinces affected by COVID-19 contained 29 million children who have the potential to increase vulnerability (Ministry of National Development Planning, 2021). Considering this, the government has set several policies to reduce the risk of transmission, among others by implementing online learning policies, large-scale social restrictions (PSBB) in several areas, mandatory use of masks, maintaining distance and healthy living habits in the context of preventing covid transmission (KPCPEN, 2020).

The rapid spread of COVID-19 caused panic not only in Indonesia but also in various countries. Panic also arises because there is a lot of confusing information spread in the community. This information not only causes panic, but also changes people's perspectives and behavior towards COVID-19 (Joharudin et al., 2020). Prevention efforts set by the government have become ineffective. Perspectives that emerge in the community tend not to support this policy. The community's perspective does not only change behavior in preventing transmission to oneself but also to children (Tabi'in, 2020).

Tegal Regency has a high number of new cases of COVID-19 compared to the surrounding areas. In May 2021 there were 3080 new cases and experienced a fairly rapid spike in July 2021 to 54,000 cases, of which 363 cases were children under five and 383 cases were children aged 6-11 years (Tegal District Health Office, 2021). This study was conducted with the aim of exploring the efforts of parents in improving children's healthy behavior and children's behavior in preventing COVID-19 in the outskirts of Tegal Regency.

SUBJECTS AND METHOD

1. Study Design

This was a qualitative study with an ethnographic approach in which researchers seek to obtain information through observing the daily behavior of the community, especially those on the outskirts of Tegal Regency regarding the prevention of COVID-19 transmission to children.

The ethnographic approach is an approach in qualitative studies that is easily accessible, flexible and pragmatic, especially in identifying factors that influence healthy behavior in society, especially from a socio-cultural perspective (Coates and Catling, 2021).

2. Population and Sample

The subjects of this study were parents or caregivers of children aged 0-11 years living in the Tegal Regency area. The sample was taken using a snowballing

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.09

sampling technique, namely data collection will be stopped when the data obtained from respondents is saturated and 8 respondents are obtained.

3. Study Instruments

Researchers collected data from May-July 2021. Data collection was carried out through observation and interviews with parents of children aged 0-11 years. Researchers conducted observations in the community environment observing the child's environment doing activities such as school, playground, home environment. Observations were also carried out in public places such as markets, stores, and mosques/ musholla. In addition to observations, researchers also conducted interviews with informants who met the inclusion criteria. The instruments in this research are human instruments and interview guides which have been validated face-to-face in April 2021.

4. Data Analysis

The data obtained is then analyzed through the stages of reduction, verification and drawing conclusions. To ensure the validity of the data, the researcher also triangulated the method, namely the interview data would be compared with the results of observations.

RESULTS

COVID-19 is not only transmitted to adults but also to children at the age of infants, toddlers and children. The vulnerability of children to COVID-19 transmission is very influential on how parents view the severity of COVID-19 and the vulnerability of their children to contracting COVID-19. This research was carried out by observing daily life in the outskirts of Tegal Regency to see the prevention efforts made to prevent the transmission of COVID-19 in children. The respondents of this research are as follows:

Table 1. Characteristic of Respondents

Respondent	Age	Number of children	Child's age	History of COVID-19
IU.1 (Nora)	36	2	3 dan 10 years	Nothing
IU.2 (Evi)	33	1	1.5 years	Nothing
IU.3 (Nisa)	33	1	1 year	Yes
IU.4 (puput)	35	2	6 years	Nothing
IU.5	38	3	4, 5 and 12 years	Nothing
IU.6 (Nafisah)	42	3	9 and 11 years	Nothing
IU.7 (Ida)	40	1	1.5 years	Yes

The majority of children have children under the age of 6 years where children are still very dependent on their parents in maintaining health, hygiene and also efforts to increase immunity. There are also many children under the age of 6 years who do not have an understanding of the concept of a disease or why that person can be infected. At the beginning of the second wave of COVID-19, children often heard the term 'corona' or 'covid'.

Based on the results of observations, children when they find out that their neighbors have COVID-19, the reactions that arise are fear and reluctance to approach the houses of people who are infected, this is shown every time they approach the house, the child will run and shout "watch out for corona, watch out for corona". In addition, the children also made the words "if you pass in front of the house, you will be exposed to the corona".

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.09

The expression conveyed by the child shows that many children are familiar with the corona but do not fully understand how the corona is transmitted. Based on the results of interviews with respondents, several respondents said about COVID-19 and how it is transmitted.

> "*my son once asked about covid, yes I explained that covid is a disease caused by a virus that is contagious and deadly (pause) later in the body there is a bad virus and a good virus if our body is immune and strong, the bad virus loses*" (IU.1)
>
> "*I only heard and assumed from hearing the news the neighbors said, but if the children knew because they were told what corona was at school*" (IU.4)
>
> "*I explain to the children that Corona is a new disease that is contagious and dangerous*" (IU.6)

From the results of the interview, it is known that there are still many who do not explain to children clearly how the transmission of COVID-19 is so that many children misinterpret the process of transmitting COVID-19. The presence of parents who are still lacking in explaining or understanding children about COVID-19 is predicted to be a factor influencing children's behavior in preventing the transmission of COVID-19.

This lack of understanding about the severity and vulnerability of COVID-19 in children also affects their daily behavior. Even though parents have taught their children to use masks, there are still many children who don't wear them when playing with their peers. Parents have explained the importance of masks and always provide masks for children. However, when the child saw that his friend was not wearing a mask, the child finally did not want to use it. Children only wear masks because they are afraid of teachers or parents. But when not with the teacher or parents, the mask has been removed.

> *"if my son goes with my husband and I will always wear a mask, but like a friend, he doesn't wear a mask, even though he didn't tell him to bring a mask" (*IU.1*)*
>
> *"at first there were neighbors who were exposed to covid, children were afraid to play with friends, just put on a mask, now they don't want to say anything"* (IU.6)
>
> *"If you go to school, don't wear a mask, ma'am, because you are required to wear one from school. But if you're playing with your own people when you're infected with covid, so you don't have to wear a mask, it won't be a problem either." (*IU.5*)*

While respondents who have babies, the majority of children still use masks when taken to public places, but if only in the home environment even though they are just walking or playing, children still do not use masks. The reason is that the child is still a baby and there is no obligation to use a mask.

> *"If you go to the market, you don't wear a mask, but if you only go to the mosque or play, you usually don't wear Ms. How are you, it's a habit"* (IU.2)
>
> *"Children under two years old are not required to wear a mask. I teach it, but the child doesn't like it, so if he takes it off, I won't*

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.09

use it again" (IU.3)

"If I go to the city or go far, I wear a mask, but when I get to a crowded place, maybe yes, after that, he immediately take it off" (IU.5)

"The child goes with the family, sis, at least to the family environment so he/she doesn't wear a mask" (IU.7)

In preventing transmission, there are 3 respondents who teach children to live healthy such as washing hands using soap or hand sanitizer. However, children tend to be lazy and many underestimate hand washing. Children feel that many friends do not wash their hands so that children imitate their friends. However, parents try to keep asking their children to wash their hands every time they enter the house. In addition to washing hands, respondents also mentioned that children are also required to take a bath and change their clothes after meeting the crowd/ playing. This is done to ensure that the child is completely clean.

"In the early days of covid, I didn't carry my TPQ bag and SD bag. Then if you want to play, don't bring it. He used to be diligent, he still wants to use hand sanitizer but now he doesn't touch it, so when I'm at home I still tell him to wash his hands" (IU.1)

"In addition to washing my hands and wearing a mask, I usually take a shower after I go out. Usually, when you're out of contact with a lot of people, moreover there must be a touch either on the cheek, while we don't know the condition of the people outside" (IU.2)

"I have made it a habit to use hand sanitizer when I'm in a public place, when I get home, I use hand sanitizer again and wash my face. Sometimes it's a bath, sometimes it's not, depending on the conditions." (IU.3)

However, there are still respondents who are still indifferent to the habit of washing their hands. Respondents still think that the child will not be infected with COVID-19 even though the child returns from a public place/ crowd.

"...With your own people, you don't play anywhere, so God willing, it's okay" (IU.4)

"*My son is still a baby, he hasn't been taken anywhere, the most complex himself is still in his own area*" (IU.7)

Another effort made by parents to prevent the transmission of COVID-19 in children is to increase immunity. Some respondents increase children's immunity by ensuring from food and also giving multivitamins. With the hope, when children eat a lot, the child's immunity will also increase.

"...through food and giving vitamins (pause) ordinary food is no different, it's just that when my child wants to eat a lot, the child will become healthier (pause) I also give vitamins (mention the brand name of a multivitamin) once a day" (IU.1)

"I've prepared vitamins (mentioned the brand) but it's not routine, the important thing is that you don't take care of the type of food, the processing is also from washing to cooking." (IU.3)

"I make sure that you only eat it, sis, don't give enough vitamins

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.09

from formula milk" (IU.7)

In addition to multivitamins, children are also given herbs to help increase the body's immunity. Some of the herbs that are given are those who process them themselves, while some respondents only buy them at herbalists. Herbal medicine is given to children not routinely because parents can't bear to see their children cry when they drink herbal medicine.

"During the pandemic, when my child was sick, I didn't make lenguk leaf juice every day, taken 2 times for a week, drinking it healed, so you don't have to go to the doctor, don't worry about covid, right?" (IU.1)

"My son didn't just introduce kencur rice, it's good for the body, especially during the pandemic" (IU.2)

"My son is rarely given herbs, ma'am, but I don't give it. Paitan's herbal medicine (pause) I don't know what it's just from the herbalist who also bought the in-laws" (IU.3)

"I don't give my child anything, sis, at least only herbs that pass by the store, herbs that are made for children" (IU.4)

"at the beginning of covid, drink turmeric every day, sis, they say it's good for covid" (IU.5).

From this exposure, briefly the COVID-19 prevention behavior in children can be seen in the following table:

Behavior	Finding
Mask use	Understanding of the severity and vulnerability of children contracting COVID-19 is still low even though parents have been given an understanding as shown from: • The behavior of children in using masks is due to the fear of getting punished or being scolded by parents and teachers. • Children are influenced by the opinions and behavior of friends.
Hand Washing Habits	The majority of children have adopted the habit of washing their hands at home.
Increase immunity	• Perception that the more you eat, the healthier/higher immunity is • Administration of multivitamins • Children drink herbal medicine when they are healthy or sick

DISCUSSION

The COVID-19 pandemic has had a huge impact on families. Seeing how easily COVID-19 spreads to humans regardless of age increases parental anxiety. Parents try hard to make sure their families don't catch COVID-19, especially their children. Some of the efforts made by parents are by teaching children how to prevent transmission of COVID-19 from themselves, such as using masks, exercising regularly, washing hands and so on. Parents also try to increase their child's immune system through the provision of foods that stimulate immune enhancement and also the provision of supplements/ multivitamins (Yoo et al., 2021).

Based on the results of the study, the habit of using masks in children, the majority of children aged less than 2 years have been taught and

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.09

accustomed to using masks in public places. Anhusadar and Islamiyah (2020) state that the formation of healthy behavior is very effective if it is taught from an early age, namely in the golden age period where in this period children's brain abilities develop optimally, one of which is the ability to remember. If children are introduced early, often see their parents behave in a healthy manner, then children will imitate and become good habits.

The majority of children when wearing a mask only lasts a while, then the mask is removed because the child has difficulty breathing. Surya said that getting children used to wearing masks is quite difficult. The existence of regulations or obligations increases fear in children so that they will use masks when meeting or with people who are respected/feared. Because they are not used to it, many children complain of shortness of breath so that because of the unwillingness of teachers or parents to relax the obligation to use masks (Surya, 2020).

Allowances given by parents and teachers can help improve children's behavior for the better even though the process is slow. When the child is given time to study and understand the importance of the Health protocol, it will slowly be imprinted in the child's brain so that the child slowly wants to use a mask or wash their hands. When a child independently decides to follow a health protocol, this behavior can persist and become a habit (Garcia et al., 2020; Guarcello, 2020).

However, if the parents are too loose and even indifferent, the child will behave arbitrarily or rebel when asked to carry out health protocols, especially when crowding or visiting public places (Adnan, 2019).

Based on the results of interviews, it is known that children are more influenced by their peers. When playing, they tend to take off their masks on the grounds that it is difficult to breathe, especially when playing physical games. It's the same with washing hands, even though parents have provided children with hand sanitizer because friends don't use them, children don't use them either. Children interact with their peers more than their parents. Children feel comfortable and happy when they meet their peers so that children tend to want to have something in common with their friends, including in terms of daily behavior (Pratiwi et al., 2020).

Peers are important in childhood and pre-adolescence. Relationships with peers are very influential social and emotional children are even able to direct their friends to change behavior (Ragelienė and Grønhøj, 2020). This is different from the relationship between children and their parents. Relationships with peers are based on equality, common interests and goals. Children with their friends experience the same development (Liu et al., 2020). This is a factor why children trust and follow the habits of their friends. Children tend to imitate what he likes. If children are happy with their friends, they eat whatever their friends do and say, they will follow (Binder et.al., 2020). This shows the magnitude of the role of peers. The existence of peers can be a means for health workers, parents and teachers to empower children, especially in increasing the understanding of other children for healthy behavior (Ragelienė and Grønhøj, 2020).

Parents can also prevent the spread of COVID-19 by increasing their child's immunity, either through food

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.09

or by giving supplements. Based on the results of the interview, it was found that the respondent's perception was that as long as the child wanted to eat a lot, the child's immunity would increase. But what is not noticed is that when children eat more than their calorie needs in a day, it can lead to overweight or obesity in children. The incidence of obesity in children can cause hypertension, heart disease, cancer, diabetes and other diseases (Ragelienė and Grønhøj, 2020).

A good diet to increase immunity is not to eat more than usual. When children eat too much junk food, fast food and even sweet or sodium foods it will interfere with digestive health. Children need to eat food that suits their needs starting from fresh ingredients and proper food processing. Increasing fruit consumption is also very helpful in increasing body immunity (Dondi et al., 2020; Khalil and Elsayed, 2020; Abduljawad, 2021). In addition to changes in diet, the majority of respondents increase their immune system through the consumption of multivitamins. Multivitamins have been proven to help increase the body's immunity, there are no studies that say that multivitamins can prevent contracting COVID-19 (Ćori-ćet al., 2021).

Not only multivitamins, children are also given 'paitan' herbal medicine which is believed by the community to be able to increase immunity and cure diseases. The majority of children respond to rejection and cry this can cause trauma to the child. Although several types of herbal plants have immunity-boosting properties, the number of herbs taken to children is the same as adults. Consuming excess food or drink can interfere with the digestion of children who are still vulnerable. Not only that, the effort to force children to drink herbal medicine can also leave trauma. Children may behave refusing to eat or drink given to them for fear that what is given is bitter herbal medicine. This can indirectly reduce the child's immunity and make children more vulnerable (Ćorić et al., 2021).

Based on the explanation above, it can be concluded that from the positive aspect, parents have carried out health education for their children, especially in preventing the transmission of COVID-19 such as using masks, washing hands, consuming healthy food and multivitamins. However, there are negative aspects found, namely the emergence of overeating behavior that can have an impact on obesity in children and the behavior of forcing children to consume herbal medicine which can have a traumatizing impact on children.

The implication of this research is that there is a need for peer health education efforts to assist good practice of COVID-19 prevention behavior. Monitoring of healthy behavior also needs to be carried out by the school during recess to ensure that the behavior of preventing COVID-19 is still carried out by children while playing. The limitation in this study is the time of data collection at the same time as the second wave of COVID-19 in Indonesia and again strict activity restrictions are imposed in various regions so that data collection is continued through communication media such as WhatsApp or telephone.

REFERENCES

Abduljawad EA (2021). Saudi society's dietary habits and the use of

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.09

nutritional supplements during the Corona Pandemic: a Cross-sectional Retrospective Study. Medical Science. 25(112): 1248-1260. https://www.discovery-journals.org/medicalscience/current_issue/v25/n112/A1.pdf.

Adnan M. (2019). Mengenal pola asuh orang tua dalam pembentukan akhlak anak (Knowing parenting patterns in the formation of children's morals). Cendekia. 5(2).

Anhusadar L, Islamiyah I (2020). Penerapan perilaku hidup bersih dan sehat anak usia dini di tengah pandemi COVID 19 (Implementation of clean and healthy lifestyle for early childhood in the midst of the Covid 19 Pandemic). Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini, 5(1): 463–475.

Binder A, Naderer B, Matthes J (2020). Experts, peers, or celebrities? The role of different social endorsers on children's fruit choice. Appetite, 155: 104-821. https://doi.org/10.1016/j.-appet.2020.104821.

Coates D, Catling C (2021). The use of ethnography in maternity care. Global Qualitative Nursing Research. 8: 1–14. https://doi.org/-10.1177/23333936211028187.

Ćorić N, Jurić A, Karlovic A (2021). The Impact of the COVID-19 Pandemic Outbreak on Eating and Lifestyle Habits of Adolescents in Bosnia and Herzegovina: a Cross-sectional Study. Journal of Health, Population and Nutrition. Preprint. http:-//dx.doi.org/10.21203/rs.3.rs-529005/v1.

Dinas Kesehatan Kabupaten Tegal. (2021). Status Kasus Positif COVID-19 (Status of Positive Cases of COVID-19). www.covid-19.tegalkab.go.id/positif.php. Accessed October 2021.

Dondi A, Candela E, Morigi F, Lenzi J, Pierantoni, Lanari M (2020). Parents' perception of food insecurity and of its effects on their children in Italy six months after the COVID-19 Pandemic Outbreak. Nutrients, 13(1): 121. https://doi.org/10.3390/nu1301 0121.

Dong Y, Mo X, Hu Y, Qi X, Jiang F, Jian Z, Tong S (2020). Epidemiology of COVID-19 Among Children in China. Pediatrics, 145(6): e20200702. https://-doi.org/10.1542/peds.2020-07-02.

Garcia OF, Fuentes MC, Gracia E, Serra E, Garcia F (2020). Parenting warmth and strictness across three generations: Parenting styles and psychosocial adjustment. International Journal of Environmental Research and Public Health, 17(20): 7487. https://doi.org/10.3390/ijerph-17207487.

Guarcello E (2020). Character Skills and Patience to Promote Resilience in Children-Education in Primary Schools After Pandemic. European Journal of Social Science Education and Research. 7(2). https://doi.org/10.26417/-701rje70y.

Joharudin A, Septiadi M, Maharani S, Aisi T, Nurwahyuningsih (2020). Panic Syndrom COVID-19: Penekanan terhadap Kebijakan yang Diberikan Pemerintah (COVID-19 Panic Syndrome: Emphasis on Policies Provided

by the Government). Jurnal Perspektif, 4(1): 44–53.

Kementerian PPN. (2021). Bappenas Luncurkan Kertas Kebijakan untuk Mengatasi dan Mencegah Dampak COVID-19 Pada Anak dan Individu Rentan (Bappenas Launches Policy Paper to Address and Prevent the Impact of COVID-19 on Children and Vulnerable Individuals). www.-bappenas.go.id. Diakses pada 8 Oktober 2021.

Khalil AMS, Elsayed ZEH (2020). Children dietary habits and quality of sleep during COVID-19 Pandemic. International Journal of Nursing, 7(2): 80–86. https:-//dx.doi.org/10.15640/ijn.v7n2-a9.

Komite Penanganan COVID-19 dan Pemulihan Ekonomi Nasional (KPCPEN). (2020) Apakah Anak-anak Wajaib #Pakai-Masker? (Are Children Required to #Use Masks?) Jakarta: Kementerian Kesehatan Repblik Indonesia.

Lee PI, Hu YL, Chen PY, Yhu CH, Po RH (2020). Are children less susceptible to COVID-19?. Journal of Microbiology, Immunology, and Infection, 53(3): 371. https://doi.org/10.1016/j.jmii.-2020.02.011.

Liu L, Xu L, Xiao X, Liu L, Li Y (2020). Positive influence of peers' interpersonal character on children's interpersonal character: The moderating role of children's and peers' social status. Journal of Adolescence, 79: 157–172. https:-//doi.org/10.1016/j.adolescence.2020.01.003.

McCormack GR, Doyle-Baker P, Petersen JA, Ghoneim D (2020). Parent anxiety and perceptions of their child's physical activity and sedentary behaviour during the COVID-19 pandemic in Canada. Preventive Medicine Reports, 20: 101275. https://-doi.org/10.1016/j.pmedr.2020.101275.

Pratiwi AP, Nurlaili N, Syarifin A. (2020). Interaksi Teman Sebaya Terhadap Perilaku Sosial (Peer Interaction on Social Behavior). Al Fitrah: Journal Of Early Childhood Islamic Education, 3(2): 105–118.

Ragelienė T, Grønhøj A (2020). The Influence of Peers′ and Siblings′ on Children's and Adolescents′ Healthy Eating Behavior. A Systematic Literature Review. Appetite, 148: 104592. https://-doi.org/10.1016/j.appet.2020.-104592.

Satuan Tugas Penanganan COVID-19 Republik Indonesia (2020) Peta Sebaran. www.covid19.go.id/peta-sebaran. Accessed October 2021.

Surya D (2020). To form children health behaviour during the COVID-19 Pandemic: Teacher's strategy and obstacle. Aṭfāluna: Journal of Islamic Early Childhood Education, 3(2): 105–112. https://doi.org/10.32505/atfaluna.v3i2.2209.

Tabi'in A (2020). Perilaku Hidup Bersih dan Sehat (PHBS) pada Anak Usia Dini sebagai Upaya Pencegahan Covid 19 (Clean and Healthy Lifestyle (PHBS) in Early Childhood as an Effort to Prevent Covid 19). Jurnal Edukasi AUD. 6(1): 58–73.

Yoo HJ, Shim J, Kim N (2021). Life-Changing Experiences of Mothers with School-Age Children during the COVID-19 Pandemic: Focusing on Their Health Risk Perceptions and Health-Related Behaviors. International Journal of Environmental Research and Public Health, 18(9): 4523. https://doi.org/10.3390/ijerph18094523.

CLEAN AND HEALTHY LIVING BEHAVIOR IN ELEMENTARY SCHOOL STUDENTS DURING COVID-19 PANDEMIC

Dhina Cahya Rohim, Septina Rahmawati, Nidaul Afidah

Primary School Teacher Education, Universitas Muhammadiyah Kudus, Central Java

ABSTRACT

Background: The COVID-19 pandemic has had a significant impact on education. The learning process must continue to achieve educational goals in this new normal era. This study aimed to describe the efforts made by schools in habituation of clean and healthy living behavior as one of the preparations for offline learning among elementary school students in Kudus, Central Java.
Subjects and Method: This was a qualitative analytic study with phenomenology and ethnographic approaches. This study was conducted at Piji Elementary School, Kudus, Central Java, in 2021. The key informants were headmasters. The additional informants included teachers and students. The data were collected through in-depth interviews, unobtrusive observation, and document reviews. The data were analyzed descriptively.
Results: The school had implemented several efforts for habituation of clean and healthy living behavior, including (1) Applying regulations according to health protocol; (2) Carrying out regular physical activities; (3) Eating nutritious food; (4) Throwing garbage in its place; and (5) Provision of the facilities and infrastructure for teaching and learning activities.
Conclusion: The school has implemented some habits for students' clean and healthy living habits.

Keywords: healthy living behavior, offline learning, COVID-19, elementary school, students

Correspondence:
Dhina Cahya Rohim. Primary School Teacher Education, Universitas Muhammadiyah Kudus. Jl. Ganesha No. 1 Purwosari, Kudus, Central Java. Email: dhinacahya@-umkudus.ac.id. Mobile: +6281225165535

BACKGROUND

Coronavirus Disease 2019 or COVID-19 is an acute respiratory infectious disease caused by a coronavirus strain caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which was first identified in late 2019 in the city of Wuhan, Hubei Province of China (Beiu et al., 2020). This disease is transmitted through droplets when talking, coughing, and sneezing from people infected with the virus. This virus can also be transmitted through physical contact in the form of touches such as handshakes with sufferers, touching the face and nose by hands exposed to the Coronavirus (Singhal, 2020).

The COVID-19 pandemic that hit the whole world, including Indonesia, in early 2020 had a significant impact in various fields. For example, in the health, economic, social, religious, and educational fields (Anhusadar and Islamiyah, 2020). However, learning must continue so that educational goals can still be achieved. Therefore, the government

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.10

has taken various ways to reduce the spread of the COVID-19 virus, especially in the school environment. One part of the school environment is children in elementary school. Children belong to an age group that is very vulnerable to the transmission of COVID-19 from the surrounding environment. Some children infected with COVID-19 often show symptoms of infection (Zimmermann and Curtis, 2020).

One way to minimize the infection of children from COVID-19 is to apply parenting patterns that educate children about clean and healthy living behaviors. Parenting is the way parents educate children and raise children. The factors that influence parenting include cultural aspects, religion, habits, beliefs, and the parents' personality (the parents themselves or those who take care of the children) (Sulistiana and Iswati, 2013).

Clean and healthy living behaviors are all health behaviors carried out on each individual or group (Kriswanto et al., 2020). According to the Regulation of the Minister of Health of the Republic of Indonesia Number 2269, clean and healthy living behavior is a set of behaviors that are practiced based on awareness as a result of learning that makes a person, family, group, or community able to monitor themselves (independently) in the health sector and play an active role in realizing community health. PHBS can be carried out in various settings, namely the arrangement of the Workplace, Health Services, Public Places, and Household Arrangements.

Clean and healthy living behavior to prevent the COVID-19 virus can be in the form of excellent and correct hand washing, applying physical distancing, and preventing hygiene (Razi et al., 2020). The provision of knowledge and skills in implementing clean living behavior patterns independently must be given to children, especially when at school, to avoid the transmission of COVID-19.

The application of clean and healthy living behavior in children is because children have a high risk of spreading COVID-19 virus infection and are in the Golden Age. The Golden Age is when the brain development stage in early childhood occupies the most vital position, 80% of brain development (Ministry of Health, Republic of Indonesia, 2020). Habituation of children's behavior from a young age will also shape the character carried into adulthood.

The government has issued a policy that allows limited face-to-face learning by adhering to strict health protocols in the current normal era. Although the government has allowed schools to conduct limited face-to-face learning, health protocols must be implemented to prevent the transmission of COVID-19. Referring to the Joint Decree regarding the implementation of face-to-face learning, the central government has authorized local governments to permit face-to-face learning. For the preparation of face-to-face learning, it is hoped that children are expected to implement healthy lifestyle behaviors and maintain health protocols in school.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.10

To prevent the spread of the COVID-19 virus in schools during limited offline learning, it is necessary to familiarize children with clean and healthy living behaviors. Therefore, this study aims to describe the efforts made by schools in the habituation of clean and healthy living behavior as one of the preparations for offline learning in elementary schools.

SUBJECTS AND METHOD

1. Study Design

This research is qualitative research using phenomenological and ethnographic approaches to obtain information about the efforts made by schools in habituation of clean and healthy living behavior in elementary school students in Kudus, Central Java.

This study was conducted at Piji Elementary School, Kudus, Central Java, in 2021.

2. Study Informants

Informants in this study were selected by purposive sampling, taking into account specific criteria.

Inclusion criteria:

a. Willing to be an informant
b. Is a member of SD Piji, Kudus, Central Java

3. Data Analysis

Data was collected through in-depth interviews, non-participatory observation, and document review. The instrument data used are interview guides, stationery, laptops, notebooks, voice recorders, and cameras to record the process. Data were analyzed with qualitative data (Miles and Huber-man, 1994; Leech and Buzie, 2007).

Data analysis techniques include data collection, data reduction, data display, and conclusions. Based on the data collected, then described and analyzed.

RESULTS

Organizing education during a pandemic

The social restrictions imposed during the pandemic caused the government to take a policy to change the face-to-face learning process to learning from home. This distance learning activity can trigger negative impacts, including learning loss, the potential for dropping out of school, and causing mental health problems (Bappenas, 2021).

It is reducing the negative impact of distance learning requires policies to encourage the use of diverse educational technology and the conditions of the community and region and the use of information and communication technology and e-learning in providing alternatives to teaching and learning activities**.**

During the pandemic, learning activities at SD 1, Piji utilized information and communication technology such as Google Classroom, Edmodo, WhatsApp applications, and others. However, its implementation has not been maximized because it is still constrained by the network and the lack of infrastructure owned by students. The government at this time has changed the policy from large-scale social restrictions (PSBB) to new normal conditions (Siahaan, 2020). Some areas have been allowed to carry out limited offline learning activities, including SD 1 Piji. How-

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.10

ever, its implementation must comply with strict health protocols to prevent the spread of the COVID-19 virus in schools.

One of the efforts made by the school is to get used to clean and healthy living behavior. Clean and Healthy Living Behavior (PHBS) in schools is a set of behaviors that are practiced by students, teachers, and the school environment community based on awareness as a result of learning so that they are independently able to prevent disease, improve their health, and play an active role in creating a healthy environment. Elementary School, 2021).

Efforts made in habituation of Clean and Healthy Life Behavior

The school has made several efforts to habituate clean and healthy living behavior during the pandemic. First, implement regulations according to health protocols. Some of the rules made by the school in limited offline learning are as follows:

a. Students, teachers, and other sick staff are not allowed to come to school.
b. Schools set regular handwashing activities with clean running water and soap or hand sanitizer. The socialization of the implementation of handwashing with soap was made in the form of pictures that were pasted in certain places so that all school members could see.
c. Everyone who enters the school environment is required to wear a mask. Wearing a mask can reduce the spread of the virus because it covers the nose and mouth.
d. Students, teachers, and all school residents always practice social distancing. The COVID-19 virus can be fatal to all school residents. Therefore, one way to do this is always to keep your distance.
e. All school residents are prohibited from gathering. Efforts made by schools to avoid crowds are by limiting the number of study groups, arranging student activity schedules during a pandemic, setting entry hours, rest hours, and home hours.

Second, carry out regular physical activity. Carrying out regular physical activity cheerfully is beneficial for everyone because it can improve fitness, control weight, control blood pressure, increase endurance, improve heart, lung, and muscle function (Directorate of Elementary Schools, 2021). Physical activity does not always have to be in sports; activities such as playing are also included in physical activity. Other benefits of physical activity that we may not realize are increased brain function and maintained memory and thinking skills. We need to apply this to students as early as possible.

Third, eat nutritious food. School children need nutrition every day, obtained from various foods and beverages, which are used as a source of energy, grow, replace damaged cells, and maintain health. Everyone's nutritional needs vary according to their gender, age group, physical activity, and physiological condition. Students must bring their food supplies from home during learning at school.

Fourth, throw garbage in its place. The culture of throwing garbage in its place has been carried

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.10

out in schools. This is evidenced by the provision of closed trash cans in classrooms, bathrooms, courtyards, and other strategic locations. Trash cans are also regularly cleaned every day so that the environment looks neat and clean.

Fifth, provide the facilities and infrastructure needed to run all learning activities. As for some of the facilities meant are:

a. Providing facilities in places to wash hands with adequate numbers must be available and function properly. So that students, teachers, and the school community can wash their hands before entering school and during school activities.
b. Put up posters/pictures containing the implementation of health protocols
c. Clean the surfaces of objects in school every day.

DISCUSSION

Healthy living needs to be done regularly to get a good level of health and avoid the spread of the COVID-19 virus during this pandemic. It is necessary to have a clean and healthy environment for a healthy life, especially for school-age children.

Based on the study results, data was obtained that the school made several efforts to habituate clean and healthy living behavior, namely 1) applying regulations according to health protocols, 2) carrying out regular physical activities, 3) eating healthy food. Nutritious, 4) dispose of waste in its place and, 5) provide facilities and infrastructure. This is in line with Adawiyah et al. (2021) which stated that there are several efforts made by the school in preparation for offline learning, namely wearing masks, students are asked to bring their food to make it more sterile, keep every room in the school clean, must keep a distance, and schools provide facilities in the form of a place to wash hands in the school environment.

Clean and Healthy Living Behavior is a collection of behaviors that are practiced based on awareness to keep themselves healthy and actively help the health of the environment around them (Hardiningrum et al., 2021). Habituation of this behavior must be done to prevent the spread of the COVID-19 virus in schools. This is by the research results of Anhusadar et al. (2021), who stated that clean and healthy living behavior had become a routine and even a must during the current pandemic. Some activities that can be done include washing hands every 1-2 hours in the right way, doing physical activities such as exercising regularly at home and consuming healthy foods that contain various vitamins. for endurance (Anhusadar and Islamiyah, 2020).

Habituation of clean and healthy living behavior in Piji 1 elementary school will not succeed without cooperation with other parties, especially parents and the community around the school. This is by Hardiningrum (2021), which states that the school cooperates with parents in the habit of living clean and healthy by educating the parents of students so that healthy behavior can be carried out correctly. Among others,

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.10

providing input to parents so that children can have breakfast before leaving for school, drink milk, pay attention to children's nutritional intake every day, wash hands before eating, and constantly remind children to clean up toys and throw garbage in its place (Hardiningrum et al., 2021). With good cooperation between schools and parents, it is hoped that children's habit of clean and healthy living behavior during this pandemic can run well.

Based on the study results, it can be concluded that the school has carried out habituation activities for clean and healthy living behavior in students. This is done in several ways, namely (1) implementing regulations according to health protocols; (2) carrying out the regular physical activity; (3) eating nutritious food; (4) throwing garbage in its place; and (5) providing facilities and infrastructure. In addition, to support the success of habituation of clean and healthy living behavior in students, the school cooperates with parents so that this habit can also be applied at home. Thus, the habituation of clean and healthy living behavior for students during this pandemic can run optimally, and it is hoped that it can help prevent the spread of the COVID-19 virus.

AUTHOR CONTRIBUTION

Dhina Cahya Rohim acted as the leading researcher who coordinated the research, carried out all stages of the study, and compiled the publication manuscript of this research. Septina Rahmawati plays a role in preparing the research framework, processing research data, presenting the results of analyst research, compiling research papers, developing research ideas and hypotheses.

CONFLICT OF INTEREST

There is no conflict of interest in compiling this article.

FUNDING AND SPONSORSHIP

This research is self-funded.

ACKNOWLEDGMENT

We want to thank the Chancellor of the University of Muhammadiyah Kudus, the LPPM Muhammadiyah University of Kudus, and the teachers and principals at SD 1 Piji, Kudus district, who have assisted in the entire process of implementing this research activity.

REFERENCES

Anhusadar L, Islamiyah I (2020). Implementation of clean and healthy lifestyle for early childhood amid the COVID-19 pandemic. Jurnal Obsesi: J PG-PAUD. 5(1): 463. DOI: 10.310-04/obsesi.v5i1.555.

Bappenas KP (2021). Indonesian COVID-19 Handling Learning Study.

Beiu C, Mihai M, Popa L, Cima L, Popescu MN (2020). Frequent hand washing for COVID-19 prevention can cause hand dermatitis: Management tips. Cureus. 12(4): e7506. https://-doi.org/10.7759/cureus.7506

Direktorat Sekolah Dasar (2021). Clean and healthy lifestyle in schools for organizing learning during the COVID-19 Pandemic.

Hardiningrum A, Fasha AHZ, Zahroh C (2021). Application of clean and healthy lifestyle during the COVID-19 pandemic, early childhood. Jurnal Pendidikan. 5(1): 78–88.

Kementrian Kesehatan RI (2020). Toddler health guidelines during the COVID-19 emergency response period, Ministry of Health of the Republic of Indonesia. Available at: https://-infeksiemerging.kemkes.go.id.

Kriswanto ES, Sunardi J, Prasetyawati I, Sari TP, Suharjana F (2020). Education of clean and healthy living behavior through image media as a prevention of COVID-19. IJHRESS. 1(1): 12–16. Available at: https://journal-.uny.ac.id/index.php/ijhress/article/download/36304/pdf.

Razi F, yulianty V, Amani SA, Fauzia JH (2020). COVID-19: Independent Health Book for Friends, Islamic Medical Association and Network of Indonesia. Available at: https://www.uny.ac.id/sites-/www.uny.ac.id/files/u10/Buku%20Bunga%20Rampai%20COVID-19.pdf.

Robiatul A, Isnaini NFUH (2021). Readiness of implementation of face-to-face learning in the new normal era at MI At-Tanwir Bojonegoro. Jurnal Basicedu. 5(4): 2156–2163. Available at: https://jbasic.org/index.php/-basic.

Siahaan M (2020). Impact of the COVID-19 pandemic on the world of education. Journal of Scientific Studies. (1): 1410–9794. Available at: http://-ejurnal.ubharajaya.ac.id/index-.php/JKI.

Singhal T (2020). A Review of Coronavirus Disease-2019 (COVID-19). Indian J. Pediatr. 87(4): 281–286. DOI: 10.1007/-s12098-020-03263-6.

Sulistiana E, Iswati RS (2013). Study on parenting patterns on clean and healthy life behaviors for 3-4 years old children. Embryo. 2: 36–39. DOI: 10.36456/embrio.-vol2.no0.a1229.

Zimmermann P, Curtis N (2020). Coronavirus infections in children including COVID-19: An overview of the epidemiology, clinical features, diagnosis, treatment and prevention options in children. Pediatr Infect Dis J. 39(5): 355–368. https://doi.org/10.1097/INF.0000000000002660.

THE EFFECTIVENESS OF EDUCATING COVID-19 PREVENTION USING LEAFLET MEDIA ON HEALTH PROTOCOL'S KNOWLEDGE AND COMPLIANCE IN FAMILIES WITH COVID-19 SURVIVORS

Ana Zumrotun Nisak, Sukarmin, Noor Azizah, Arief Adi Saputro

Universitas Muhammadiyah Kudus, Central Java

ABSTRACT

Background: In early 2020, the COVID-19 outbreak began to spread globally. The community plays an essential role in breaking the chain of transmission of COVID-19 by implementing health protocols. One of the actions that the government can take to stop the spread of the coronavirus is educating the public about the dangers of COVID-19. This study aimed to determine the effectiveness of educating COVID-19 prevention using leaflet media on health protocol's knowledge and compliance in families with COVID-19 survivors in Jekulo, Kudus, Central Java.
Subjects and Method: This was a quasi-experiment with one group pre-test post-test design conducted in Jekulo, Kudus, Central Java, in 2020. A sample of 88 family members of COVID-19 survivors was selected for this study. The dependent variables were knowledge and compliance with COVID-19 prevention. The independent variable was media leaflets. The data were collected by questionnaire. The data were analyzed using Wilcoxon.
Results: There was an increase in knowledge of COVID-19 prevention before (Mean= 11.91; SD= 1.17) and after being given education through leaflets (Mean= 13.58; SD= 1.14), and it was statistically significant ($p<0.050$). Likewise, there was an increase in compliance of COVID-19 prevention before (Mean=9.36; SD=1.19) and after being given education through leaflets (Mean=10.91; SD=1.19), and it was statistically significant ($p<0.050$).
Conclusion: Educating COVID-19 prevention using leaflet media effectively increases the knowledge and compliance of health protocol in families with COVID-19 survivors.

Keywords: education, leaflet, knowledge, compliance, prevention, COVID-19, family

Correspondence:
Ana Zumrotun Nisak. Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No. 1, Purwosari, Kudus 59316, Central Java. Email: anazumrotun@umkudus.ac.id. Mobile: +62 85201248205.

BACKGROUND

At the beginning of 2020, the world was shocked by the outbreak of the coronavirus, or what at that time was known as the novel coronavirus (2019-nCoV) (Nicomedes, 2020). The World Health Organization (WHO) found this case at the end of December 2019 in Wuhan City, Hubei Province, China, with pneumonia cluster cases with unclear etiology (Deng et al., 2020). Meanwhile, in Indonesia, data was obtained on October 31, 2020, from 406,945 confirmed cases, 13,782 deaths, and 334,295 recovered cases (Kemenkes RI, 2020).

The Provincial Government (Central Java) on October 31, 2020, recorded the number of COVID-19 cases in its territory currently a total of 35,126 confirmed cases, 28,741 people

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.11

recovered, 2,601 people died, 223 confirmed COVID-19 patients in Jekulo sub-district (Health Department) Central Java Province, 2020).

The factors that cause people to not comply with health protocols for preventing COVID-19 are lack of supervision, education, innovation, and modification in providing or delivering information to the public because the appeal given to the community is still word of mouth while distributing free masks to the community, and the lack of media used as a tool to influence or persuade the public to follow the appeal given (Dewi and Fatia, 2021).

Knowledge about COVID-19 disease is critical so as not to cause an increase in the number of cases of COVID-19. One way to increase knowledge is through education. For educational materials to be received as much as possible, a tool is needed to convey the material (Amila, 2013). In addition to the lecture method, a leaflet distribution method can be used for education. Leaflets are media in the form of sheets of paper that are given pictures and writing (usually containing more writing) (Melina and Soebiyanto, 2014)

From the results of research conducted by Sabarudin et al. (2020) entitled Effectiveness of Providing Online Education through Video Media and Leaflets on Knowledge Levels of COVID-19 Prevention in Baubau City, it was obtained data that in COVID-19 prevention education through video, the median value on the pre-test was 19.5, the median value on post-test 20.0 and p=0.248 a=0.05 which means there is no difference in the knowledge of respondents before and after being given education. Meanwhile, in COVID-19 prevention education through videos and leaflets, the median value for the pre-test was 19.63, the median value for the post-test was 22.0, and the p = 0.001 a = 0.05, which means that there is a difference in respondents' knowledge before and after being given education.

Education using leaflets regarding the prevention of COVID-19 needs to be done to the community, including in Jekulo Kudus. Based on this, this study was conducted to analyze the effectiveness of providing education through leaflet media on compliance with health protocols in preventing COVID-19 in families of COVID-19 survivors in Jekulo Kudus.

SUBJECTS AND METHOD

1. Study Design

This research is a quasi-experimental design with one group pretest-posttest conducted in Jekulo, Kudus, Central Java. The research was conducted in 2002.

2. Population and Sample

The sample is 88 families of COVID-19 survivors.

3. Research Variables

The dependent variable is knowledge of COVID-19 prevention.

The independent variable is COVID-19 prevention compliance.

4. Operational Definition of the Variable

a. Knowledge

Definition: An understanding of families of COVID-19 survivors about COVID-19 prevention Scale of measurement: Ordinal.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.11

b. COVID-19 prevention compliance
Definition: A behavior, action, habit, and willingness to comply with the COVID-19 Health protocol and not violate the specified prohibitions
Measurement scale: Nominal

5. Research Instruments

The tool used in this research is a leaflet to determine knowledge and compliance in the prevention of COVID-19

6. Data Analysis

Data were analyzed using the Wilcoxon test.

RESULTS

The results show several things, namely sample characteristics, univariate analysis, and bivariate analysis.

Table 1. Sample Characteristics

Characteristics of Respondents	Category	Group		Control	
		N	%	N	%
Age	20-29	6	13.6	15	34
	30-39	18	40.9	11	25
	40-49	12	27.3	13	29.6
	> 50	8	18.2	5	11.4
Gender	Male	20	46	18	41
	Female	24	54	26	59
Work	Yes	36	81.8	29	65.9
	No	8	18.2	15	34.1

Table 2. Distribution of the frequency of knowledge of health protocols in preventing the spread of COVID-19

Respondents	Mean	SD	Maximum	Minimum
Pre-test	11.91	1.17	16	10
Post-test	13.58	1.14	17	11

Based on table 5, it is known that the average pre-test score for the respondents knowledge variable about knowledge of COVID-19 prevention in the elderly is 11.91 with a minimum value of 10 and a maximum value of 16.

Table 3. Distribution of the frequency of compliance with Health protocols in preventing the spread of COVID-19

Respondents	Mean	SD	Maximum	Minimum
Pre-test	9.36	1.19	11	7
Post-test	10.91	1.19	12	7

Based on table 2, it is known that the average pre-test score for the respondents behavior variable regarding knowledge of COVID-19 prevention in the elderly is 9.36 with a minimum value of 7 and a maximum value of 11. It is known that the average post-test score for the respondent's behavior variable regarding knowledge of COVID-19 prevention in the elderly is 10.91 with a minimum value of 7 and a maximum value of 12.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.11

Table 4. Effect of Leaflet Media on COVID-19 prevention knowledge

COVID-19 Prevention Knowledge	Mean	SD	p
Pre-intervention			
Intervention	18.74	2.13	0.067
Control	19.50	2.28	0.021
Post-intervention			
Intervention	19.32	1.79	0.001
Control	19.92	3.10	0.001

Table 5. Effect of Leaflet Media on COVID-19 prevention compliance

COVID-19 Prevention Compliance	Mean	SD	p
Pre-intervention			
Intervention	18.54	2.20	0.072
Control	18.83	2.35	0.065
Post-intervention			
Intervention	19.42	1.98	0.001
Control	19.98	2.78	0.001

DISCUSSION

Based on the results of the study, obtained p= 0.001. This illustrates that leaflets can significantly make a significant difference to the knowledge of health protocols in preventing COVID-19. The increase in family knowledge from pre-test to post-test is undoubtedly influenced by several factors, including the availability of tools/media in the form of health protocol leaflets in preventing COVID-19 given to respondents. Following its purpose, this leaflet facility is expected to provide information for respondents with a family history of COVID-19 disease or COVID-19 survivors.

A person's education will affect health behavior. This is because education will gain knowledge and create efforts to prevent disease. A higher persons level of education will make it easier for him to absorb knowledge. Thus, his insight will be more comprehendsive. Based on this, the respondents knowledge of health protocols in preventing COVID-19 is critical in the current pandemic. The public needs to know the prevention of COVID-19, the causes of COVID-19, the characteristics of the virus, signs and symptoms, terms related to COVID-19, the necessary examinations, and the transmission process as efforts to prevent the disease.

Behavior to comply with health protocols in preventing COVID-19 was found to be p= 0.001. This illustrates that leaflets can significantly make a significant difference to health protocol compliance in preventing COVID-19. It can be said that most of the respondents have done their job of protecting themselves from the COVID-19 disease outbreak by adhering to health protocols correctly and adequately. The increase in the average post-test score was influenced by the technical and COVID-19 prevention instructions contained in the leaflet.

Many factors influence health behavior, including knowledge, perception, emotion, motivation, and environment. The higher a person's

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.11

knowledge of health problems, the better his perspective on the concept of health and illness, which can ultimately improve a person's health status (Herron, 2020).

From the Wilcoxon test results, it is known that there is a difference between compliance with health protocols in preventing the spread of COVID-19 after being given education through leaflets. Increasing family knowledge in complying with health protocols will positively impact, especially for preventing the spread of COVID-19 with health and a clean and healthy lifestyle (PHBS). A healthy environment will significantly help the families who live in it to feel comfortable, calm, and happy. A healthy body can be obtained by consuming clean and healthy food and complete nutrition. A healthy body will be complicated to be infected by various dangerous disease agents such as COVID-19 or other diseases because a healthy body has a strong defense (immunity) and is easy to heal itself. Leaflet educational media can impact increasing one's understanding and changing one's behavior. The factors that influence educational success through leaflet media are individual factors, choice of words used, and visualization. The individual factors in question are from the characteristics of individuals in understanding a leaflet material, people's understanding capacity is undoubtedly different, and the tendency of interest in a given material is also different, some prefer the material presented in written form, there is also an understanding of the material that must be done—also included with an explanation. The material and choice of words affect the success of education. If the material and the choice of words used are too complicated, it will make it difficult to understand the material presented.

The researchers assume that providing education is critical to increasing citizens' knowledge, especially COVID-19 survivors. So that residents who have never been exposed to and survivors of COVID-19 will be more careful and always carry out the procedures that have been set by the government and can be carried out in earnest because of the knowledge of citizens who are already good. The behavior to prevent the spread of COVID-19 that residents use is based on citizens' awareness because they know the dangers of the coronavirus. Prevention steps in the community are to maintain hand hygiene using a hand sanitizer or wash hands with soap using running water, avoid touching the face (such as eyes, nose, and mouth), apply cough and sneeze etiquette, wear a mask and maintain a distance (at least 1 meters) from others.

ACKNOWLEDGMENT

The researcher expresses his deepest gratitude to all parties involved in the research, both in terms of material and time, to complete and publish this research.

AUTHOR CONTRIBUTION

The first, second, third, and fourth researchers are responsible for the entire research, starting from determining the research topic, collecting data, interpreting data, and writing research articles.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.11

FUNDING AND SPONSORSHIP

This research is independent research that is not funded or sponsored.

CONFLICT OF INTEREST

This research does not cause a conflict of interest.

REFERENCES

Amila LE (2013). Artikel Ilmiah Pengaruh Penyuluhan Menggunakan Metode Ceramah dengan Media Audio Visual terhadap Pengetahuan Remaja tentang Narkoba di SMA Negeri 1 Gomo Kecamatan Gomo Kabupaten Nias Selatan Tahun 2013. (Scientific Article the Effect of Counseling Using the Lecture Method with Audio Visual Media on Adolescent Knowledge About Drugs at SMA Negeri 1 Gomo, Gomo District, South Nias Regency in 2013). Universitas Sari Mutiara Indonesia.

Deng S-Q, Peng H-J (2020). Characteristics of and Public Health Responses to the Coronavirus Disease 2019 Outbreak in China. J Clin Med. 9 (2): 575. doi: 10.-3390/jcm9020575.

Dewi S, Fatia Z (2021). Upaya preventif penyebaran virus corona di desa pancawati kecamatan Klari pada balita dihubungkan dengan Peraturan pemerintah Republik Indonesia nomor 2 tahun 2018 tentang standar pelayanan minimal. (Efforts to prevent the spread of the corona virus in Pancawati village, Klari subdistrict in toddlers are linked to the Republic of Indonesia government regulation number 2 of 2oi8 concerning minimum service standards). Prosiding Konferensi Nasional Penelitian dan Pengabdian Universitas Buana Perjuangan Karawang. 1 (1): 1191-1207

Dinas Kesehatan Kudus. (2020). Profil Kesehatan Provinsi Jawa Tengah. (Health Profile of Central Java Province).

Dinas Kesehatan Provinsi Jawa Tengah (2020). Profil Kesehatan Provinsi Jawa Tengah. (Health Profile of Central Java Province).

Herron JBT, Hay-David AGC, Gilliam AD, Brennan PA (2020). Personal Protective Equipment and COVID-19 a Risk to Healthcare Staff? Br J Oral Maxillofac Surg. 58(5): 500-502. doi: 10.1016/j.-bjoms.2020.04.015.

Iskandar H (2014). Pengaruh Penyuluhan Cuci Tangan menggunakan Media Video terhadap Keterampilan Cuci Tangan pada Siswa Sekolah Dasar Karya Tulis Ilmiah Program D IV Bidan Pendidik. (The Effect of Handwashing Counseling using Video Media on Handwashing Skills in Elementary School Students Scientific Writing Program D IV Midwife Educators). Universitas Sebelas Maret.

Kementerian Kesehatan RI (2020). Pedoman Pencegahan Dan Pengendalan Corona Virus Disease (COVID-19) Revisi Ke-5. (Guidelines for the Prevention and Control of Corona Virus Disease (COVID-19) 5th Revision). Kemenkes RI. Jakarta.

Melina F, Soebiyanto AA, Wujoso H (2014). Perbedaan Media Pembelajaran (Leaflet Dan Video) terhadap Keterampilan Sadari Ditinjau dari Motivasi. (Differences in learning media (leaflets and videos) on awareness skills in terms of motivation). J Kesehatan Samodra Ilmu. 05(02): 116–125.

Nicomedes CJ, Avila RM (2020). An Analysis on the Panic of Filipinos During COVID-19 Pandemic in the Philippines. doi: 10.-13140/RG.2.2.17355.54565.

Sabarudin (2020). Jurnal Farmasi Galenika. Galenica Journal of Pharmacy. (6)2: 309-318 Akademi Kebidanan YLPP. 2(1).

RESILIENCE IN PREGNANT MOTHERS WITH HIV DURING POST-COVID-19 PANDEMIC

Erlin Kiriwenno[1)], Suryo Ediyono[2)], Nur Alam[3)], Andris Noya[4)]

[1)]Diploma Midwifery Study Program, Institute of Health Science Husada, Maluku
[2)]Faculty of Cultural Sciences, Universitas Sebelas Maret
[3)]Undergraduate Midwifery and Midwifery Profession, Universitas Mohammad Husni Thamrin
[4)]Faculty of Religious Social Sciences, IAKN Ambon

ABSTRACT

Background: The recent COVID-19 pandemic has had significant psychological and social effects on the population. Pregnant women with HIV are vulnerable group to this disease. One way that pregnant women with HIV can do during a pandemic or post-pandemic is resilience. This study aimed to examine the resilience of pregnant women with HIV after the COVID-19 pandemic.
Subjects and Method: This was a qualitative study with a phenomenological approach. This study was conducted in Ambon, Maluku in June to August 2021. Two HIV-positive pregnant women were selected using the snowball sampling technique. The dependent variable was HIV. The independent variable was resilience. Data were collected using in-depth interview.
Results: Pregnant women with HIV can create resilience within themselves. Resilience was carried out to maintain physical and psychological health. There were four types of resilience: (1) Pregnant women with HIV remained productive after the COVID-19 pandemic; (2) Pregnant women with HIV were able to manage stress; (3) Pregnant women with HIV established good social relationships; and (4) Pregnant women with HIV drew closer to God.
Conclusion: Pregnant women with HIV perform resilience in the post-COVID-19 pandemic. Resilience maintains physical and psychological health in the daily life.

Keywords: resilience, HIV, post-pandemic, pregnant women.

Correspondence:
Erlin Kiriwenno. Diploma Midwifery Study Program, Institute of Health Science Maluku Husada. Jl. Waiselang-Kairatu Ceram Cross. West Seram Regency. Maluku. Email: kiriwennoe@gmail.com: Mobile: +6281344220098.

BACKGROUND

At the end of 2019 in Wuhan, China, there was an outbreak of the Corona-virus-2019 (COVID-19) infection which is the main cause of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-COV-2). Since then, COVID-19 has been declared a global pandemic (Ridlo, 2020). This epidemic spread very quickly to various parts of the world. The latest data released by the World Health Organization (WHO) states that as of January 13, 2021, the number of COVID-19 sufferers world-wide is more than ninety million cases, to be exact, reaching 90,054,813 cases (Rafie, 2021). Meanwhile, according to data reported by Worldometers, on October 7, 2021, the number of people infected with COVID-19 was 236,991,904 cases with details of 4,838,344 people died and 214,114,911 people recovered (Aida, 2021).

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.12

Indonesia is one of the countries in Southeast Asia with a high number of COVID-19 cases. Responding to the increasing number of cases, the Indonesian government implemented various policies. In 2020, Government Regulation Number 21 concerning large-scale social restrictions (PSBB) was issued in the context of accelerating the handling of Corona Virus Disease 2019 (COVID-19). Large-scale social restrictions (PSBB) is a restriction on certain community activities in areas suspected of being infected with the COVID-19 outbreak in such a way as to slow the spread of COVID-19 (Thorik, 2020). Therefore, the government urges the public to contribute by complying with the health protocols applied so that the spread of COVID-19 can stop (Nasruddin and Haq, 2020). After evaluating the effectiveness of the PSBB, the government issued the Instruction of the Minister of Home Affairs Number 01 of 2021 Government Regulation Number 15 of 2021 concerning the Enforcement of Restrictions on micro-based community activities (PPKM) (Nasruddin and Haq, 2020). In order to accelerate the decline in the number of COVID-19 cases, the government issued Minister of Health Regulation Number 10 of 2021 concerning the implementation of vaccinations in the context of overcoming the COVID-19 pandemic. Data in August shows that the number of Indonesians who have been vaccinated with a complete dose or two injections is 34,702,821 people (Masbahi, 2021). Several research results conclude that the complete dose of vaccine that has been accepted by the community is able to increase the body's immune response (Nugroho and Hidayat, 2021).

Various groups in society in Indonesia have undergone COVID-19 vaccination, including the provision of vaccines for People With HIV/AIDS (PLWHA) (Aditama, 2021). There are various concerns among PLWHA about the safety of the COVID-19 vaccine. This is natural because PLWHA is a group of people with low immunity levels. Some research results even state that people living with HIV are at higher risk of death from COVID-19 (Mahalta et al., 2021). This causes PLWHA to get serious attention in the community during the COV-ID-19 pandemic. Moreover, if infected with COVID-19, people with HIV/AIDS have three times the chance of dying. Thus, people living with HIV are required to maintain body immunity to remain stable and avoid the COVID-19 virus (Triratnawati, 2021).

Maluku Province is one of the regions in Indonesia with a high number of HIV/AIDS sufferers. The number of PLWHA in Maluku as of December 2019 was recorded at 5,891 cases. From this data, the percentage of men is 58% and women are 42% (East News, 2019). This data illustrates that currently women are a group that is vulnerable to contracting the HIV virus. Based on the results of the study, it was stated that women are vulnerable to being infected with HIV/AIDS four times compared to men (Adhiningtyas and Utami, 2020). This is because the shape of the female genital organs is like an open vessel. Physically, this causes the virus to easily enter the vagina when having sexual intercourse with an HIV-positive man, through

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.12

small cuts or abrasions or the entry of sperm fluid into the vagina (Yulianti, 2013).

Pregnant women are one of the groups that are vulnerable to transmission of the HIV virus. The incidence of HIV/AIDS in pregnant women is increasing and is generally found at the age of 20-29 years. In addition, HIV/AIDS in pregnant women causes more serious problems because it can endanger the safety of the mother's life and is transmitted to the baby through pregnancy, during childbirth and breastfeeding (Sitohang, 2018). Based on data released in 2019, out of 5,700 pregnant women in Ambon City, there were seven positive people infected with HIV/AIDS (Mayaut, 2019). Meanwhile, based on data collected from the Pelangi Foundation, one of the foundations that handle PLWHA in Ambon City, in the HIV examination for pregnant women there were two people who were declared HIV positive in 2021.

In the conditions of the COVID-19 pandemic, PLWHA is a group in society that requires serious attention, especially pregnant women with HIV. This is because in the diagnosis of COVID-19, patients who have comorbidities can worsen their condition when they are attacked by the COVID-19 virus. One of the comorbidities is HIV because it is related to the immune system. Previous literature studies have explained that PLWHA are susceptible to the COVID-19 virus (Silitonga et al., 2020). Therefore, in a pandemic situation, it is necessary for relevant parties to pay special attention to PLWHA, be it their family, social environment, as well as the government and related parties (Triratnawati, 2021). With the social support provided for pregnant women with HIV during the COVID-19 pandemic, they become a strong group in terms of physical, mental and social aspects in dealing with various problems that arise including stigma and discrimination experienced in daily life. day. Psychologically, social support provided to pregnant women with HIV includes emotional support, appreciation, and informative support. The support provided makes a positive contribution to individuals in building self-confidence and self-actualization for the better. Pebelitian Naulha and Suhari (2021) state that social support that is given properly can increase self-confidence in PLWHA and can improve self-quality. So as to increase resilience in pregnant women with HIV.

Resilience is dynamic so that individuals are able to adapt positively in adversity situations they experience. This ability is used to overcome and increase self-resistance to stressful situations (Ardana and Sholichatun, 2014). There are various stressful situations within the individual, one of which is the issue of People Living with HIV/AIDS (PLWHA). Stigma and high discrimination in the social environment make pregnant women with HIV should have strong resilience to be able to survive in living their daily lives. Especially in the post-COVID-19 situation, pregnant women with HIV should have high resilience in themselves. With high resilience, pregnant women with HIV are able to survive and even improve their quality of life after the COVID-19 pandemic. This study aims to analyze the resilience of pregnant

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.12

women with HIV after the COVID-19 pandemic.

SUBJECTS AND METHOD

1. Study Design

This study uses a qualitative method with a phenomenological approach. The phenomenological approach connects scientific knowledge with everyday experience (Suprayogo and Tabroni, 2001). This study takes place at the Rainbow Foundation of Ambon City from June to August 2021.

2. Population and Sample

The population in this study were pregnant women with HIV in Ambon City. While the source population is pregnant women with HIV who actively conduct health consultations every month and consume ARVs. The sampling technique is snowball sampling. The number of samples in this study were two people. In this study, researchers prioritize ethical principles, where researchers respect the principle of autonomy of pregnant women with HIV. The researcher provides a detailed explanation regarding the research objectives, protected subject status, and creates a comfortable atmosphere in making decisions so as to create a comfortable atmosphere during the research process.

3. Study Variable

The dependent variable is pregnant women with HIV. The independent variable is resilience.

4. Operational Definition of Variable

A pregnant woman with HIV is a woman who is pregnant and is tested positive for HIV through a doctor's diagnosis.

Resilience is the ability of individuals to overcome and increase self-resilience when in stressful situations such as job loss, failure in social relationships, illness experienced, and even trauma that occurs in their lives (Ardana and Sholichatun, 2014).

1. Instrument

To obtain data related to the resilience of pregnant women with HIV after the COVID-19 pandemic, researchers used interview guidelines. The interview guide was prepared by the researcher based on the resilience theory proposed in the Connor-Davidson Resilience Scale (CD-RISC) proposed by Connor and Davidson (Naulha and Suhari, 2021). In the Connor-Davidson Resilience Scale (CD-RISC) it is explained that resilience has five main aspects, namely: (1) personal competence, high standards, and tenacity; (2) Believe in yourself, tolerant of negative affect, and be strong and tough when under stress conditions; (3) Accept change positively and be able to establish good relationships with others; (4) Control or self-control, namely how individuals ask for or get help from other parties, (5) Spiritual influence, namely believing in God or fate. These five aspects of resilience were explored through in-depth interviews.

During the research process, the researcher applied the principle of confidentiality. This principle guarantees the confidentiality of data obtained by researchers from research subjects. The researcher ensures to the subject that the data obtained is only used for research needs. Data obtained through in-depth interviews and field notes.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.12

RESULTS

The subjects in this study were housewives who were pregnant and resided in the Ambon City area. A total of 2 pregnant women with HIV were selected in this study using snowball sampling. Characteristics of pregnant women with HIV who were used as subjects in this study, among others, had an age between 27-39 years, the average gestational age was in the second trimester. Both pregnant women with active HIV underwent ARV therapy. From the level of education, pregnant women with HIV have varying levels, the first informant completed education at the high school level, while the second informant completed education at the Diploma level.

Subsequent data collected related to the family conditions of the subjects studied. Pregnant women with HIV studied had varying family conditions. The first subject lives with her husband and already has two children. Her husband is HIV positive while her son is negative. The second subject has one child while her husband has died. The data obtained by researchers related to family conditions is very important data. By exploring from the family side, the resilience of pregnant women with HIV will be seen after the COVID-19 pandemic.

The results showed a picture of the resilience of pregnant women with HIV in Ambon City. Pregnant women with HIV have a high level of resilience. Even though they are in a difficult situation, pregnant women with HIV are not discouraged, they still survive in life because for them, the future still belongs to them. After the Covid-19 pandemic, pregnant women with HIV remain productive, able to manage stress sources well, establish good social relationships, and get closer to God, the owner of life.

DISCUSSION

The COVID-19 pandemic is a very extraordinary phenomenon. The phenomenon of COVID-19 is a dangerous virus. This is because this virus is highly contagious and can cause death (Sari et al., 2020). Various groups are affected by this virus without exception. Based on data compiled by the Ministry of Health of the Republic of Indonesia in September 2020 there were as many as 77 PLWHA exposed to the COVID-19 virus. Of the 77 people who were exposed, 8 of them died (Rini, 2020). This data is the result of a survey on COVID-PLWHA in 32 provinces, 63 districts/cities. People with HIV/AIDS (PLWHA) are a group that is vulnerable to being infected with the Corona virus. Based on data reported by an online media, it was stated that during the COVID-19 pandemic there were as many as 5,100 pregnant women who were tested positive for HIV (Manafe, 2020). Responding to this high enough number, social support is needed to strengthen the resilience of pregnant women with HIV during the pandemic and post-pandemic.

Social support given to pregnant women with HIV aims to strengthen their psychological resilience. This is because when pregnant women find out that their status is HIV positive, they must experience extraordinary shocks. In addition, there is stigma and discrimination from the social environment which holds that pregnant women with

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.12

HIV are individuals who have fallen into immoral behavior. The impact of stigma and discrimination experienced is the exclusion of pregnant women with HIV in the social environment. Therefore, it takes psychological readiness for pregnant women with HIV in addressing the existing problems. It takes resilience in pregnant women with HIV.

Resilience is a personal ability to overcome and seek to increase self-resilience to stressful situations (Ardana and Sholichatun, 2014). Especially for pregnant women with HIV, resilience is very important because through resilience pregnant women are able to overcome feelings of depression and quickly rise from feeling depressed. Moreover, through their resilience, pregnant women with HIV are able to make adjustments and control their quality of life. The following describes the resilience of pregnant women with HIV after the COVID-19 pandemic.

1. Pregnant women with HIV remain productive after the COVID-19 pandemic

The first aspect of resilience stated in the Connor-Davidson Resilience Scale (CD-RISC) is personal competence. This aspect focuses on the individual's ability to improve his or her inner abilities in order to survive even in a slumped condition. In the interviews with the subjects it was clear that even though they were in difficult situations, they were still enthusiastic. The days after the COVID-19 pandemic are lived more productively. The first subject has expertise in the field of catering. His day is spent selling market snacks in the afternoon. According to him, even though he was in a slump, he had to keep working and making money. One way is to optimize the capabilities that exist within so as to make money. Especially during the COVID-19 pandemic, the business that was carried out had stalled due to the implementation of PPKM.

The second subject is a housewife who fills her daily life by working as a shop employee. For him, the COVID-19 pandemic caused his income to decline. This is because more than a year he was laid off by his employer. He was laid off because the number of shoppers visiting the shop decreased, but the number of shop employees was quite large. However, after the normal situation returned, the shop owner again hired a second subject as a shopkeeper. For her, even though she is pregnant, she must remain disciplined and have high work motivation. This is solely done to meet the needs of daily life.

2. Pregnant women with HIV are able to manage stress

The second aspect of resilience that can be done by pregnant women with HIV is being able to manage stress well. The source of stress for pregnant women with HIV is the stigma and discrimination in the social environment. In addition, the results of a diagnosis that declares himself HIV positive are also a big threat to the development of the baby in the womb. As a result, pregnant women with HIV will experience high stress (Dewi, Setyowati and Afiyanti, 2008). The results of the interview with the first subject found that during the COVID-19 pandemic, he experienced quite a lot of stress. Severe stress is caused by an unstable family economy and nutritional needs that must be met

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.12

during pregnancy. Coping stress that is done in responding to the situation that occurs is that the subject and his husband plant major vegetables that can be consumed to increase nutrition for the fetus. Vegetables that were grown and consumed personally by the first subject were moringa vegetables and katuk leaves. For him, even though people are currently in a post-pandemic situation, good habits during the pandemic are still being carried out, namely using the yard of the house to be used as a private garden.

As for the second subject, the biggest source of stress is discrimination from the social environment. When he was tested positive for HIV, the environment denied him being with his family. This causes tremendous pressure within the subject. This condition lasted until the COVID-19 pandemic. In an interview with the subject, it was stated that he had to get out of a stressful situation. The pressure from the social environment is quite strong, but he must provide his own solution in order to survive even though there is rejection and discrimination from the social environment. The coping stress created is to think more positively and reduce negative thoughts that can drain emotions and affect the body's immune system.

3. Pregnant women with HIV establish good social relations

One of the inhibiting factors for the physical and psychological development of pregnant women with HIV is the stigma and discrimination in the social environment. Stigma against pregnant women with HIV is reflected in a cynical attitude, feelings of excessive fear, and negative experiences towards pregnant women with HIV. Many think that people infected with HIV/AIDS deserve punishment for their own actions (Shaluhiyah, Musthofa and Widjanarko, 2015). Responding to the situation that developed in society, the two subjects agreed to maintain good relations with the social environment. For both subjects, the most important thing is the good intentions that arise in the heart to socialize with others. If the response from the social environment is negative, it goes back to each individual.

4. Pregnant women with HIV draw closer to God

When they were tested positive for HIV for the first time, both subjects had the same feelings, namely being disappointed and angry with their husbands and also rejecting God. This is because they contracted the HIV virus from their partners. So they claim that God is unfair in their lives. But over time, they were made aware through the counseling services they received during pregnancy check-ups. This causes them to draw closer to God. For them life is short and only God knows when it will end. Therefore, in living the rest of their lives, they choose to draw closer to God through worship performed both at home and in places of worship.

Based on the results of the research above, it can be concluded that pregnant women with HIV are able to create resilience within themselves. This is done to maintain the stability of physical and psychological conditions. Resilience is carried out so that pregnant women with HIV can survive and be strong in living their lives amidst the

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.12

challenges of stigma and discrimination that develop in the social environment.

AUTHOR CONTRIBUTION

The first and second authors collaborated in preparing the background, research methods and conducting interviews with research subjects. The third and fourth authors analyzed the research data. Furthermore, the first author wrote the manuscript.

ACKNOWLEDGMENT

The authors would like to thank those who have actively participated in this research.

FUNDING AND SPONSORSHIP

This study is self-funded.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Adhiningtyas NP, Utami MS (2020). Gratitude cognitive behavior therapy untuk meningkatkan kualitas hidup pada perempuan dengan HIV/AIDS (Gratitude cognitive behavior therapy to improve the quality of life in women with HIV/AIDS). Gama-JPP. 6(1): 92–106. DOI: 10.221-46/gamajpp.54234.

Aditama TY (2021). COVID -19 dalam Tulisan Prof. Tjandra Jilid 2 (COVID -19 in the writings of Prof. Tjandra Volume 2). Jakarta: Lembaga Penerbit Badan Penelitian dan Pengembangan Kesehatan (LPB). Retrieved from: http://repository.litbang.kemkes.go.id/4059/1/COVID-19 dalam tulisan prof tjandra jilid 2.pdf.

Aida NR (2021). Update corona 7 oktober: 236 juta kasus COVID-19 di dunia (Corona update 7 October: 236 million cases of COVID-19 in the world), www.kompas.com. Retrieved from: https://www.-kompas.com/tren/read /2021/-10/07/093000665/update-corona-7-oktober--236-juta-kasus-COVID-19-di-dunia-?page=all.

Ardana E, Sholichatun Y (2014). Resiliensi pada orang dengan HIV/-AIDS (ODHA) (Resilience in people living with HIV/AIDS (PLWHA). Psikoislamika. 11(1): 5–8. DOI: https://DOI.org/10.-18860/psi.v11i1. 6373.

Dewi YI, Setyowati, Afiyanti Y (2008). Stres dan koping perempuan hamil yang didiagnosis HIV/ AIDS di DKI Jakarta: study grounded theory (Stress and coping of pregnant women diagnosed with HIV/AIDS in DKI Jakarta: study grounded theory). JKI. 12(2): 121–128. DOI: 10.7454/jki.v12i2.210.

Kabar Timur (2019). HIV/AIDS Maluku capai 5.891 kasus (Maluku HIV/AIDS reached 5,891 cases). Kabartimurnews.-com. Retrieved from: https://-www.kabartimurnews.com/2-019/12/01/da ta-kumulatif-din-kes-sejak-1994-agustus-2019-kasus-hiv-aids-di-maluku-capai-5-891/ (Accessed: 2 April 2020).

Mahalta MA, Sabri R, Mahathir (2021). Analisis persepsi orang dengan HIV (ODHIV) terhadap risiko penularan COVID -19 di kota

Padang tahun 2021 (Analysis of the perception of people living with HIV (PLHIV) on the risk of COVID-19 transmission in the city of Padang in 2021). JIUBJ. 21(3): 1095–1103. DOI: 10.3308-7/jiubj.v21i3.1712.

Manafe D (2020). Selama pandemi, 5,100 ibu hamil positif HIV (During the pandemic, 5,100 pregnant women were HIV positive). www.beritasatu.com. Retrieved from: https://www.beritasatu.com/kesehatan/704 503/-selama-pandemi-5100-ibu-hamil-positif-hiv.

Masbahi S (2021). Update 31 Agustus: 35,855,211 orang sudah divaksin COVID-19 dosis kedua, nasional.-kompas.com. Retrieved from: https://nasional.kompas.com-/read/2021/08/31/17394301-/update-31-agustus-35855211-orang-sudah-divaksin-COVID-19-dosis-kedua.

Mayaut PF (2019). Tujuh ibu hamil di Ambon posisitf HIV/AIDS, Ambon (Seven pregnant women in Ambon are HIV/AIDS positive, Ambon). antaranews.com. Retrieved from: https://ambon.-antaranews.com/be rita/52206/-tujuh-ibu-hamil-di-ambon-posisitf-hiv-aids.

Nasruddin R, Haq I (2020). Pembatasan sosial berskala besar (PSBB) dan masyarakat berpenghasilan rendah (Large-scale social restrictions (PSBB) and low-income communities). SJSBS. 7(7): 639–648. DOI: 10.15408/sjsbs.v7i7.15569.

Naulha F, Suhari AR (2021). Hubungan harga diri dan dukungan sosial keluarga dengan resiliensi pada odha saat pandemi COVID-19 (The relationship between self-esteem and family social support with resilience in PLHAs during the COVID-19 pandemic). Prosiding Seminar Nasional Psikologi dan Ilmu Humanioar Universitas Negeri Malang. 1(1): 38–45. Retrieved from: http://-fppsi.um.ac.id/wp-content/uploads/2021/05/Prosiding-SENAPI-H-2021-full.pdf.

Noviana N (2016). Kesehatan reproduksi & HIV/AIDS (Reproductive health & HIV/AIDS). Jakarta: CV. Trans Info Media.

Nugroho SA, Hidayat IN (2021). Efektivitas dan keamanan vaksin COVID-19: studi refrensi (The effectiveness and safety of the COVID-19 vaccine: a reference study). JKP. 9(2): 61–107. DOI: 10.33650/jkp.v9i2.2767.

Rafie BT (2021). Data terkini WHO: Jumlah kasus COVID-19 di seluruh dunia melampaui 90 juta kasus! (The number of COVID-19 cases worldwide surpasses 90 million cases), internasional.-kontan.co.id. Retrieved from: https://internasional.kontan.-co.id/news/data-terkini-who-jumlah-kasus-COVID-19-di-seluruh-dunia-melampaui-90-juta-kasus.

Ridlo IA (2020). Pandemi COVID-19 dan tantangan kebijakan kesehatan mental di Indonesia (The COVID-19 pandemic and mental health policy challenges in Indonesia). JPKM. 5(2): 155–164. DOI: 10.20473/jpkm.v5i12020.-155-164.

Rini RAP (2020). Tercatat 77 orang dengan HIV/AIDS terpapar COVID-19, 8 di antaranya meninggal dunia (It was recorded that 77 people with HIV/AIDS were exposed to COVID-19, 8 of them died), www.tribunnews.com. Retrieved from: https://www.tribunnews.com/nasional/2020/09/15/tercatat-77-orang-dengan-hivaids-terpapar-COVID-19-8-di-antaranya-meninggal-dunia.

Sari SP, Aryansah JE, Sari K (2020). Resiliensi mahasiswa dalam menghadapi pandemi COVID-19 dan implikasinya terhadap proses pembelajaran (Student resilience in the face of the COVID-19 pandemic and its implications for the learning process). Indonesian Journal of Guidance and Counseling: Theory and Application. 9(1): 6. DOI: 10.15294/IJGC.-V9I1.38674.

Shaluhiyah Z, Musthofa SB, Widjanarko B (2015). Stigma masyarakat terhadap orang dengan HIV/AIDS (Society stigmatizes people with HIV/AIDS). Kesmas. 9(4): 333–339. DOI: 10.21109/-kesmas.v9i4.740.

Silitonga HTH, Rambung E, Nainggolan R, Messakh GB, Thiotansen KJ (2020). Program pencegahan penularan COVID-19 pada komunitas ibu rumah tangga dengan HIV di Surabaya (Program to prevent transmission of COVID-19 in the community of housewives with HIV in Surabaya). JPKM. 5(3): 193–201. DOI: 10.26905/abdimas.v5i3.4-844.

Sitohang MY (2018). HIV/ AIDS pada ibu hamil, ancaman nyata yang selama ini kurang diketahui (HIV/AIDS in pregnant women, a real threat that so far is not well known). LIPI. Edisi Khusus: 1–5.

Suprayogo I, Tabroni (2001). Metodologi penelitian sosial-agama (Socio-religious research methodology). Bandung: Remaja Rosdakarya.

Thorik SH (2020). Efektivitas pembatasan sosial berskala besar di Indonesia dalam penanggulangan pandemi COVID-19 (The effectiveness of large-scale social restrictions in Indonesia in dealing with the COVID-19 pandemic). ADALAH. 4(1): 115–120. DOI: 10.15408/adalah.v4-i1.15506.

Triratnawati A (2021). Ketahanan keluarga orang dengan HIV/AIDS (ODHA) di masa pandemi COVID-19: studi kasus di Daerah Istimewa Yogyakarta (Family resilience of people living with HIV/AIDS (PLWHA) during the COVID-19 pandemic: a case study in the Special Region of Yogyakarta). Jantro. 23(1): 74–82. https://DOI.org/10.25077/j-antro.v23.n1.p74-82.2021.

Yulianti AP (2013). Kerentanan perempuan terhadap penularan hiv & aids : studi pada ibu rumah tangga pengidap HIV/AIDS di Kabupaten Pati, Jawa Tengah (Vulnerability of women to HIV & AIDS transmission: a study of housewives living with HIV/AIDS in Pati District, Central Java). Palastren. 6(1): 185–200. http://-dx.DOI.org/10.21043/palas-tren.v6i1.983.

EFFECTIVENESS OF UPSKILLING ON IMPROVING THE ATTITUDE OF COMMUNITY HEALTH VOLUNTEERS IN EARLY DETECTION OF CHILDHOOD STUNTING

Indanah[1)], Muhamad Jauhar[1)], Fitriana Kartikasari[1)], Sri Karyati[1)], Rasdiyanah[2)]

[1)]Department of Nursing, Faculty of Health Sciences, Universitas Muhammadiyah Kudus
[2)]Department of Nursing, Faculty of Medicine and Health Sciences, Universitas Islam Negeri Alaudin Makassar

ABSTRACT

Background: Attitude is an ingrained, consistent way of thinking about an object or concept. It can be a positive or negative. Attitude may affect performance, where positive attitude may lead to better performance. Performance is the action or process of carrying out or accomplishing an action, task, or function (for example, community health volunteers' performance in the early detection of childhood stunting). Most performance problems can be attributed to skills deficit, unclear expectations, resource or equipment shortages or a lack of motivation. This study aimed to determine the effect of up skilling on the attitude of community health volunteers in early detection of childhood stunting.
Subjects and Method: This was a randomized controlled trial (RCT) conducted at Undaan and Dawe Community Health Centers, Kudus, Central Java, from October to November 2021. A sample of 66 community health volunteers was selected for this study and divided into 2 groups: (1) Experimental group consisting of 33 community health volunteers who received up skilling; (2) Control group consisting of 33 community health volunteers who did not receive up skilling. The independent variable was up skilling. Up skilling of community health volunteers was given in four sessions over two days with a duration of 45 to 60 minutes/session. The dependent variables were attitude. Attitude were measured by pre-tested questionnaires. The mean differences of attitude after intervention between the experimental and control group was analyzed by wilcoxon test. The effect of up skilling on the attitude was analyzed by mann-whitney test.
Results: After the intervention, the average attitude score in the intervention group (Mean= 62.18; SD= 6.14) was greater than that in the control group (Mean= 59.88; SD= 3.85), and it was statistically significant difference in intervention group (p= 0.010), but not statistically significant difference in control group (p= 0.322). There was statistically significant effect of up skilling on the attitude of community health volunteer in early of childhood stunting (p= 0.048).
Conclusion: Up skilling of community health volunteers is effective in improving both the attitude and performance in the early detection of childhood stunting.

Keywords: attitude, childhood stunting, community health volunteers, early detection upskilling

Correspondence:
Muhamad Jauhar. Department of Nursing, Faculty of Health Sciences, Universitas Muhammadiyah Kudus. Jl. Ganesha No. 1 Purwosari, Kudus 59316, Central Java. Email: muhamadjauhar@umkudus.ac.id. Mobile: +6281223647360.

BACKGROUND

Stunting is one of the malnutrition problems experienced by toddlers in the world. A total of 150.8 million (22.2%) children under five in the world were stunted in 2017. As many as

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.13

55% of children under five with stunting were found in Asia and another 39% were found in Africa in 2017. The highest prevalence of stunting in Asia was in South Asia at 58.7% and the lowest was in Central Asia at 0.9%. Indonesia is the country with the prevalence of stunting under five in Southeast Asia, which is 36.4% during the period 2005 to 2017. According to the Nutrition Status Monitoring Data, in the last three years, short toddlers have become the highest malnutrition problem compared to undernourishment, obesity, and underweight. The prevalence of stunted toddlers increased from 27.5% in 2016 to 29.6% in 2017 (Pusdatin Kemenkes RI, 2018).

Basic Health Research in 2018 reported the number of cases of underweight toddlers was 17.6%, stunting toddlers was 30.8%, and toddlers wasted was 9.2%. Based on WHO, the tolerance for the number of cases of malnourished children under five is 10% and stunting is 20%. Indonesia reports 30% cases of stunting under five, so it can be concluded that it exceeds the tolerance for the number of stunting cases determined by the WHO (Kemenkes RI, 2018). Central Java Province recorded 3.7% of children under five with malnutrition and 13.68% of malnutrition. based on district/city health profile data, the number of cases of undernourished toddlers is 5.4%, very short toddlers are 31.15%, thin toddlers are 2.69%, and short toddlers are 20.06% in 2019. Kudus Regency reported the number of undernourished toddlers was 3.6%, 4.7% short toddlers, and 2.9% thin toddlers (Central Java Provincial Health Office, 2019). Based on the Health Profile of Kudus Regency in 2020, stunting under five in the working area of the Kudus Regency Health Center totaled 2,871 toddlers or 4.7% (Kudus Regency Health Office, 2021).

Based on this phenomenon, the problem of malnutrition in children under five is a national issue that needs attention from policy makers and all components of society (Riskesdas, 2018). Stunting in toddlers is caused by poor nutritional status of pregnant women during pregnancy, poor nutritional status of toddlers, lack of knowledge of mothers about health and nutrition fulfillment during pregnancy and after delivery, limited access to maternal and child health services, and availability of nutritious food due to the inability of the community to meet the needs of balanced nutrition (Ministry of Village, Development of Disadvantaged Regions, and Transmigration of the Republic of Indonesia, 2017). The problem of malnutrition in toddlers, especially stunting, will cause various impacts if not handled properly.

The impact of stunting is the inhibition of brain development so that it will affect the level of intelligence, cognitive ability, learning achievement, physical growth, body metabolic disorders, decreased immunity so that there is a high risk of various diseases (Ministry of Village, Development of Disadvantaged Regions, and Transmigration RI, 2017). Various policies and program activities have been carried out as an effort to deal with stunting such as situation analysis, program planning, stunting consultation, drafting regulations, fostering human resource development cadres,

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.13

stunting data management system, stunting screening and reporting, and monitoring the evaluation of stunting programs every year (JDIH Kudus Regency, 2020). Based on the results of preliminary studies, cross-sectoral programs and policies that have been carried out in Kudus Regency as an effort to prevent and deal with stunting are community empowerment in realizing environmental health such as waste management and latrines, increasing food nutrition intake for children and pregnant women, maternal and child health checks. carried out in the work area of each health center.

One indicator of the success of the stunting management program is the active discovery of stunting cases in the community. The quality and quantity of human resources are needed to achieve the target number of active stunting cases in the community that has been set. Public Health Centers as regional and community-based primary health care facilities play an important role in the success of stunting management programs in each region. Empowerment of health cadres is a solution in supporting stunting management programs in the community. Health cadres as an extension of the health center are community members who are selected, trusted, willing, able, and have the time to find stunting suspects in the community (Notoadmodjo, 2010). The understanding of health cadres about stunting is a determinant in carrying out the roles, functions, and tasks of community-based stunting management. So it is necessary to provide guidance to improve community-based stunting early detection skills (Notoatmodjo, 2007).

Based on Purnamasari et al., (2020), training for posyandu cadres can increase knowledge, self-efficacy, and skills in preventing stunting in toddlers. Adistie et al., (2018) explained that the training of health cadres increases the knowledge and skills of early detection and stimulation of growth and development in toddlers. Another study stated that the implementation of the Posyandu cadre mentoring program increased knowledge about stunting (Azizah & Wardhani, 2020). Daily et al. (2020) reported that training increased the knowledge of health cadres about early detection of stunting. Increased knowledge and skills of health cadres in conducting early detection of stunting is obtained through training of health cadres (Yuliani et al., 2018). Based on this, increasing attitudes about early detection of stunting can be done through the development of health cadres.

Nurses act as nursing care providers, educators, collaborators, and researchers. Nurses collaborate with health cadres in finding cases of stunting in the community. The role of nurses in improving attitudes about early detection of stunting in health cadres shows the consistency and independence of nurses in community-based stunting management efforts. The research results are expected to improve nursing knowledge and community-based health services. The purpose of the study was to identify the effect of upskilling health cadres on the attitude of community-based stunting early detection.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.13

SUBJECTS AND METHOD

1. Study Design

This study is a randomized controlled trial (RCT) conducted at the Undaan and Dawe Health Centers, Kudus, Central Java, from October to November 2021.

2. Population and Sample

The number of samples in this study were 33 health cadres for each intervention and control group. Sampling in this study using purposive sampling technique. The inclusion criteria of the respondents in this study were:

a) Active posyandu health cadres in their respective areas.
b) Have never participated in stunting early detection training.
c) 19-59 years old (adult age category).
d) Minimum education level is elementary school.
e) Able to read, write, and communicate in Indonesian.

3. Variable

The dependent variable is the attitude of community-based stunting early detection. The independent variable is the upskilling of health cadres. The confounding variables are the characteristics of health cadres consisting of age, gender, marital status, education, occupation, income, years of being a health cadre, and previous training experience.

4. Operational Definition of Variable

Attitude is the stance that health cadres have in conducting early detection of community-based stunting identified in the form of evaluative statements.

Upskilling of health cadres is increasing the ability of health cadres in conducting community-based early detection of stunting through lectures, discussions, questions and answers, and demonstrations given over four sessions with a duration of 45-60 minutes per session with material on the concept of growth and development and stunting, early detection of stunting. and malnutrition, and Information Communication and Education (IEC) in the community.

5. Instrument

The research instrument used is a modification of that developed by (Tafese & Shele, 2015) entitled Health care workers knowledge questionnaire, attitude, and practice towards assessment and management of malnutrition in children and Mogre et al. (2017) entitled Knowledge (reliability value= 0.83) and attitude (reliability value= 0.69) scale about inpatient management of severely malnourished children.

The intervention given to the intervention group was upskilling health cadres in four sessions in two days with a duration of 45-60 minutes per session with the following details:

1) Session 1 is health education on the concept of growth and development and stunting in the form of interactive lectures, discussions, and questions and answers.
2) Session 2, namely health education on early detection of stunting and malnutrition in the form of interactive lectures, discussions, and questions and answers
3) Session 3 is health education about communication, information, and education in the community in the form of interactive lectures, discussions, and questions and answers.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.13

4) Session 4 is community-based early detection of stunting and malnutrition in the form of demonstrations and role plays.

Health cadres filled out the informed consent after reading the research information sheet, then took the pretest before and posttest after the intervention. Researchers compiled modules and educational videos for stunting early detection based on references as supporting media. The control group was only given a community-based stunting early detection education module and video.

6. Data Analysis

This study used univariate and bivariate analysis. In univariate analysis, data is presented in terms of frequency and proportion for each variable. The data are presented in the form of mean and standard deviation on the variables of age, length of service as a health cadre, and attitudes towards early detection of stunting. Based on the results of the normality test using the Kolmogorov Smirnov test, the attitude variables were not normally distributed ($p < 0.05$) so that the data analysis used the Wilcoxon test to test the mean difference between the two groups before and after the intervention. Whether there is an intervention effect can be seen from the results of the Mann-Whitney test.

7. Research Ethics

This research has passed the ethical test of the Health Research Ethics Commission of the University of Muhammadiyah Kudus No. 60/Z-7/KEPK/UMKU/X/2021.

RESULTS

1. Characteristics of health cadres

Table 1 shows that the average age of health cadres in the intervention group is 34.73 years with SD = 7.51 and the control group is 43.09 years with SD = 9.41. The average length of time being a health cadre in the intervention group was 5.88 years with SD = 7.19 and the control group was 9 years with SD = 9.20.

Table 2 shows that all health cadres in the intervention and control groups were female or 33 people (100%). Most of the married health cadres in the intervention group were 32 people (97%) and the control group were 29 people (87.9%). Half of the health cadres had a high school education background/equivalent in the intervention group as many as 18 people (54.5%) and the control group as many as 19 people (57.6%). Most of the health cadres worked as housewives in the intervention group as many as 29 people (87.9%) and 18 people in the control group (54.5%). Most of the health cadres did not have a job in the intervention group as many as 27 people (81.8%) and the control group as many as 24 people (72.7%). Half of the health cadres or as many as 18 people (54.5) had attended training in the intervention group and most of the health cadres or as many as 28 people (84.8%) had attended training.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.13

Table 1. Characteristics of health cadres by age and length of service as health cadres (n=66)

Characteristics	Intervention		Control	
	Mean	SD	Mean	SD
Age	34.73	7.51	43.09	9.41
How long of being a health cadre	5.88	7.19	9	9.20

Table 2. Characteristics of Health Cadres

Characteristics	Intervention		Control	
	n	%	n	%
Gender				
Male	0	0	0	0
Female	33	100	33	100
Marital Status				
Single	0	0	1	3
Married	32	97	29	87.9
Widow/Widower	1	3	3	9.1
Education				
No formal education	0	0	0	0
Primary school	5	15.2	6	18.2
Junior high school	10	30.3	6	18.2
Senior high school	18	54,5	19	57.6
College	0	0	2	6.1
Occupation				
Unemployee	1	3	4	12.1
Housewife	29	87.9	18	54.5
Private employee	0	0	3	9.1
Entrepreneur	0	0	4	12.1
Merchant	3	9,1	0	0
Labor	0	0	0	0
Teacher/Lecturer	0	0	1	3
Others	0	0	3	9.1
Income				
No Income	27	81.8	24	72.7
< Rp. 2,290,995	4	12.1	6	18.2
≥ Rp. 2,290,995	2	6.1	3	9.1
Training Experience				
Yes	18	54.5	28	84.8
No	15	45.5	5	15.2

2. Description of the attitude of health cadres regarding early detection of community-based stunting

Table 3 shows the average attitude of health cadres about early detection of community-based stunting before the intervention was 59.21 with SD 501 and after the intervention was 62.18 with SD 6.14 in the intervention group. The average attitude of health cadres about community-based early detection of stunting before intervention was 59.9 with SD 5.94 and after intervention was 59.88 with SD 3.85 in the control group.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.13

Table 3. Description of the attitude of health cadres regarding early detection of community-based stunting in the intervention and control groups before and after the intervention (n=66)

Variable	Intervention			Control		
	Mean	SD	95% CI	Mean	SD	95% CI
Attitude						
Before	59.21	5.01	57.44-60.99	59.91	5.94	57.80-62.01
After	62.18	6.14	60-64.36	59.88	3.85	58.51-61.24

3. Differences in the attitudes of health cadres about community-based early detection of stunting before and after intervention in the intervention and control groups

Table 4 shows that there are statistically significant differences in the attitude of health cadres regarding community-based early detection of stunting before and after intervention in the intervention group (p= 0.010). However, there was no statistically significant difference in the attitude of health cadres about community-based early detection of stunting before and after intervention in the control group (p= 0.322).

4. The effect of upskilling health cadres on the attitudes of health cadres about early detection of community-based stunting

Table 5 shows that there is a statistically significant effect of upskilling health cadres on attitudes about community-based early detection of stunting with p value = 0.048.

Table 4. Differences in the attitudes of health cadres about community-based early detection of stunting in the intervention and control groups before and after the intervention

Attitude	Mean	SD	MD	p
Intervention				
Before	59.21	5.01	2.97	0.010
After	62.18	6.14		
Control				
Before	59.9	5.94	-0.03	0.322
After	59.88	3.85		

Table 5. Effect of upskilling health cadres on attitudes about early detection of community-based stunting

Variable	Mean	SD	p
Attitude			
Intervention	62.18	6.14	0.048
Control	59.88	3.85	
Gap	2.33		

DISCUSSION

Health cadres have an average age in the adult age group. The results of this study are the same as research (Adistie et al., 2017; Handayani et al., 2019; Martha et al., 2020; Purnamasari et al., 2020; Arsy and Milla, 2021), all health cadres are included in the adult age

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.13

category. . Age affects the ability and mindset of individuals. The older the age, the more the ability of the individual's mindset to develop will affect the attitude that is formed. Individuals with a more mature age will more easily gain the trust of society because they have a longer life experience.

Most of the health cadres have a high school education background/ equivalent. The results of the study are in line with (Adistie et al., 2017; Handayani et al., 2019; Martha et al., 2020; Purnamasari et al., 2020; Arsy and Milla, 2021) that the majority of health cadres are high school graduate/ equivalent. Educational background determines the individual's ability to understand the information received. In addition, it also plays an important role in the learning process. Health cadres with a good educational background are expected to be able to carry out their roles and functions as extensions of health workers in the community, especially in handling stunting in their respective regions. Health cadres with low education find it more difficult to receive information and guidance in community-based early detection of stunting. Health cadres with low education do not believe in the importance of early detection of stunting in the community.

The majority of health cadres work as housewives according to (Handayani, et al., 2019; Purnamasari et al., 2020; Arsy and Milla, 2021). Health cadres must be able to manage time between taking care of the family and the community. So that activities or work that are flexible and dynamic are a supporting factor for health cadres to participate in dealing with health problems in the community. Working as a health cadre is the main job so that the time allocation given is also maximized.

The average health cadre has more than five years of experience as a health cadre. This is in accordance with research (Adistie et al., 2017; Handayani et al., 2019; Purnamasari et al., 2020; Arsy and Milla, 2021) which states that health cadres have experience as health cadres ranging from five to ten years. The experience of health cadres for many years is because not all people are willing or participating in social activities. So that the regeneration of health cadres is also something that needs to be considered so that the regeneration process of health cadres can run well. The longer you are a health cadre, your understanding and skills in carrying out your duties will increase and your participation in activities will also improve. However, half of the health cadres have never received training on community-based stunting management. This is in line with research (Adistie et al., 2017) which states that health cadres who have never received coaching tend to have less understanding. So that the guidance and training of health cadres is expected to have a positive impact on the understanding and ability of health cadres in early detection of stunting in the community. Some of the characteristics of these health cadres shape attitudes about community-based early detection of stunting.

The value of the attitude variable of the two groups before the intervention was at the same level made possible by factors that had not yet formed a positive attitude as a result of

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.13

the learning process, the learning process had an impact on increasing individual affective awareness in attitude (Imansari et al., 2021), other factors related to similar characteristics also affect the similarity of the values of the two groups' attitude variables before the intervention. Khairunnisa et al. (2021) stated that individual characteristics that include age, gender, occupation, and education with an average sample of adults influence the development of a person's attitude towards newly introduced values. The average sample in this study, is a housewife and has a high school education/equivalent so that they have the same characteristics.

After being given the intervention, different results were obtained for each group, the intervention group had a mean value of 62.18 and the control group had a mean value of 59.88. The results of this study are in line with the research of Imansari et al., (2021) that there is a significant difference between the mean values of the attitudes of health cadres after the intervention, namely 89.60 and 74.70. Looking at these results, it can be seen that the attitude for the intervention group has increased significantly while for the control group it tends to be the same as the results before the intervention. This shows that the intervention carried out in the experimental group was able to change the attitude of health cadres regarding stunting.

The results of this study are in line with the research of Elisabet and Ayubi (2021) that posyandu cadres who already have the knowledge and understanding are able to act and behave in accordance with their knowledge, knowledge is the basis for forming one's attitudes and behavior. Interventions were carried out to health cadres in the intervention group bringing a positive attitude so that they were able to absorb knowledge during the intervention, on the contrary in the control group a negative attitude was reflected and health cadres were less enthusiastic during education, in line with Wijaya (2021) stated that the attitude of cadres was a reaction or response. who are still closed to a stimulus or object, the existence of education during the intervention has not been able to change their attitude regarding early detection of stunting. Before giving the intervention to the experimental group and the control group, both groups had approximately the same mean value, namely 59.21 and 59.91, after being given the intervention, different results were obtained for each group, the intervention group had a mean value of 62.18 and the control group had a mean value. 59.88. The results of this study are in line with the research of Sewa, Tumurang and Boky (2019) that there is a difference between the mean post-test attitude values in the experimental group and the control group with p value < 0.05. Different results after the intervention related to the attitude variable between the two groups are a sign that knowledge able to change the attitude of health cadres, whether knowledge increases or not depends on the response of each health cadre after receiving education, this is in line with Wahyuningsih and Astarani (2018) that knowledge of health cadres about an object contains two aspects, namely positive aspects and negative aspects.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.13

These two aspects will determine a person's attitude, the more positive aspects and objects that are known, the more positive attitudes will be towards certain objects, so that the experimental group results are more significant than the control group.

After upskilling of health cadres showed a change in attitude, indicated by an increase in the mean value after the intervention, in line with Sewa et al., (2019) which revealed a significant difference in the effect of health promotion on knowledge and attitudes with stunting prevention measures in the experimental group. and control group with $p< 0.05$. Furthermore, training support for health cadres also helps strengthen changes in the attitudes of health cadres so that they are able to independently practice the training they have received in the community. Napitupulu et al. (2018) mentioned that training/coaching is one of the factors that influence attitudes because training is able to improve the knowledge and skills of cadres, so that the attitude and knowledge of health cadres are in line. Through upskilling, health cadres are able to change their attitude. Changes in the attitude of health cadres are influenced by the level of knowledge, acceptance of good knowledge will be able to change attitudes.

The results of this study concluded that there were significant differences in attitudes about early detection of community-based stunting in the intervention group but there was no significant difference in attitudes about early detection of community-based stunting in the control group. Upskilling of health cadres increases attitudes about community-based early detection of stunting. Upskilling of health cadres can be integrated into the program of activities of the Health Office through the puskesmas as a form of community empowerment, especially in early detection of stunting. The increased understanding and skills of health cadres is expected to increase the number of stunting cases in the community. So that toddlers with stunting can be handled properly. Further research can identify other variables such as knowledge, perception, readiness, skills, self-efficacy, community-based stunting early detection behavior. Other research can also identify other community-based interventions that can improve the attitude of early stunting detection in health cadres.

AUTHOR CONTRIBUTION

The first author as the lead researcher coordinated the implementation of the research, took care of internal licensing, and provided interventions to health cadres. The second author takes care of external licensing, analyzes research data, compiles manuscripts, and provides interventions to health cadres. The third author takes care of external licensing, takes care of recording intervention media, and provides interventions to health cadres. The fourth and fifth authors served as research enumerators and compiled the manuscript.

FUNDING AND SPONSORSHIP

This research was carried out with the support of the Muhammadiyah Research Grant Batch V from the Council for Higher Education Research

and Development of Muhammadiyah Central Leaders in 2021..

ACKNOWLEDGEMENT

The researcher would like to thank the Council for Higher Education Research and Development of the Muhammadiyah Central Executive which has provided financial support. Kudus District Health Office, UPT Puskesmas Undaan and Dawe who have given permission and support during the research. Health cadres of the Undaan and Dawe Health Center Work Areas who have participated in the research. Students who have participated as research enumerators.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Adistie F, Lumbantobing VBM, Maryam NNA (2018). Empowerment of community health volunteers in early detection of stunting and stimulation of growth and development in toddlers. Media Karya Kesehatan. 1(2): 173-184. https://doi.org/10.24198/mkk.-v1i2.18863.

Arsy GR, Milla AI (2021). Description of knowledge and attitudes of community health volunteers in monitoring the growth and development of toddlers in the area of the Rejosari Public Health Center, Kudus Regency. Journal of the Nursing Profession. 8(1): 70-81. Retrieved from: http://-jurnal.akperkridahusada.ac.id/-index.php/jpk/article/view/94

Azizah EN, Wardhani RK (2020). The community health volunteer movement is aware of stunting in Ringinpitu village, Plemahan subdistrict. Journal of Community Engagement in Health (JCEH). 3(2): 229-232. https://doi.org/-10.30994/jceh.v3i2.70.

Central Java Provincial Health Office. (2020). Central Java Province Health Profile 2019. Retrieved from: https://dinkesjatengprov.-go.id/v2018/storage/2020/09/ Profil-Jateng-tahun-2019.pdf.

Elisabet BM, Ayubi D (2021). Hubungan pengetahuan, sikap dengan perilaku kader posyandu dalam pelaksanaan pemberian vitamin A di jakarta timur (Relationship between knowledge, attitude and behavior of posyandu cadres in the implementation of vitamin A administration in East Jakarta). Jurnal Ilmiah Kesehatan. 13(1): 1-12. https://doi.org/10.37012/jik.-v13i1.447.

Imansari A, Madanijah S, Kustiyah L (2021). The effect of nutrition education in cadre knowledge, attitude, and skills of nutrition counselling in integrated service post. Amerta Nutrition 5(1): 1-7. DOI: 10.20473/amnt.v5i1.2021.

Indonesian Ministry of Health Center for Data and Information. (2018). The situation of stunting toddlers in Indonesia. Retrieved from: https://pusdatin.kemkes.go.id/-folder/view/01/structure-publi-kasi-pusdatin-buletin.html

Indonesian Ministry of Health (2018). Main results of riskesdas 2018. Retrieved from: https://kesmas.-kemkes.go.id/assets/upload/dir_

519d41d8cd98f00/files/Hasil-riskesdas-2018_1274.pdf.
Kudus Regency Health Office. (2021). Kudus regency health profile 2020. Kudus: Kudus Regency Health Office .
Hariani, Sastriani, Yuliani E (2020). Increased knowledge of community health volunteers about early detection of stunting through training. J Health Educ Literacy (J-Healt). 3(1): 27-33. https://-DOI.org/10.31605/j-health.v2i1
Kang Y, Kim S, Sinamo S, Christian P (2017). Effectiveness of a community-based nutrition program to improve child growth in rural Ethiopia: a cluster randomized trial. Matern Child Nutr. 13(1):
Khairunnisa Z, Sofia R, Magfirah S (2021). Hubungan karakteristik dan tingkat pengetahuan dengan perilaku pencegahan COVID-19 pada masyarakat desa paya bujok blang pase kota langsa (The relationship between characteristics and level of knowledge with COVID-19 prevention behavior in the village community of Paya Bujok Blang Pase, Langsa City). Jurnal Averrous. 6(1): 1-14. https://doi.org/10.29103/averrous.v7i1.4395.
Kudus Regency Legal Documentation and Information Network (2020). Holy regent regulation number 53 of 2020 concerning acceleration of stunting prevention in Kudus district. Retrieved from: https://jdih.kuduskab.go.id/himpunan_perundang/index/20?categories=9
Martha E, Nadira NA, Sudiarti T, Mayangsari AP, Enjaini EF, Ryanthi TP, Bangun DE (2020). The empowerment of cadres and medicasters in the early detection and prevention of stunting. 15(2): 153–61. DOI: 10.20473/ijph.vl15-il.2020.
Ministry of Villages, Development of Disadvantaged Regions, and Transmigration of the Republic of Indonesia. (2017). Village pocketbook on stunting management. Retrieved from: https:-//stunting.go.id/kemendesa-buku-saku-stunting-desa-2017/
Ministry of National Planning and Development/National Planning and Development Agency. (2018). Guidelines for implementing integrated stunting reduction interventions in districts/cities. Retrieved from: http://tnp2k.-go.id/filemanager/files/Rakornis%202018/Pedoman%20Perlaksanaan%20Intervention%20Penurunan%20Stunting%20Integrated%20Di%20Kabupaten%20Kota.pdf.
Mogre V, Yakubu A, Fuseini M, Amalba A, Aguree S (2017). Nurses knowledge and attitudes regarding malnutrition in children and its management in Ghana. Curationis. 40(1): a1618. Retrieved from https://doi.org/10.4102/curationis.v40i1.1618.
Notoatmodjo S (2010). Behavioral Health Sciences. Jakarta: Rineka Cipta.
Purnamasari H, Shaluhiyah Z, Kusumawati A (2020). Community health volunteer training as an effort to prevent stunting in toddlers in the working area of the Margadana Public Health

Center and the South Tegal Public Health Center, Tegal City. Journal of Public Health. 8(3): 432-439. Retrieved from: https://ejournal3.undip.ac.id/index.php/jkm/article/view/26580/23991.

Sewa R, Tumurang M, Boky H (2019). Pengaruh promosi kesehatan terhadap pengetahuan dan sikap dengan tindakan pencegahan stunting oleh kader posyandu di wilayah kerja puskesmas bailang kota manado (The effect of health promotion on knowledge and attitudes with stunting prevention by posyandu cadres in the work area of the Bailang Public Health Center, Manado City). Jurnal KESMAS, 8(4): 80-88. Retrieved from: https://ejournal-.unsrat.ac.id/index.php/kesmas/-article/view/2 3968.

Tafese Z, Shele A (2015). Knowledge, attitude and practice towards malnutrition among health care workers in Hawassa City, Southern Ethiopia. Global Academic Research Journals. 1(1): 1–8.

Wahyuningsih A, Astarini K (2018). Health education in increasing knowledge, attitude, and skill of cadre in the management of ari. Jurnal Penelitian Keperawatan. 4(1): 52-60. https://doi.org/-10.32660/jurnal.v4i1.314.

Wijaya M (2021). Kemampuan dan sikap kader kesehatan melakukan promosi protokol kesehatan dalam melawan pandemi covid-19 (The ability and attitude of health cadres to promote health protocols in the fight against the COVID-19 pandemic). Jurnal Ilmu Kesehatan. 12(1): 422-432. https://doi.org/10.35966/ilkes.-v12i1.210.

Wijayanti, Irfana Tri, Desi Sariani. (2020). Training to empower community health volunteers in the prevention and management of stunting in children. Journal of Community Care. 2(2): 49-58. Retrieved from: http://jurnal.-globalhealthsciencegroup.com/index.php/JPM.

Wondimagegne ZT, Shele A (2015). Knowledge, attitude, and practice towards malnutrition among health care workers in Hawassa City, Southern Ethiopia. Academic Research International. 1(1). 1-8. Retrieved from: https://-www.researchgate.net/publication/283885364_Knowledge_attitude_and_practice_towards_malnutrition_among_health_care_workers_in_Hawassa_ City_-Southern_Ethiopia.

Yuliani E, Immawati, Yunding J, Irfan, Haerianti M, Nurpadila (2018). Training of community health volunteers for early detection of stunting in toddlers in Betteng Village. J Health Community Service. 4(2):41-46. https://doi.org/-10.33023/jpm.v4i2.158.

EFFECTIVENESS OF THE COMBINATION OF SEAWEED JELLY AND LIME IN THE REDUCTION OF CENTRAL OBESITY IN HOUSEWIVES IN GROBOGAN, CENTRAL JAVA

Noor Hidayah, Ashri Maulida Rahmawati

Study Program of Nursing, Universitas Muhammadiyah Kudus

ABSTRACT

Background: Obesity is a grave public health threat, more serious even than the opioid epidemic. It is linked to chronic diseases including type 2 diabetes, hyperlipidemia, high blood pressure, cardiovascular disease, and cancer. This number does not include deaths from the many other medical conditions associated with obesity. Edible seaweed is a vegetable of the sea, a food source for ocean life and humans who consume it in it is many forms. Low-calorie and nutrient-dense, edible seaweed has long been harvested and consumed in Asian cuisines. Agar or jelly is a gelatinous substance that is extracted from seaweed and processed into flakes, powders and sheets. Agar tends to make people feel full, so they might stop eating earlier than they otherwise would. Some people think this reaction will lead to weight loss. But so far, there is no reliable scientific evidence that supports this weight loss theory. This study aimed to determine the effect of consuming the combination of agar-agar and lime on central obesity in housewives.
Subjects and Method: This study was a randomized control trial (RCT). A total of 32 housewives were selected for this study, and divided at random into two groups: (1) Experimental group consisting of 16 housewives who consumed combination of agar-agar and lime; (2) Control group consisting of 16 housewives who did not consume combination of agar-agar and lime. The dependent variable was abdominal circumference. The abdominal circumference was measured by placing a measuring tape in a horizontal plane around the abdomen at the level of iliac crest. The independent variable was the consumption of 200 g agar-agar in combination with 7 ml lime daily for 30 days. The mean difference of abdominal circumference after the intervention between the experimental group and control group was compared with by paired t-test.
Results: The mean abdominal circumference after the intervention in the experimental group (Mean= 87.50; SD= 9.10) was lower than that in the control group (Mean= 91.81; SD= 7.14), but it was not statistically significant (p= 0.358).
Conclusion: The combination of agar-agar and lime is not effective in reducing central obesity in housewives.

Keywords: agar-agar, lime, central obesity, housewife.

Correspondence:
Noor Hidayah. Study Program of Nursing. Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No. 1 Purwosari, Kudus, Central Java 59316. Email: noorhidayah@-umkudus.ac.id. Mobile: +62817456007.

BACKGROUND

Central obesity has become one of the nutritional problems of people around the world. Central obesity is the accumulation of excess fat in the abdomen caused by non-functioning subcutaneous fat resulting in an energy imbalance associated with excessive nutrient intake and low physical activity. A woman will be diagnosed with central obesity if the waist circumference is more than 80 cm (Savitri, 2017).

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.14

The prevalence of obesity in adult women in Indonesia tends to increase every year. The prevalence of obesity reached 13.39% In 2007, 15.5% in 2010 and then increased to 32.9% in 2013. In Grobogan, Central Java, 1.89% of women over 15 years of age suffer from obesity (Provincial Health Profile of Central Java, 2017). Based on previous research on 200 women, the highest factor that affects the incidence of obesity in housewives is low physical activity. Increasing physical activity to 15-60 minutes a day can help prevent a housewife from obesity (Suryadinata and Sukarno, 2019).

Obesity has a negative impact on physical health and mental health among housewives. Women with obesity are advised to consume high-fiber foods such as jelly. agar contains high fiber, nutrients, and minerals which can significantly reduce belly fat (Aini et al., 2019). In addition to gelatin, lime with a high vitamin C content is very important for breaking down fat during exercise. Consuming lime every day can meet 22% of vitamin C needs per day and prevent obesity. Based on previous research, consuming lime juice before doing physical activity can help break down fat effectively (Ningtyas et al., 2017).

The research of Bainuan and Juaria (2018) shows that there is a significant effect between giving stomach tapel and orange juice aurantifolia on weight loss in postpartum women. The results in the intervention group before and after being given a stomach bandage and orange juice aurantifolia showed a significant difference (p = 0.006).

A preliminary study conducted by researchers in September 2020 in Dukuh Tapen, Grobogan showed that out of 10 subjects, 7 subjects had an abdominal circumference of 80-90 cm, 1 subject had an abdominal circumference of 90-100cm, and two subjects had an abdominal circumference of 100-110 cm. The results showed that all subjects had an abdominal circumference of more than 80 cm, which was beyond the normal minimum abdominal circumference size for women (Huldani et al., 2019). The subject said that he never tried to shrink his stomach even though he really wanted to.

Based on the high prevalence of obese women and the benefits of agar-agar and lime to reduce fat, this study aims to determine the effect of the combination of agar-agar and lime on central obesity among housewives in Grobogan, Central Java.

SUBJECTS AND METHOD

1. Study Design

This study is a randomized control trial (RCT) conducted in Tapen Hamlet, Grobogan, Central Java.

2. Population and Sample

The population of this study were all housewives with a waist circumference of more than 80 cm in Tapen hamlet, Grobogan. The sample was selected by purposive sampling. 32 subjects were selected and divided into two groups, namely 16 control group subjects and 16 intervention group subjects who received a combination of 200 g of agar and 7 ml of lime dissolved in 200 ml of water for 30 days.

3. Variable

The dependent variable is central obesity. The independent variable is the combination of agar and lime.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.14

4. Variable Operational Definition

Central obesity is the accumulation of excess fat in the abdomen caused by non-functioning subcutaneous fat resulting in an energy imbalance associated with excessive nutrient intake and low physical activity.

The combination of agar and lime is a combination of 200 g of agar-agar and 7 ml of lime dissolved in 200 ml of water.

5. Instrument

The instruments used in this study were a questionnaire to record the characteristics of the subject, metline, and an observation sheet to record the measurement of abdominal circumference.

6. Data Analysis

Univariate analysis was used to describe the characteristics of the subjects such as age, and education. Bivariate analysis was performed using paired t-test to determine the difference in abdominal circumference between the control and intervention groups before and after the intervention.

RESULTS

Table 1 shows that the majority of subjects in the intervention group were aged 30-40 years (62.5%) with education completing elementary school (87.5%), while in the control group the majority were aged 30-40 years (56.3%) and graduated from elementary school (93.8%). .

Table 2 shows that before being given the intervention, the abdominal circumference of the intervention group had a higher mean (Mean = 95.62; SD= 11.84) than the control group (Mean= 92.06; SD= 11.15; p= 0.890). After being given the intervention, the intervention group had a lower mean (Mean= 87.50; SD= 9.10) than the control group (Mean= 91.81; SD= 7.14; p= 0.315).

Table 1. Subject Characteristics

Variable	Group			
	Intervention		Control	
	Frequency	(%)	Frequency	(%)
Age				
30-40	10	62.5	9	56.3
40-50	6	37.5	7	43.8
Education				
Primary school	14	87.5	15	93.8
Junior high school	2	12.3	1	6.3

Table 2. Distribution and Frequency of Abdominal Circumference Before and After Intervention was Given in Both Groups

Group	Mean	SD	SE	P
Before intervention				
Intervention Group	95.62	11.84	2.96	0.890
Control Group	92.06	11.15	1.78	
After intervention				
Intervention Group	87.50	9.10	2.27	0.358
Control Group	91.81	7.14	1.78	

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.14

DISCUSSION

Based on the results of the study showed that after being given the intervention there was a higher reduction in abdominal circumference in the intervention group given a combination of agar and lime (Mean= 87.50; SD= 9.10) than the control group (Mean= 91.51; SD= 7.14) but the difference not statistically significant (p= 0.358). It can be concluded that the combination of agar-agar and lime can help reduce abdominal circumference but is not too significant for central obesity. The results of this study are in line with research by Rahma (2014) that seaweed in agar has higher fiber and lower calories. Seaweed can accelerate the body's metabolic processes and reduce triglyceride and blood sugar levels, so it is recommended to reduce obesity.

Energy intake that exceeds energy expenditure is the main driver of weight gain. Dietary quality may have an effect on energy balance through complex hormonal and neurological pathways that affect satiety and possibly through other mechanisms. The food environment, marketing of unhealthy foods and urbanization, and reduction of sedentary behavior and physical activity play important roles in overcoming weight loss (Romie et al., 2017).

The research of Bainuan and Juaria (2018) which states that the juice of lime or orange aurantifolia which contains high vitamin C has a significant effect on weight loss in postpartum women. Vitamin C has a significant role in breaking down fat effectively.

Local lime (Citrus aurantifolia Swingle) contains higher citric acid than other limes. There is 55.6 g/kg of citric acid in local limes. 48.9 g/kg citric acid in lemon, and 38.6 g/kg citric acid in Bangkok lime. Citric acid is an organic acid that is soluble in water. Citric acid can dissolve fat in the body because citric acid has the ability to bind fat. Citric acid is used as an antioxidant synergism in fats, oils and foods containing fat (Bikash, 2020).

Seaweed as the main component of agar generally refers to plants and algae that grow in waterways such as oceans, lakes, and rivers. Seaweed contains bioactive compounds such as polyphenols, lipids, and carotenoids, which exhibit antioxidant activity and other beneficial properties, with wide applications in the food, feed and pharmaceutical industries. Previous results have shown that seaweed is considered a protective agent that can decrease oxidative inflammatory status associated with weight gain, and is being applied in the treatment of various obesity-induced diseases (Ojulari et al., 2020).

Fucoxanthin (FXN), a seaweed carotenoid that is effective in increasing the expression of lipid metabolism enzymes, promotes fatty acid oxidation, and suppresses the activity of cholesterol-regulating enzymes. Several studies in the literature have linked the anti-obesity mechanism of fucoxanthin to the modulation of key transcription factors associated with obesity. Among these, FXNs play an important role in the differentiation and function of mature adipocytes. Activation of this nuclear receptor in adipocytes has been

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.14

reported to increase insulin resistance associated with obesity (Lee et al., 2019).

The combination of jelly and lime has a high fiber and antioxidant content that can help lower cholesterol, blood sugar and improve digestion. The combination of agar and lime can prevent metabolic syndrome and help overcome central obesity (Tamimi et al., 2019).

This study concluded that there were differences in the abdominal circumference of housewives in the intervention group given a combination of agar and lime with the control group. The mean value of abdominal circumference was lower in the intervention group than in the control group. It is hoped that the combination of agar and lime can be a non-pharmacological alternative to overcome central obesity in housewives.

AUTHOR CONTRIBUTION

The first author as the lead researcher coordinated the implementation of the research, internal and external licensing, and provided intervention to the subject. The second author analyzed the data, compiled the manuscript and gave intervention to the subject.

FUNDING AND SPONSORSHIP

This research received support from LPPM Muhammadiyah Kudus University as an effort to develop lecturers in carrying out research.

ACKNOWLEDGMENT

The researcher would like to thank LPPM Muhammadiyah Kudus University for the support it has given and the Grobogan district health office for providing land for research.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Aini N, Munarso J, Anissa FS, Jayantihi TT (2019). Karakteristik beras analog dari tepung jagung-kacang merah menggunakan agar-agar sebagai bahan pengikat (Characteristics of analog rice from corn-red bean flour using agar as a binder). Journal Penelitian Pascapanen pertanian Badan Litbang Pertanian. 16(9): 8468. http://dx.doi.org/10.21082/jpasca.v16n1.2019.1-9.

Behera BC (2020). Citric acid from Aspergillusniger: a comprehensive overview. Crit Rev in Microbiol. 46(6): 727-749. DOI: 10.1080/1040841X.2020.1828815

Dinas Kesehatan (2017). Profil Kesehatan Provinsi Jawa Tengah, Semarang.

Bainuan L, Juaria H (2018). Pengaruh pemberian tapel perut dan jus citrus aurantifolia terhadap penurunan berat badan pada ibu nifas (Effect of giving stomach tapel and citrus aurantifolia juice on weight loss in postpartum mothers). Jurnal Mahasiswa Akademi Kebidanan 7(1): 1-6. DOI: https://doi.org/10.47560/keb.v7i1.95.

Huldani, Asnawati, Auliadina D, Amilia FR, Nuarti N, Jayanti R (2019). Abdominal circumference, body fat percent, and VO2 max in pilgrims of Hulu Sungai Tengah

Regency. J Phys Conf Series. 1374 (012058). DOI:1374 012058

Lee J, Schmidt H, Lai B, Gay K (2019). Transcriptional and epigenomic regulation of adipogenesis. Mol Cell Biol. 39(11): e00601-18. DOI: 10.1128/mcb.00601-18

Ningtyas IF, Susiloretni KA, Supadi, J. (2017). Pengaruh konsumsi jus tomat jeruk nipis terhadap kadar kolesterol total pada wanita dewasa usia 40-60 tahun (Effect of lime tomato juice consumption on total cholesterol levels in adult women aged 40-60 years). Jurnal Riset Gizi. 5(2): 4278. https://doi.org/10.31983/jrg.v5i2.4278.

Ojulari OV, Lee SG, Nam J (2020).-Therapeutic effect of seaweed derived xanthophyl carotenoid on obesity management; overview of the last decade. Int J Mol Sci. 21(7): 2502. DOI: 10.3390/ijms21072502

Rahma (2014). Rumput laut sebagai bahan makanan kaya serat untuk penderita obesitas pada remaja (Seaweed as a fiber-rich food for obese adolescents). Media Gizi Masyarakat Indonesia. 4(1): 1-8. Retrieved from: https://docplayer.info/55562532-Rumput-laut-sebagai-bahan-makanan-kaya-serat-untuk-penderita-obesitas-pada-remaja.html.

Romieu I, Dossus L, Barquera S, Blottière HM, Franks PW, Willett WC (2017). Energy balance and obesity: what are the main drivers? Cancer Causes Control. 28(3): 247–258. DOI: 10.1007/s10552-017-0869-z

Savitri A (2017). Faktor-faktor yang berhubungan dengan kejadian obesitas sentral pada wanita usia 15-44 tahun di Posbindu Wilayah Kerja Puskesmas Kecamatan Pasar Minggu Jakarta Selatan tahun 2017 (Factors related to the incidence of central obesity in women aged 15-44 years in Posbindu, Working Area of Public Health Center Pasar Minggu, South Jakarta in 2017). Jakarta (Skripsi).

Suryadinata RV, Sukarno DA (2019). Pengaruh aktivitas fisik terhadap risiko obesitas pada usia dewasa (The effect of physical activity on the risk of obesity in adulthood). IJPH. 14(1): 104-114. DOI: 10.20473/ijph.vl14il.2019.

Tamimi AA, Afifah DN, Fitranti DY, Dieny FF (2019). Pengaruh proporsi Bahan terhadap daya terima agar-agar dengan penambahan jeruk dan kulit semangka (The effect of the proportion of ingredients on the acceptability of gelatin with the addition of orange and watermelon rind). Jurnal of nutrition College. 8(2): 53-57. https://doi.org/10.14710/jnc.v8i2.23813.

ASSOCIATIONS BETWEEN LATRINE, CLEAN WATER AVAILABILITY, AND STUNTING IN CHILDREN UNDER FIVE IN BATAM, RIAU ISLAND

Hengky Oktarizal[1,2], Yuanita Windusari[3], Irfannuddin[4], R. Kintoko Rochadi[5]

[1]Doctoral Program of Environmental Sciences, Sriwijaya University, Palembang, Indonesia
[2]Faculty of Health Sciences, Ibnu Sina University, Batam, Indonesia
[3]Faculty of Public Health, Sriwijaya University, Palembang, Indonesia
[4]Faculty of Medicine, Sriwijaya University, Palembang, Indonesia
[5]Faculty of Public Health, Universitas Sumatera Utara, Medan, Indonesia

ABSTRACT

Background: Stunting is a global burden affecting nearly 160 million children younger than five years of age. Whilst the linkages between nutrition and stunting are well recognized, there is a need to explore environmental factors such as water and sanitation, which may influence feeding practices and result in potential infection pathways. This study aimed to determine the association of toilets and clean water availability with the incidence of stunting in children under five.
Subjects and Method: This was a cross-sectional study conducted in Galang, Batam, Riau Island, Indonesia, in March 2021. A sample of 82 children under five years was selected randomly. The dependent variable was stunting. The independent variables were the availability of toilets and clean water. The data were collected by questionnaire and observation. The bivariate analysis was performed by Chi-square test.
Results: The risk of stunting reduced with the availability of latrine (OR= 0.09; 95% CI= 0.03 to 0.30; p< 0.001) and clean water (OR= 0.01; 95% CI<0.01 to 0.08; p< 0.001).
Conclusion: The risk of stunting reduces with the availability of latrine and clean water.

Keywords: stunting, availability, toilet, clean water, children under five

Correspondence:
Hengky Oktarizal. Doctoral Program of Environmental Sciences, Sriwijaya University, Palembang, Indonesia. Email: hengky.oktarizal@uis.ac.id. Mobile: +62 85272043639.

BACKGROUND

Stunting is a state of being short or very short to more than -2 SD below the median length based on height for age. Stunting describes a state of chronic malnutrition and children need time to develop and recover to a state of normal height for their age (Adiyanti, 2014).

The nutritional status of young children is assessed according to 3 indices, namely weight for age (WAZ), height for age, and weight for height (WHZ). Z-score is the deviation value of normal BB or TB according to the growth standard (Briend et al., 2015). Limitations for the category of nutritional status of young children according to the index of WAZ, HAZ, WHZ according to WHO can be seen in Table 1.

Based on the data Riskesdas 2018 showed prevalence stunting in young children in Indonesia large 30.8%, or about 7.8 million young children suffer from stunting. When compared with the 2013 figure of stunting clicking experienceed a decline in 2018. So, the target of Medium Term Development

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.15

Plan National (RPJMN) in 2019 that the number of stunting by 28% in young children has not been reached. In short, the percentage of stunting in Indonesia is still a health problem that must be addressed (Bugis, 2017).

Table 1. Indicators of nutritional status assessment according to WHO

Indicator	Nutritional Status	Z – Score
Weight for age (WAZ)	Malnutrition	< -3.0SD
	Malnutrition	-3.0 SD to < -2.0SD
	Good Nutrition	-2.0 SD to 2.0SD
	More Nutrition	> 2.0SD
Height for age (HAZ)	Very Short	< -3.0SD
	Short	-3.0 SD to < -2.0SD
	Normal	-2.0 SD
Weight for height (WHZ)	Very thin	< -3.0SD
	Thin	-3.0 SD to < -2.0SD
	Normal	-2.0 SD to 2.0SD
	Fat	> 2.0SD

Based on secondary data from Batam city years 20 20, it was found young children who experience stunting at largest in the District Galang. There were 32 children stunting of 679 in young children who measured their height. Digestive infectious disease conditions, especially diarrhea, are still commonly found in the Galang Health Center area, with data obtained from diarrheal diseases of 420 cases of diarrhea in 2018 (Fatmawati, 2017).

Toddlers and children are subjects that are very susceptible to gastrointestinal infections, and poor sanitary environment gives negative impact on children, so it could run into the Environmental Enteropathy (EE). EE causes damage to the protuberances or villi of the large intestine making it difficult to absorb nutrients. It leads to susceptible to chronic diarrhea (Kemenkes RI, 2014).

Good environmental sanitation is one of them having toilets that meet the requirements and the availability of clean water in every home. The toilet ownership's data in Galang sub-district is still below the standard figure of 42.2%.

Toilet requirements that meet the requirements based on the Regulation of the Minister of Health of the Republic of Indonesia No. 3 of 2014 namely : (1) Does not pollute drinking water, the location of the holding hole is at least 10 meters from the supply of clean water or drinking water; (2) It is odorless and feces cannot be contaminated with insects or vectors; (3) Urine does not pollute the surrounding soil; (4) Floor toilet measuring at least 1x1 meters and with a tilted state of drain water; (5) The availability of wall and roof protective watertight; (6) Have adequate lighting; (7) Having adequate ventilation; (8) The availability of water in quantities enough; and (9) Have a septic tank (Kemenkes RI, 2018).

Meanwhile, the availability of clean water is the availability of water that is suitable for cooking, washing, bathing, and even drinking water in accordance with the standards set by the Indonesian Ministry of Health. Clean water and proper sanitation are basic human needs. One of the

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.15

points in the sustainable development goals (SDGs) in the environmental sector is to ensure that people achieve universal access to clean water and sanitation (Manggala et al., 2018). This study aimed to determine the association of toilets and clean water availability with the incidence of stunting in children under five.

SUBJECTS AND METHOD

1. Study Design

This research was an observational quantitative study with a cross-sectional method.

2. Population and Sample

The population in this study was all houses that had young children residing in Galang District, Batam City as many as 679 young children. Technique sample using the formula Slovin ie n = N/1 + N (e) ^{2} and obtained the number of samples as many as 82 study subjects.

3. Study Variables

The dependent variable was latrine and clean water availability. The independent variable was stunting.

4. Operational Definition of Variables

Stunting is a nutritional deficiency in infants in the first 1000 days of life that lasts a long time and causes delays in brain development and child development. Due to chronic malnutrition, stunting babies grow shorter than the standard height of toddlers for their age.

Availability of toilets is a latrine or a place that has facilities for the disposal of feces/feces is one of the factors causing disease transmission because it is related to the transmission of disease from feces.

Availability of clean water is a type of water-based resource that is of good quality and is commonly used by humans for consumption or in carrying out their daily activities, including sanitation.

5. Study Instrument

Data collection procedures carried out by the observation that measure body height of young children with indicators of nutritional status assessment by WHO, and do interview to the mother or parents.

6. Data Analysis

The sample characteristics was shown by univariate analysis in frequency and percentage. The bivariate analysis was done using the chi square test.

The results of this study discussed the indicators in accordance with investigation goal which finding out, namely, the characteristics of the study subjects (aged mother or parents, the characteristics of the child's age, availability of toilets that meet the requirements, the availability of clean water, the incidence of stunting in children young children, and analysis of the availability of toilets that meet the requirements, and the availability of clean water with the incidence of stunting.

RESULTS

A. Sample Characteristics

Table 2 showed that the life of the mother or parents that most are in the 20-35 years age was 72 (86.7 %), as many as 22 has 48-53 months, (26.5%), as many as 35 subjects has toilets that meet the requirements are (42.2 %), as many as 40 subjects (48.2 %) can access clean water, and a few of 32 study subjects has nutritional status

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.15

experienced stunting (-3.0 SD to <-2.0 SD) (38.6 %).

B. Analysis of Toilet Availability with Stunting Incidence

Table 3 showed that efficient analysis of the influence of availability of toilet against the incidence of stunting in young children the majority of children with the nutritional status of normal as many as 31 children (88.6%) to have toilets that qualify and the majority of children with the incidence of stunting (-3.0 SD to <-2.0 SD) as many as 28 children (58.3 %) whose toilet availability status did not meet the requirements. Based on the test results of chi-square on the degree of confidence of 95%, the risk of stunting reduced 0.09 times with the availability of latrine (OR= 0.09; 95% CI= 0.03 to 0.30), and it was statistically significant (p <0.001).

Table 2. Sample Characteristics (categorical data) (n=83)

Variables	Categories	Frequency (n)	Percentage (%)
Age of Mother or Parents (Years)	< 20 years	1	1.2
	20-35 years old	72	86.7
	> 35 years old	10	12.1
Child's Age (months)	24-29	10	12.1
	30-35	11	13.3
	36-41	19	22.9
	42-47	15	18.2
	48-53	22	26.5
	54-59	6	7.0
Availability of latrine	Yes	35	42.2
	No	48	57.8
Availability of clean water	Yes	40	48.2
	No	43	51.8
Nutritional Status of Children aged 24-59 Months	Normal	51	61.4
	Stunted (-3.0 SD to < -2.0 SD)	32	38.6

Table 3. Relation between toilet availability and stunting

Nutritional status	Toilet Availability				OR	95% CI		p
	Qualify		Not Qualify			Lower Limit	Upper Limit	
	N	%	N	%				
Stunting (-3.0 SD to <-2.0 SD)	4	11.4	28	58. 3	0.09	0.03	-0.30	<0.001
Normal	31	88. 6	20	41. 7				

Table 4. Relation between availability of clean water and stunting

Nutritional status	Availability of Clean Water				OR	95% CI		p
	Yes		No			Lower Limit	Upper Limit	
	N	%	N	%				
Stunting (-3.0 SD to <-2.0 SD)	0	0.0	32	74.4	0.01	0.01	0.08	<0.001
Normal	40	100	11	25.6				

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.15

C. Analysis of Clean Water Availability with Stunting Incidence

Table 4 showed that the availability of clean water to the incidence of stunting in young 40 children (100%) to have access to clean water and the majority of children with the incidence of stunting (-3.0 SD up to <-2.0 SD) as many as 32 children (74.4%) with no availability of clean water. The chi-square test showed the risk of stunting reduced 0.01 times with the availability of cleaning water (OR= 0.01; 95% CI <0.01 to 0.08), and it was statistically significant (p<0.001).

DISCUSSION

Provision of toilets that meet the requirements and availability of clean water are actions that are closely related to meeting nutritional needs and the incidence of diarrhea (KIA Gizi, 2018). The type of place to dispose of clean feces and the availability of clean water for activities, especially after defecating, after disposing of children's feces, before feeding children and after eating will shorten the chain of disease transmission (Leroy et al., 2019)

The nutritional status of children is one indicator of a child's health. Normally a healthy child with increasing age also gains weight and height accompanied by good growth and development according to his age. The general rule in measuring nutritional status is to use standard anthropometric parameters (Sjarif et al., 2019).

The results of statistical data analysis showed that there was an influence between the availability of toilets and the incidence of stunting in young children in Bulang District, Batam City, the results showed that the p< 0.001 with the results of field observations that there were still many subjects who used latrines with direct feces disposal into land and to sea water. This condition can cause diarrheal diseases and the incidence of stunting in children. The impact of continuous diarrhea can result in children's growth being not optimal and will cause children to become stunted (Kemenkes RI, 2017).

This is similar to previous research. The results of the analysis showed that there was a significant relationship between the type of latrine used and the incidence of stunting. Types of latrines that are not appropriate (not goose-neck) have a tendency to suffer from stunting 1.3 times higher than children who have proper latrines (Spears et al., 2013). Other research of Fatmawati, 2017 also showed the result that there is a relationship between the use of clean water, the use of healthy latrines and hand wash using soap in cases of illnesses infections, especially diarrhea (Stanton, 2005).

In addition to the availability of toilet eligible, events stunting is also heavily influenced by the availability of clean water, and this is similar to the previous study by Magar et al. in Nawalparasi (Nepal) showed that there was a significant relationship between the availability of clean water and washing hands before/after doing activities with the incidence of diarrhea in children under five (Vilcins, 2018) .

This study concluded that there is relationship between the availability of eligible toilet and the availability of clean water on reducing the inci-

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.15

dence stunting in children in Bulang subdistrict, Batam City.

FINANCIAL SUPPORT

Financial support in this research came from the assistance of the University of Ibnu Sina and the contribution of grant funding for professors at the University of Sriwijaya.

CONFLICT OF INTEREST

The authors declare there is no conflict of interest.

ACKNOWLEDGMENTS

The author would like to thank the respondents, field worker, research fellow Ahmadi, SKM., M.KL has helped in the preparation of the paper, as well as Prof. Dr. Yuanita Windusari, M.Si, Dr. dr. Irfannuddin, Sp.KO., M.Pd.Ked, Dr. Drs. R.Kintoko Rochadi., MKM have helped support in managing data and design methodology, local authorities who involved in this research.

REFERENCE

Adiyanti M (2014). Pola asuh gizi, sanitasi lingkungan, dan pemanfaatan posyandu dengan kejadian stunting pada baduta di Indonesia (Analisis Data Riskesdas Tahun 2010). Jakarta.

Briend A, Khara T, Dolan C (2015). Wasting and stunting-similarities and differences: Policy and programmatic implications.Food Nutr Bull. 36(1):15–23.

Bugis PK (2017). Profil Kesehatan Puskesmas Kampung Bugis Kota Tanjungpinang Tahun 2017. Tanjungpinang.

Fatmawati, Arbianingsih M (2017). Faktor yang mempengaruhi kejadian diare anak usia 3-6 tahun di TK Raudhatul Athfal Alauddin Makassar. J Islamic Nurs. 1(1): 21–32. https://doi.org/10.24252-/join.v1i1.3509.

Kemenkes RI (2011). Buletin jendela data dan informasi kesehatan situasi diare di Indonesia. J Bul Jendela Data Inf Kesehat.

Kementerian Kesehatan RI (2014). Sanitasi total berbasis masyarakat. Peraturan Menteri Kesehatan Republik Indonesia Nomor 3 Tahun 2014.

Kementerian Kesehatan RI (2018). Stunting report. Kementeri Kesehat RI.

Kumari B, Magar P, Kaphle HP, Gupta N (2016). Open defecation free (ODF) status of Magdi District of Nepal after three years of declaration: A cross-sectional study. Int J Health Sci Res. 6: 351–5.

Leroy JL, Frongillo EA (2019). Perspective: What does stunting really mean? A Critical Review of the Evidence. Adv Nutr. 10(2):196–204. https://doi.org/10.1093/advances/nmy101.

Manggala AK, Kenwa KWM, Kenwa MML, Sakti AAGDPJ, Sawitri AAS (2018). Risk factors of stunting in children aged 24-59 months. Paediatr Indones. 58(5):205–12. https://doi.org/10.14238/pi58.5.2018.205-12.

Program Kesehatan Keluarga Seksi Kesehatan Ibu Anak dan Keluarga Berencana (2018). Laporan program gizi. Tanjungpinang.

Sjarif DR, Yuliarti K, Iskandar WJ (2019). Daily consumption of growing-up milk is associated with

less stunting among Indonesian toddlers. Med J Indones. 28(1): 70–6. https://doi.org/10.13181/-mji.v28i1.2607.

Spears D, Ghosh A, Cumming O (2013). Open defecation and childhood stunting in India: An ecological analysis of new data from 112 districts. PLoS One. 8(9):1–9. https:-//doi.org/10.1371/journal.pone.0073784.

Stanton C, Hobcraft JHK (2005). World Bank, UNICEF estimates of maternal mortality in 2005. Bull World Heal Organ. 79:657–64.

Vilcins D, Sly PD, Jagals P (2018). Environmental risk factors associated with child stunting: A systematic review of the literature. Ann Glob Heal. 84(4):551–62. https://dx.doi.org/10.29024%2Faogh.2361.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.15

THE RELATIONSHIP BETWEEN PARENTAL RESILIENCE AND ONLINE LEARNING COMPETENCY OF THEIR CHILDREN IN ELEMENTARY SCHOOLS DURING COVID-19 PANDEMIC

Ari Damayanti Wahyuningrum

Airlangga University, Surabaya, East Java, Indonesia

ABSTRACT

Background: After WHO declared the COVID-19 outbreak as a global pandemic, a widespread closure of public places was occurred, including schools. To minimize the risk of disease transmission and death, the Government's policy indicates the mitigation measures, including internet-based education in schools by learning online for the safety of students and teachers. The role of parents is important to assist the online learning process of children. However, some parent experience inability to do optimally because of their condition such as busy schedule or under educated. The study aimed to determine the relationship between parental resilience and online learning competency of their children in elementary schools during COVID-19 pandemic.

Subjects and Method: This was a cross-sectional study conducted in elementary schools, Tunjung Sekar, Malang, East Java, from June to August 2021. A sample of 120 students in grades 1 and 2 was selected by stratified random sampling. The dependent variable was parental resilience. The independent variable was online learning competency. The parental resilience was measured by the Cannor Davidson Resilience Scale (CD-RSCI). The data were analyzed using Spearman rank correlation.

Results: There was a positive correlation between parental resilience and online learning competency in elementary school students during COVID-19 pandemic (r= 0.84; p= 0.001).

Conclusion: Parental resilience is positively correlated with online learning competency of their children in elementary schools during COVID-19 pandemic.

Keywords: parental resilience, online learning, competency, COVID-19.

Correspondence:
Ari Damayanti Wahyuningrum. Airlangga University. Jl.Dr. Ir. H. Soekarno, Mulyorejo, Surabaya, East Java 60115. Email: ari.damayanti.wahyuningrum-2020@fkp.unair.ac.id. Mobile: +62 81330305056.

BACKGROUND

COVID-19 (Corona Virus Disease) is an epidemic of a deadly disease whose spread is very fast and has become a world health crisis. The world health crisis caused by a new type of corona virus named SARS-Cov 2, which spreads very rapidly with the risk of being infectious and deadly (Sherby et al., 2021).

Corona virus disease (COVID-19) is a virus that causes illnesses ranging from the common cold to more chronic diseases that can affect adults and children. The new type of virus, the delta variant, infects children and toddlers more quickly where there is a peak increase in cases in the period June 2021 (Notteboom et al., 2021). The incidence rate of under-five deaths confirmed by

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.16

COVID-19 in the world with the number of positive cases per week is 3,666,031 cases, the number of children under five who are positive for COVID-19 is ±106,314 and death is ±531 cases, while in Indonesia in the 0-2 year age group it is 0.81%, age 3-6 years by 0.19% (Acharya et al., 2021).

The increased risk of transmission and death Due to the impact of the Covid attack, the World Health Organization (WHO) policy urges all citizens to reduce social activities, wear masks when outside the home, maintain distance, maintain personal hygiene wherever they are by getting used to washing hands, willing to be vaccinated (Acharya et al., 2021). The Indonesian government has also imposed large-scale social restrictions (PSBB) to the imposition of restrictions on micro community activities (PPKM). The impact of online learning has an effect on several lines, namely parents and students (Martín et al., 2021).

Constraints experienced during online learning include parents' low economic level, unable to buy cellphones and even laptops so they have to borrow from relatives or join school friends who have internet facilities, unstable signal for those who live in rural areas, purchasing power of internet quota become a main need like side dishes when the internet quota assistance from the government has run out (Lak et al., 2021). Children's schoolwork becomes one of the additional burdens for parents to assist in solving, children spend more time at home with their families so that it can trigger a sense of boredom due to reduced playing time with friends of their age so that it takes the ability to adapt and stay firm in difficult situations (Morales-Rodríguez, 2021). Based on the above background, the researchers wanted to know the resilience of parents in online assistance to children in the era of the COVID-19 pandemic on student competency achievements.

SUBJECT AND METHODS

1. Study Design

This was a cross-sectional study conducted in elementary schools, Tunjung Sekar, Malang, East Java, from June to August 2021.

2. Population and Sample

A total of 120 subjects was taken randomly. Research subjects were first explained about the aims of this study and asked to sign informed consent if they were willing to become respondents. Sampling was carried out on parents of students who have school-age children in State Elementary Schools including Tunjung Sekar 1, 2, and 3 with 40 respondents from each school chosen randomly.

3. Study Variables

The dependent variable was parental resilience. The independent variable was online learning competency. The parental resilience was measured by the Cannor Davidson Resilience Scale (CD-RSCI).

4. Operational Definition of Variables

Resilience was measured using resilience scale (RS-14) with categories: Low if X <42, moderate 42 X 70, high X >70 (Lak etal., 2021).

The achievement of student competence is an evaluation of

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.16

learning outcomes in the midterm exams based on curriculum 13 with categories: Very good: ≥92, good: 93-83, moderate: 82-75, less: <75.

5. Data Analysis

The sample characteristics was shown by univariate analysis with frequency distribution and percentage. The bivariate analysis was conducted using using Spearman rank correlation.

RESULTS

1. Univariate Analysis

Tabel 1 showed that the number of women is more than men because when taking data samples most of the researchers met are mothers so that the number of samples is mostly female respondents by 64% while respondents who are male by 36% this is in line.

Table 1. Sample Characteristics of parents (categorical data)

Variables	Categories	Frequency (n)	Percentage (%)
Gender	Female	74	62
	Male	46	38
Level of Education	High	30	25
	Moderate	40	33
	Low	50	42
Family income (IDR)	<2,000,000	60	50
	2,100,000 - 4,000,000	44	37
	4,000,000 – 6,000,000	14	12
	>6,000,000	2	1
Type of work	Housewife	20	17
	Private	50	42
	Government employees	40	33
	Teacher	10	8

Tabel 1 showed that most of the parents have a low level of education of 42% and the least of parents with a high level of education is 25%. Most family incomes are in the range of < 2,000,000 per month by 50%, while the least income is in the range of > 6,000,000 per month by 1%. The average income of parent is at a low economic level, this has different roles and functions in terms of purchasing power, internet quota or the needs of school children while online, this is in line. As many as 42% parents worked at private sector while 8% of study subjects worked as teachers.

2. Bivariate Analysis

Table 2 showed the results of bivariate analysis using the Spearman Rank test. There was a was a positive correlation between parental resilience and online learning competency in elementary school students during COVID-19 pandemic (r= 0.84), and it was statistically significant (p= 0.001).

Table 2. Bivariate test of parental resilience with the achievement of student learning competencies

Resilience	Rank of Academic Year 2020-2021		r	p
	Good	Moderate		
High	50	11	0.84	0.001
Moderate	14	45		

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.16

DISCUSSION

According to Arnold (2017), the XX chromosome which causes women's body resistance is much better than that of men so that women are more resistant to chromosomal damage (mutations) because they have an X chromosome reserve while men do not.

Education level influence behavior to make decisions in the process of adapting to the occurrence of the COVID-19 pandemic. This is in line with Noh and Khang (2021), that education level is directly proportional to one's knowledge and association in adapting to directing children during online learning and must be ready to be an educator when children learn from home.

According to Stephens et al (2021), the middle to lower economic class still dominates Indonesian society. The middle class has an influence on economic growth in Indonesia which can be measured by the increase in gross domestic income.

The type of work that is occupied on a daily basis determines a person's income status, lifestyle and behavior. This is in line with Bell et al (2021) that the type of work a person does determine the indicators in determining a person's social class which determines the lifestyle in buying children's needs during online learning.

The COVID-19 pandemic that has occurred in the world with such a rapid rate of spread can strike at all ages so that one of the efforts to reduce its spread through presidential and ministerial regulations is to apply online learning where all levels of society are forced to be able to adapt to the distance learning model and through the internet network through their respective homes (Martín et al., 2021).

Constraints that can be found include students who are still less than 10 years old and have not been able to be independent in the learning process so they need assistance from parents but some parents do not have the knowledge ability in educating, parents who are both busy working where parents consisting of fathers and mothers are responsible for children's education and all aspects of children's needs from childhood to adulthood before marriage, therefore it takes a role and parents are able to accept and adapt in the COVID-19 pandemic situation in assisting children to realize optimal learning outcomes (Lak et al., 2021).

Efforts to increase resilience as a parent are required to reset the perception of disability, build self-confidence, relax, control self-response, be flexible. That the higher the resilience of parents in mentoring children during the COVID-19 pandemic, the higher the resilience of parents in assisting children during the COVID-19 pandemic, achievement of student competence is getting better (Maity et al., 2021). The higher the resilience of parents, the higher the achievement in online learning for children who cannot be independent in learning remotely.

AUTHOR CONTRIBUTION

Each author individually made significant contributions to the development of this manuscript.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.16

CONFLICT OF INTEREST

The authors declare that the study was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

FUNDING AND SPONSORSHIP

None.

REFERENCES

Acharya A, Bastola G, ModilB, Marhatta A, Belbase S, Lamichhane G, Gyawali N, et al. (2021). The impact of COVID-19 outbreak and perceptions of people towards household waste management chain in Nepal. Geoenviron Disasters, 8(14). doi: 10.-1186/s40677-021-00188-w.

Bell Z, Scott S, Visram S, Rankin J, Bambra C, Heslehust N (2021). Food insecurity and the nutritional health and well-being of women and children in high-income countries: protocol for a qualitative systematic review. BMJ Open, 11(8). doi: 10.1136/-bmjopen-2020-048180.

Lak A, Hakimian P, Sharifi A (2021). An evaluative model for assessing pandemic resilience at the neighborhood level: The case of Tehran. Sustain Cities Soc. 75. doi: 10.1016/j.scs.2021.103410.

Maity S, Sahu TN, Sen N (2021). Panoramic view of digital education in COVID-19: A new explored avenue. Int Rev Educ, 9(2): 405–423. doi: 10.1002/-rev3.3250.

Martín CT, Acal C, Homrani ME, Estrada ACM (2021). Impact on the virtual learning environment due to COVID-19. Sustainability, 13(2): 1–16. doi: 10.3390/su13-020582.

Morales-Rodríguez FM. (2021). Fear, stress, resilience and coping strategies during covid-19 in Spanish university students. Sustainability, 13(11). doi: 10.33-90/su13115824.

Noh E, Khang YH. (2021). Analysis of factors contributing to occupational health inequality in Korea: a cross-sectional study using nationally representative survey data. Arch Public Health, 79(1): 1–8. doi: 10.1186/s13690-021-00638-9.

Notteboom T, Pallis T, Rodrigue JP. (2021). Disruptions and resilience in global container shipping and ports: the COVID-19 pandemic versus the 2008–2009 financial crisis, Maritime Economics and Logistics. Palgrave Macmillan UK. doi: 10.10-57/s41278-020-00180-5.

Sherby MR, Walsh T, Lai AM, Neidich JA, Ballas-Berry JE, Morris SM, Heas R, et al. (2021). SARS-CoV-2 screening testing in schools for children with intellectual and developmental disabilities. Research square. 1–11.

Stephens L, Rains C, Benjamin-Neelon SE (2021). Connecting families to food resources amid the COVID-19 Pandemic: A cross-sectional survey of early care and education providers in two U.S. States. Nutrients, 13 (9). doi: 10.3390/nu13093137.

THE CORRELATION BETWEEN MEDICATION ADHERENCE AND THE RELAPSE AMONG PATIENTS WITH SCHIZOPHRENIA IN KUDUS, CENTRAL JAVA

Anny Rosiana Masithoh, Yuli Setianingrum, M. Aris Prasetiyanto

Universitas Muhamadiyah Kudus, Central Java, Indonesia

ABSTRACT

Background: Mental health disorders are problems that need treatment. This treatment focuses on rapidly reducing the symptoms of psychosis in the acute phase, prolonging the period of relapse, and preventing the recurrence of worse symptoms. This study aimed to determine the correlation between medication adherence and relapse among patients with schizophrenia in Kudus, Central Java.
Subjects and Method: This was a cross-sectional study conducted in Kudus, Central Java, from Agustus to September 2020. A sample of 50 schizophrenic patients was selected by accidental sampling. The dependent variable was relapsed. The independent variable was medication adherence. The data were analyzed using Spearman rank correlation.
Results: There was a negative correlation between medication adherence and relapse among patients with schizophrenia, and it was statistically significant (r= -0.44; p< 0.001).
Conclusion: Medication adherence in schizophrenic patients is negatively correlated with relapse in patients with schizophrenia.

Keywords: medication adherence, relapse, schizophrenic patients

Correspondence:
Anny Rosiana Masithoh. Universitas Muhamadiyah Kudus. Jl. Ganesha Purwosari, Kudus, Central Java. Email: annyrosiana@umkudus.ac.id. Mobile: +62816654455.

BACKGROUND

Health is a dynamically balanced state, influenced by genetic, environmental and daily lifestyle factors such as eating, drinking, sex, work, rest to manage emotional life. The health status becomes damaged when the state of balance is disturbed, but most of the damage in the early periods is not serious damage if people are willing to realize it (Santoso, 2012). According to the World Health Organization, health is a state of well-being that includes physical, mental and social well-being that is not only free from disease or disability (WHO, 2015).

Mental health problems are currently increasing; according to WHO, in 2015, the prevalence of mental disorders was 465 million people in the world. Meanwhile, based on the National Institute of Mental Health, the prevalence of mental disorders worldwide is around 1.3% of the population over the age of 8 years, or about 53 million people worldwide suffer from mental disorders. The prevalence of mental disorders in developing and developed countries is relatively the same, around 21% of the total adult population.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.17

The 2018 Basic Health Research results conducted by the Ministry of Health for the proportion of households with schizophrenia/psychotic mental disorders from 2013-2018 from 1.7 per mile rose to 7 per mile. Central Java itself is ranked 5th out of 34 provinces. The 2018 Basic Health Research (RISKESDAS) conducted by the Ministry of Health for mental and emotional disorders, Central Java is ranked 27 out of 34 provinces.

In general, patients who take medication irregularly tend to relapse. The results show that 25% to 50% of schizophrenic patients who return home from mental hospitals do not take medication regularly. Chronic patients, especially schizophrenia, find it difficult to follow medication rules because of reality disturbances and the inability to make decisions. The nurse is responsible for administering or monitoring medication administration at the hospital, while the family replaces the nurse's duties at home. (Keliat, 2009).

Compliance with mental disorders in taking medication is very important; the drug must be used in an effective dose for a sufficient period. The response to therapy and the onset of side effects should be given as soon as possible. Drugs used to treat psychosis have many names, namely antipsychotic and neuroleptic drugs. (Suprayitno, 2010).

Melda Dwi Lestari (2021) found that there was a relationship between medication adherence and relapse rates in schizophrenia outpatients ($p < 0.001$).

Based on the results of a survey conducted by researchers at Dr. Loekmono Hadi Kudus Hospital, data obtained within 1 year of patients visiting for inpatient and outpatient care totaled 781 patients; the diagnosis that often appears is schizophrenia, more than 500 patients are patients schizophrenia, apart from this diagnosis, there are other diagnoses such as mood disorders and mental retardation. From these data, from October to December 2020, 200 patients were hospitalized. Of the 200 patients, 50 were relapsed and came from Kudus Regency (Medical Record of Kudus Hospital).

This study aims to determine the relationship between medication adherence and recurrence in schizophrenic patients in Kudus, Central Java.

SUBJECTS AND METHOD

1. Study Design

This cross-sectional study was conducted in Kudus, Central Java, from October to November 2020.

2. Population and Sample

The population in this study were people with schizophrenia who were in Loekmono Hadi Kudus Hospital, Central Java. The sample was selected by using an accidental sampling technique. The total subjects in this study were 50 schizophrenic patients.

3. Study Variables

The dependent variable is the recurrence of schizophrenic patients. The independent variable is medication adherence.

4. Operational Definition of Variables

Relapse is the return of an illness after it appears to have subsided. Recurrence usually occurs due to bad

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.17

events before they relapse and can also be caused by several factors, including internal factors and external factors**.**

Compliance with taking medication is obedience or surrender to a predetermined goal.

5. Instruments

The data in this study consisted of primary data and secondary data. Primary data were obtained using a questionnaire filled out directly by the subject. Secondary data were obtained from patients with schizophrenia at Loekmono Hadi Hospital, Kudus, Central Java.

6. Data Analysis

Univariate analysis was used to look at the frequency distribution and subject characteristics, while bivariate analysis using Spearman Rank Correlation was used to determine the relationship between recurred and obedience to medication in schizophrenic patients.

7. Research Ethics

The Council issues this research ethics test for International Organizations of Medical Sciences (CIOMS) and the National Guidelines for Health Research Ethics (KNEPK) number 03/Z-5/KEPK/UMKU/I/2022.

RESULTS

1. Univariate Analysis

Based on table 1. It can be seen that the number of male subjects was more than 29 patients (58.0%), while female patients were 21 (42.0%).

Table 1. Characteristics of the subject (dichotomous data) by gender

Characteristic	Category	Total (n)	Percentage (%)
Gender	Male	29	58.0
	Female	21	42.0

Table 2. Frequency distribution based on medication adherence and recurrence of schizophrenic patients in Loekmono Hadi Kudus Hospital.

Variables	Category	Total (n)	Percentage (%)
Obedience	Not obey	29	58.0
	Obey	21	42.0
Recurrence	Frequently	21	42.0
	Infrequently	29	58.0

Table 2 shows that the average number of subjects who do not adhere to medication is 29 (58.0%), and subjects who adhere to medication are only 21 (42.0%). In addition, recurrence was found more rare (58.0%)

2. Bivariate Analysis

There was a relationship between medication adherence and relapse in patients with mental disorders (r= -0.44; p<0.001), and it was statistically significant (table 3).

Table 3. The relationship between medication adherence and relapse in patients with mental disorders

Obedience	Recurrence				r	p
	Frequently		Infrequently			
	n	%	n	%		
Not obey	21	72.4	8	27.6	-0.44	<0.001
Obey	0	0	21	100		

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.17

DISCUSSION

Compliance with taking medication in patients with mental disorders in Kudus Regency. The univariate analysis showed that adherence to taking medication was in the category of non-adherence to taking medication as many as 29 respondents (58.0%). In the adherence to taking medication category, as many as 21 respondents (42.0%). People with a mental health condition do not comply with taking medication due to several factors, namely understanding of instructions, quality of interaction, social and family isolation, and beliefs and attitudes (Neil, 2009).

The results of previous study support the results of this study by Melda (2021) that of the 32 respondents studied there were, 17 respondents (53.12%) did not adhere to taking medication. From Baiq Septi (2014) that of the 84 subjects studied, the densest 63 respondents (78.8%) were non-adherent to taking medication.

On external factors, recurrence can be caused by several factors, including family support, adherence to medication, support from health workers. The sufferer feels isolated and inferior due to the family's lack of support and attention, so he often feels isolated and reflects more. Hence, the sufferer returns to thinking about subconscious things. Then there will be repeated recurrences in people with mental disorders (Suprayitno, 2010).

The results of this study are in line with Meldi (2021) regarding the relationship between medication adherence and recurrence in patients with mental disorders in the recurrence category; there were 23 subjects (71.87%) who relapsed from a total of 32 respondents. Baiq's study (20-14) supported that the highest recurrence frequency in the infrequent relapse category was 40 subjects (50%).

Relationship between drug adherence and recurrence in patients with mental disorders in Kudus Regency in 2021. Based on the results of research using cross-tabulation in Table 4, the analysis of the relationship between adherence to taking medication and recurrence in patients with disorders From 50 respondents, it was found that with the category of non-adherent adherence to the category of recurrence that often relapses as many as 21 respondents (72.40%) and from the category of non-adherent adherence to the category of The percentage of relapses that rarely relapse was 8 subjects (27.60%). In contrast, from the adherence category, there were no subjects who were obedient in the category of frequent relapses (0%), and those who adhered to the category of infrequent relapse as many as 21 subjects with a percentage (100%).

The results of the statistical test of Spearman Rho correlation obtained a value ($r= -0.44$; $p<0.001$). This indicates a significant relationship between medication adherence and recurrence in people with a mental health condition in Kudus Regency.

From the research data above, the researcher concludes that the higher the respondent's medication adherence level, the lower the patient's relapse rate and conversely, the higher the respondent's medication non-

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.17

adherence rate, the higher the respondent's relapse rate.

The results of this study are in line with Melda (2021), which stated that there was a significant relationship between medication adherence and recurrence. From the results of the chi-square statistical test, p< 0.001 (p <0.05), which means that there is a significant relationship between medication adherence and the rate of relapse in schizophrenia outpatients and is supported by research from Mohammad (2021) showed that there was a significant relationship between medication adherence and patient recurrence (p= 0.022), with an inverse relationship meaning that the more obedient the patient was to taking medication, the lower the patient's recurrence.

AUTHOR CONTRIBUTION

Anny Rosiana Masithoh, Responsible for research. Yuli Setia-ningrum, the process of data analysis from the beginning of the study. Moh. Aris Prasetiyanto is editing the article until it's finished.

CONFLICT OF INTEREST

There is no conflict of interest in compiling this article.

FUNDING AND SPONSORSHIP

This research is self-funded.

ACKNOWLEDGMENT

The researcher would like to thank LPPM Muhammadiyah Kudus University and related parties who have helped the research process from beginning to end.

REFERENCES

Muhammad A (2014). Analysis of factors associated with recurrence of mental disorder patients at the Regional Special Hospital of South Sulawesi Province.

Keliat BA, Akemat (2010). Mental Nursing Practice Model. Jakarta: EGC.

Lestari L, Melda D (2021). Analysis of the relationship between drug adherence factors and relapse rates in schizophrenic outpatients at Huyananto Medical Center Special Hospital, Malang Period 2016 and 2017. Available at: http://etheses.uinmalang.-ac.id/id/eprint/13496.

Mubin, Fatkhul M, Livana PH (2021). Relationship between drug adherence and recurrence of paranoid schizophrenia patients. J Farmasetis. https://doi.org/10.325-83/farmasetis.v8i1.493.

Notoatmodjo S (2010). Health Research Methodology. Jakarta: Rineka Cipta.

Notoatmodjo S (2012). Health Research Methodology. Jakarta: Rineka Cipta.

Riset Kesehatan Desa (2018). Main Results of Riskesdas 2018. Kemenkes RI. Available at: https:-//www.depkes.go.id/resources-/download/info-terkini/hasil-riskesdas-2018.pdf. Diperoleh tanggal 20 November 2021.

Sandrini, Septi B (2014). The relationship between adherence to taking medication and recurrence in schizophrenic patients at the Grhasia Mental Hospital Polyclinic DIY. Available at:

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.17

http://digilib.unisayogya.ac.id/id/eprint/272.
Sulistyaningsih (2011). Quantitative-Qualitative Midwifery Research Methodology. Yogyakarta: Mitra Cendekia.
Suprayitno H (2010). Merawat Klien Gangguan Jiwa.
WHO (2015). The World Health Report: 2015 Mental Health. https://www.who.int/mental_health-/management/en/ accessed October 2021.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.17

HEALTH PROMOTION AND ELDERLY EXERCISE TO IMPROVE KNOWLEDGE AND BALANCE IN THE ELDERLY

Rina Sri Widayati, Dita Mirawati, Dewi Kartika Sari

Universitas Aisyiyah Surakarta, Central Java

ABSTRACT

Background: Elderly is a natural process in humans, where physiological abilities will decrease. Falls are a problem that often arises in the elderly as a result of a decrease in balance. By providing elderly exercise is expected to reduce the risk of falling in the elderly. This study aimed to determine the effect of health promotion and elderly exercise for knowledge and balance among the elderly.
Subjects and Method: This was a cross-sectional study with pre and post-test one group design conducted in Pucang Sawit, Surakarta, Central Java, in August 2021. A total of 50 elderly was selected by random sampling. The dependent variables were knowledge and balance. The independent variables were health promotion and elderly exercise. The data were collected by Berg Balance Scale (BBS) and analyzed by Wilcoxon.
Results: Knowledge of the elderly was higher after intervention (Mean= 368; SD= 7.41) than before (Mean= 242; SD=4.95) and it was statistically significant (p< 0.001). Balance in the elderly after intervention (Mean= 41.78; SD= 1.31) was higher than before (Mean= 36.29; SD= 1.38) and it was statistically significant (p< 0.001).
Conclusion: Health promotion and elderly exercise intervention increases knowledge and balance among the elderly.

Keywords: health promotion, elderly exercise, balance, elderly

Correspondence:
Rina Sri Widayati. Universitas Aisyiyah Surakarta. Jl. Ki Hajar Dewantara No.10, Jebres, Surakarta, Central Java. Email: rinasriwidayati@gmail.com. Mobile: +6281329638362

BACKGROUND

The aging process will have an impact on various aspects of life, getting old is a process of slowly disappearing the ability of tissues to repair themselves or replace and maintain their normal functions so that they cannot survive infection and are unable to repair the damage suffered (Azizah, 2011).

Biologically elderly will experience the aging process continuously, marked by decreased resistance so that they are vulnerable to health problems and disease attacks that can cause death. A health problem is the condition of a person experiencing physical or psychological health problems, such as falls due to anxiety and balance disorders (Ministry of Health, 2017).

Falls are a major cause of morbidity, mortality, and reduced function (Kisner and Colby, 2017). A fall is an unconscious event, where a person falls from a higher place to a lower place which can be caused by a loss of consciousness (Sabatini et al., 2015). Many factors play a role in it, extrinsic factors such as slippery and uneven floors, tripping by objects, excessive or insufficient lighting so that vision becomes less than optimal. While intrinsic factors are obtained from within, both physically and psychologically, in terms of physical aspects such as walking disorders, lower extremity

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.18

muscle weakness, joint stiffness, balance disorders, and for psychological aspects one of them is anxiety (Erda, 2013).

Balance disorders are defined as decreased postural control which causes balance disorders so that it can increase the risk of falling which has an impact on the occurrence of lesions in the lower extremities (Onofrei et al., 2019).

Prevention of falls can be done by maximizing the body's balance ability, and helping to reduce and control the level of anxiety caused by other factors where anxiety can affect the incidence of falls, therefore physiotherapy plays a role in health programs, namely in the form of prevention by providing exercise at an early age pre-elderly where the main focus in dealing with falling problems is to improve and maintain body balance and reduce and control anxiety starting from pre-elderly age (Vafaeenasab et al., 2018)

Balance training is a series of movements to improve through stretching, strengthening (Kloos and Heiss, 2007). The exercise helps the brain adjust to changes in the signal (re-calibrate) so that the brain will automatically adapt, this process is called central compensation (Berkshire, 2008). From this background, the authors wanted to know the effect of counseling and exercise for the elderly on the knowledge and balance of the elderly in Pucang Sawit Village.

SUBJECTS AND METHOD

1. Study Design

This was quasi experimental study with, one group pre-test and post-test design conducted in Pucang Sawit Village, in August 2021.

2. Population and Sample

The population in this study were elderly in Pucang Sawit Village. A total of 50 elderly were selected for this study randomly.

3. Study Variables

The dependent variable were knowledge and balance. The independent variables were health promotion and elderly exercise.

4. Operational Definition of Variables

Knowledge is subject's perception of health promotion and elderly exercise.

Balance is the ability to maintain the body when placed in a variety of positions using minimal muscle activity as measured by the berg balance scale (BBC).

Health promotion are the efforts to increase the knowledge of the elderly on balance so that the elderly can avoid the risk of falling and can improve their balance.

Elderly exercise is a series of movements or physical exercises performed by the elderly to improve their functional abilities.

5. Instruments

The instruments used in this study were stopwatch, chair; books and stationery to record the measurement results, balance was measured using the berg balance scale (BBC).

6. Data Analysis

The data were collected using instrument tools measured namely the berg balance scale (BBC), and data were analyzed using Wilcoxon sign rank test.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.18

RESULTS

The subjects in this study numbered 50 elderly. The effect of health promotion and elderly exercise for knowledge and balance among the elderly it can be seen on the table 1 and table 2.

Table 1. Knowledge on the elderly before and after intervention

Variables	Mean	SD	p
Knowledge			
Before intervention	242	4.95	<0.001
After intervention	368	7.41	

Table 1 showed knowledge of the elderly was higher after intervention (Mean= 368; SD= 7.41) than before (Mean= 242; SD=4.95) and it was statistically significant (p< 0.001).

Table 2. Balance on the elderly before and after intervention.

Variables	Mean	SD	p
Balance			
Before intervention	36.29	1.38	<0.001
After intervention	41.78	1.31	

Table 2 showed balance in the elderly after intervention (Mean= 41.78; SD= 1.31) was higher than before (Mean= 36.29; SD= 1.38) and it was statistically significant (p< 0.001).

DISCUSSION

In old age there is a decline in the performance of the balance integration system which includes the sensory system (visual, vestibular, and somatosensory), the central nervous system, and the motor (musculoskeletal) system. The sensory system provides information about the body's position with respect to the environment, the central nervous system processes information obtained from the sensory, and the motor system acts as an effector of the information that has been received. The decrease in the performance of the system due to the degenerative process in the elderly causes a decrease in balance. Degenerative processes in the sensory system occur in the visual, vestibular and somatosensory systems.

According to O'Sullivan (1981), balance is the ability to maintain the center of gravity on the support plane, especially when in an upright position. In addition, according to Ann Thomson, balance is the ability to maintain the body in an equilibrium position or in a static or dynamic state, and use minimal muscle activity. Balance or postural stabilization is a term used to describe the dynamic process when the body position is maintained in equilibrium. Equilibrium is when the body is at rest (static equilibrium) or in steady motion (dynamic equilibrium). The best balance is when the body's center of mass (COM) or center of gravity (COG) is maintained above the base of support or BOS (Kisner and Colby, 2017).

Movements of the knee extensors, knee flexors, hip abductors, ankle plantar flexors, ankle dorso flexors, knee bends, one leg stands and standing asanas, if performed, muscle contractions will occur starting from the action potential from nerve cells to

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.18

muscle fibers then nerve cells release neurotransmitters. It travels through the neuromuscular junction and binds to receptors in the sarcolemma. Then the Na+ channel opens and membrane depolarization occurs so that the action potential travels towards the sarcoplasmic reticulum causing the release of Ca2+, Ca2+ will bind to troponin so that tropomyosin shifts and there is a shortening of the H zone. pull actin towards the M line in the middle of the sarcormer by requiring energy in the form of ATP, then the myosin bonds are released and the myosin heads will bind to actin and shift it back, this cycle will run continuously as long as Ca2+ and ATP are still available (Sherwood, 2015).

Then there is a change in the form of an increase in nerve work in the muscles, synchronization of the activetion of motor unit recruitment through the mechanism of muscle contraction in these movements a natural adaptation occurs which causes an increase in the strength of the gastrocnemius, hamstring, soleus muscles, extensor muscles of the trunk, tibialis anterior, quadriceps, and abdominal muscles (Kiranadi, 2017).

The balance of the body's postural response is achieved when doing exercises with tandem stance, tandem walk, heel walking, toe walk, heel walking backward, sit to stand, and standing asana movements. When carrying out this exercise, the linear acceleration of the body will be detected by the sensory organ of the macula utriculus, which plays an important role in determining the orientation of the upright position of the head. In the macula utriculus there are thousands of hair cells whose origins synapse with the sensory endings of the vestibular nerve.

Dynamic control related to gait and locomotion is obtained through exercises for backward walking, walking and turning around, sideways walking. Dynamic control is obtained by activating and increasing the strength of the muscles used when stepping, including the pelvic muscles, namely extensors, flexors, abductors, adductors, rotators, quadriceps, hamstrings, muscles in the ankles. This exercise activates balance control, extension and contraction of lower extremity muscles and ankle dorsiflexion to move the body's center of gravity to control afferent, efferent and contraction of muscles in the lower extremities. The results of these exercises make body coordination better and the body can learn to move the body's center of gravity during steps so that there will be an increase in walking speed and stride length (Negara et al., 2020).

Almarzouki et al. (2020) shows that a home exercise program carried out 3 times a week can improve dynamic balance through strengthening lower extremity muscles and increasing proprioceptive, muscle groups in the hip and ankle responsible for correcting balance errors. Elderly gymnastics can increase the plasticity of the central nervous system and improve the function of the balance feedback loop. Research conducted by Jahanpeyma et al., (2020) stated that elderly gymnastics can improve balance and reduce the risk of falling.

The activities carried out on counseling about the risk of falling in the elderly and providing elderly exercise interventions can be concluded that there

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.18

is an achievement of the expected outcomes by the researchers seen from the pre-test and post-test values of the knowledge of the elderly about the risk of falling in the elderly. In addition to increasing knowledge in the elderly, there was also an increase in balance after being given an elderly exercise intervention.

AUTHOR CONTRIBUTION

Rina Sri Widayati, Dita Mirawati, Dewi Kartika Sari are the main researchers who choose topics, conduct research, analyze data and compile published articles.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This research was funded by Ministry of Research, Technology and Higher Education Indonesia.

ACKNOWLEDGMENT

Our gratitude to the rector of the Ministry of Research, Technology and Higher Education Indonesia, the head of Pucang Sawit Village, Pucang Sawit Elderly Posyandu Cadre, and the Elderly in Pucang Sawit Village.

REFERENCES

AlmarzoukiI R, Bains G, LohmaN E, Bradley B, Nelson T, AlqabbaniI S, Alonazil A, Daher N (2020). Improved balance in middle-aged adults after 8 weeks of a modified version of Otago exercise program: A randomized controlled trial. Plos One Research Article. 15(7) 1-13. https://doi.org/10.1371/journal.pone.0235734.

Azizah LM (2011). Keperawatan Lanjut Usia (elderly nursing). Yogyakarta: Graha Ilmu

Rohima V, Rusdi I, Karota E (2019). Faktor resiko Jatuh pada Lansia di Unit Pelayanan Primer Puskesmas medan Johor (Risk Factors for Falling in the Elderly in the Primary Service Unit of Medan Health Center Johor). IJINNA. http://dx.doi.org/10.32-419/jppni.v4i2.184.

Jahanpeyma P, Kayhan Koçak FÖ, Yıldırım Y, Şahin S, Şenuzun AF (2021). Effects of the Otago exercise program on falls, balance, and physical performance in older nursing home residents with high fall risk: a randomized controlled trial. European Geriatric Medicine, 12(1), 107–115. https://doi.org/10.1007/s41999-020-00403-1.

Khana, S, Changb R (2013). Anatomy of the vestibular system: A review. Neuro Rehabilitation. 32 437–443. DOI: 10.3233/NRE-130866.IOS.pres

Kiranadi (2017). Fisiologi Saraf, Indera Dan Otot (Physiology of nerves, senses and muscles). Fakultas Ekonomi Universitas Indonesia. ISBN: 978-979-24-5433-8

Kisner C, Colby LA (2017). Terapi Latihan Dasar Dan Teknik volume 1. Edisi 6 (Basic Exercise Therapy and Techniques volume 1. Issue 6). Jakarta: Penerbit Buku Kedokteran EGC

Kloos AD, Heiss DG (2007). Exercie for Impaired Balance. Kisner C & Colby L.A 5th ed. Therapeutic Exercise. Philadelphia

Ministry of Health (2017). Pusat Data dan Informasi Analisis Lansia di Indonesia (Data and Information Center for Elderly Analysis in Indonesia). Jakarta.

Negara A, Kuswardhani R, Irfan M, Adiputra I, Purnawati S, Jawi I (2020). Twelve balance exercise lebih efektif dalam menurunkan risiko jatuh dibanding Otago home exercise pada lanjut usia di Banjar Tainsiat, Desa Dangin Puri Kaja, Denpasar, Bali (Twelve balance exercise is more effective in reducing fall risk than Otago home exercise for the elderly in Banjar Tainsiat, Dangin Puri Kaja Village, Denpasar, Bali). Sports Med Phys Fitness, 8(3): 211-219. doi:10.24843/spj.2020.v08.i03.p14.

O'Sullivan, Susan B, Karen, E Cullen, and Schmitz, Thomas J (1981). Physical rehabilitation evaluation and treatment procedures. Philadelphia: F.A. Davis Company.

Onofrei RR., Amaricai E, Petroman R, Surducan D, Suciu O (2019). Preseason dynamic balance performance in healthy elite male soccer players. Am J Mens Health, 13(1), 15579883198319-20. https://doi.org/10.1177/1557-988319831920.

Sabatini S, Kusuma H, Tambunan L (2015). Faktor eksternal risiko jatuh lansia: studi empiris (External factors of the elderly fall risk: an empirical study). Manado: Temu Ilmiah IPLB.

Sherwood L (2015). Fisiologi Manusia: Dari sel Ke sistem (Human physiology: From cells to systems). Edisi 8. Jakarta: EGC.

Vafaeenasab MR, Amiri A, Morowatisharifabad MA, Tehrani JHA (2018). Comparative study of balance exercise (Frenkel) and aerobic exercise (walking) on improving balance in the elderly. Elder Health J. http://dx.doi.-org/10.18502/ehj.v4i2.259.

META-ANALYSIS THE EFFECT OF STIGMA ON ANXIETY IN HEALTH WORKERS DURING COVID-19 PANDEMIC

Annisa Fitriana Damalita

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Frontline healthcare workers directly involved in the treatment of COVID-19 patients have faced some physical and psychological challenges, included stigmatization. It resulting in psychological and emotional trauma on the health personnels that is being stigmatized. This study aimed to investigate the effect of stigma on anxiety in health workers during COVID-19 pandemic.
Subjects and Method: A systematic review and meta-analysis was retrieved through systematic literature searches (from 2020 to 2021) in the databases of Google Scholar, Pubmed, Proquest, and Science Direct. Searches were conducted by means of databased keywords and text words indicative of “stigma" AND "anxiety" AND "healthcare workers" AND "COVID 19" AND "cross sectional". The inclusion criteria were Indonesian or English full text, anxiety was assess by GAD-7, and reported adjusted odds ratio. The systematic review was carried out according to the PRISMA guidelines. Data analyses were performed using REVMAN 5.3.
Results: There were 5 studies which met the inclusion criteria. A meta-analysis study found that stigma increased the risk of anxiety in health personnels during COVID-19 pandemic (aOR= 2.33; 95% CI= 1.44 to 3.76; p<0.001).
Conclusion: Stigma increases the risk of anxiety in health personnels during COVID019 pandemic.

Keywords: stigma, anxiety, health personnels, COVID-19, pandemic

Correspondence:
Annisa Fitriana Damalita. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 51726, Central Java. Email: annisafitriana.mdf@-gmail.com. Mobile: +6285729085880.

BACKGROUND

The COVID-19 disease outbreak was known to have first occurred in China and has now become a global health threat (Wu et al., 2019). In January 2020, WHO declared COVID-19 a public health emergency of international concern and in March 2020 it was declared a pandemic disease (Yitayih et al., 2021). This outbreak was first reported in late December 2019 in Wuhan, China, Hubei Province, when clusters of pneumonia cases of unknown etiology and exposure were found epidemiologically in seafood markets in the Province (Nishiura H et al., 2020; Wu et al., 2020; Wu et al. ., 2019).

Based on the results of the study, the infectivity and death due to COVID-19 caused excessive fear and anxiety about this outbreak throughout the world and spread in a very short time (Tamrakar et al., 2021). Based on the World Health Organization (WHO) situation report, as many as 22,073 cases of COVID-19 were reported to WHO in April 2020 in health workers (Tsegaye et al., 2021).

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.19

When compared to the general/ regular population, health workers face tremendous pressure during the COVID-19 pandemic, especially health workers who are in contact with suspected or confirmed cases, due to high risk of infection, inadequate protection, loss of control, lack of experience in dealing with illness, overwork, negative feedback from patients and the environment, perceived stigma, significant lifestyle changes, quarantine and lack of support from family (Que et al., 2020).

In a study conducted in Nepal from April to June, there were 41.9%, 37.5%, and 33.9% of health workers experiencing symptoms of anxiety, depression, and insomnia, respectively, with stigma being shown to be significantly associated with with this condition (Khanal et al., 2020).

Recent research has shown that healthcare workers are at a higher risk for anxiety and depression (Serrano et al., 2021). In addition, health workers, especially nurses who are on the front line providing care and support, are vulnerable to fear, anxiety and depression (Serrano et al., 2021). Several factors that increase the incidence of psychological problems among health workers, such as fear, anxiety, depression and insomnia can negatively affect work efficiency and long-term well-being (Que et al., 2020).

Based on this, the purpose of this study is to determine the effect of one of the mental health factors related to the influence of stigma on anxiety, especially for health workers as the frontline in handling COVID-19.

SUBJECTS AND METHOD

1. Study Design

This research is a systematic review and meta-analysis. This study uses data based on the results of previous studies where the article is in accordance with the questions formulated by the researcher. This study collects articles published in 2020-2021 in electronic databases, namely Google Scholar, Pubmed, Proquest and Science Direct. The keywords used were "stigma" AND "anxiety" AND "health care workers" AND "COVID 19" AND "cross sectional". Articles were obtained by considering the eligibility criteria determined using the PICO model. The population of this study were Health Officers who worked during the COVID-19 pandemic. The intervention is stigmatized. The comparison is without stigma. The result is anxiety.

2. Population and Sample

Articles were obtained by considering the eligibility criteria determined using the PICO model. The research population is health personnel.

3. Inclusion Criteria

The inclusion criteria in the study were full text articles in English and Indonesian published in 2020-2021, using a cross sectional study design using PRISMA and multivariate analysis showing the results of Adjusted Odds Ratio (aOR) stigma on anxiety in health personnel.

4. Exclusion Criteria

Exclusion criteria taken in this study were articles with Randomized Controlled Trial (RCT), case control,

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.19

cohort and quasi-experimental. Articles that do not use the Generalized Anxiety Disorder Assessment (GAD-7) as a research instrument to measure anxiety. Unpublished articles in English and Indonesian. Articles that did not perform multivariate analysis. The reported statistical results do not contain an AOR and duplicate articles and articles that have been meta-analyzed.

5. Variable

This meta-analysis study is about the effect of stigma on anxiety in health workers during the COVID-19 pandemic. The independent variable in this study is stigma while the dependent variable in this study is the anxiety felt by health workers. The research design used in the article is included in the inclusion criteria is a cross-sectional research design.

6. Operational Definition of Variable

COVID-19 is an infectious disease caused by the SARS-CoV 2 virus. Stigma is defined as a sign/disgrace associated with certain circumstances, qualities, or people. Anxiety is defined as an uncomfortable feeling such as worry or fear.

7. Instrument

The instrument used came from respondents who were given through a questionnaire for GAD-7 anxiety which was collected by the researcher directly or web-based.

8. Data Analysis

Data analysis in this study was carried out using the Review Manager 5.4 application and the results of the analysis in this study used the Random Effects Model.

RESULTS

The article search process is carried out by searching electronic databases through Google Scholar, Pubmed, Proquest, and Science Direct. The keywords used were "stigma" AND "anxiety" AND "health care workers" AND "COVID 19" AND "cross sectional".

The initial search process resulted in 2990 articles, then through the process of deleting published articles, articles were obtained, including those that met the requirements for a full text review. The results of the articles that meet the requirements are reviewed and there are 5 articles that meet the requirements.

Of the five articles that match the PICO model and the criteria that have been determined, it was found that the research conducted came from several countries, namely Korea, Nepal, and Egypt. There are 5 observational research articles that use a cross-sectional study design as a source of meta-analysis as follows:

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.19

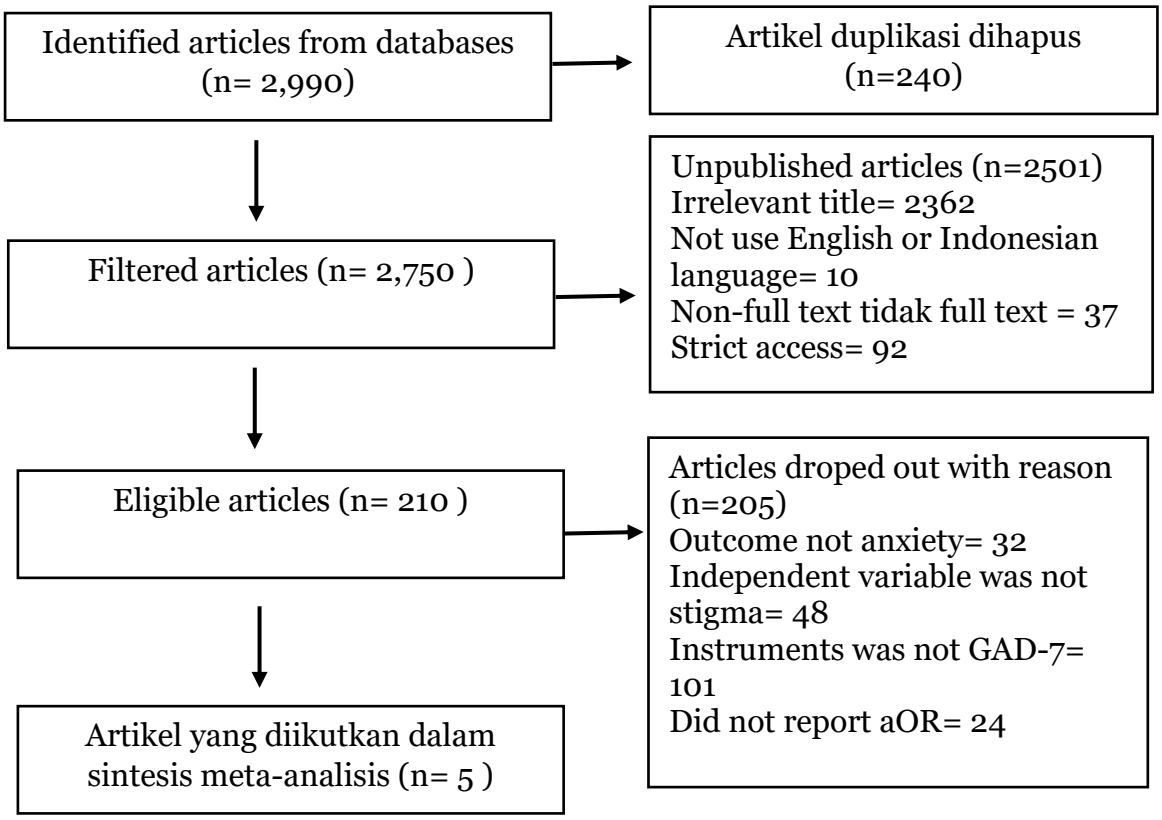


Figure 1. PRISMA flow diagram

Table 1. Description of Primary Studies Included in Meta-Analysis

Author, year	Country	Sample; Study Design; Age	Population	Intervention (I), Comparison (C)	Outcome	Effect aOR (95% CI)
Adhikari et al., 2021	Nepal	213; Cross Sectional; Mean: 29.90	Health workers	I: Stigma C:No Stigma	Anxiety	1.04 (0.43-2.53)
Baral et al., 2021	Nepal	323; Cross Sectional; Mean: 28.90	Health workers	I: Stigma C:No Stigma	Anxiety	3.16 (1.66-6.03)
Elenin et al., 2021	Egypt	237; Cross Sectional; Mean: 38.2	Health workers	I: Stigma C:No Stigma	Anxiety	1.56 (1.24-1.97)
Han et al., 2021	Korea	350; Cross Sectional; Mean: 28.9	Health workers	I: Stigma C:No Stigma	Anxiety	6.50 (2.05-30.26)
Park et al.,2021	Korea	1003; Cross Sectional; Mean: 35.1	Health workers	I: Stigma C:No Stigma	Anxiety	2.96 (2.01-4.35)

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.19

A. Forest Plot

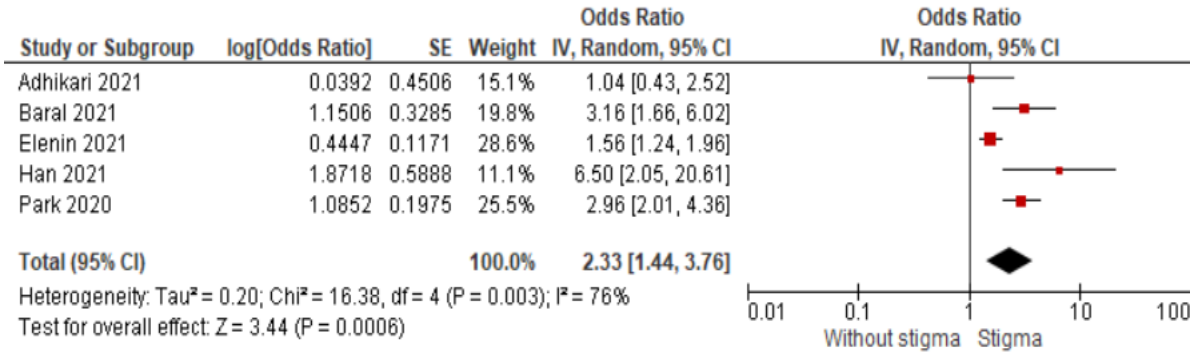


Figure 2. Forest plot effect of stigma on anxiety

Interpretation of the results of the meta-analysis process can be seen through the forest plot. Figure 2 shows that the presence of stigma can increase the risk of anxiety in health workers. The results of the meta-analysis of cross-sectional studies showed that stigma increased the risk of anxiety by 2.33 times compared to those who were not stigmatized/ without stigma with statistical significance (p= 0.0006). The heterogeneity of the research data shows I^2= 76% so that the distribution of the data is declared heterogeneous (random effect model).

B. Funnel Plot

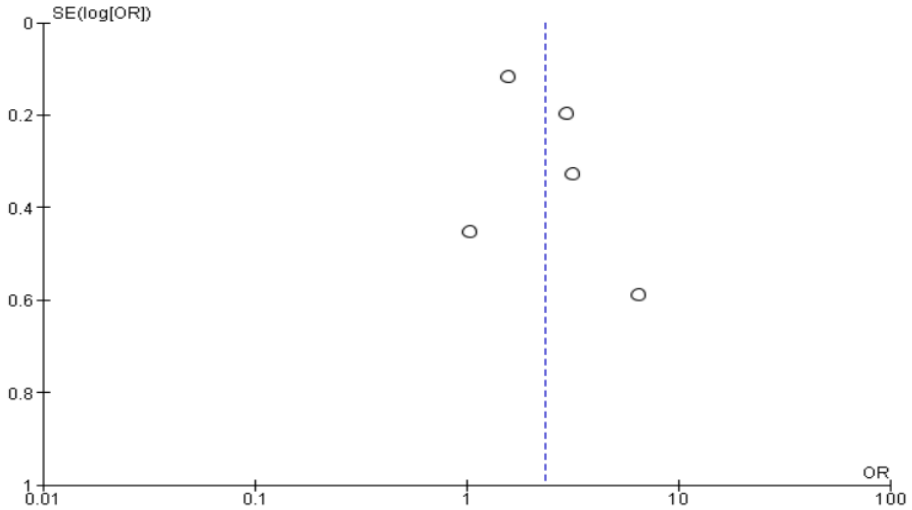


Figure 3. Funnel Plot of Stigma against Anxiety

Based on Figure 3, it shows that there is a publication bias which is indicated by the asymmetry of the right and left plots, where 2 plots are on the left and 3 plots are on the right. The plot on the right of the graph appears to have a standard error (SE) between 0.2 and 0.6. The plot on the left of the graph appears to have a standard error (SE) of 0.5. However, this publication bias can also be caused by the limited number of articles obtained, namely 5 articles.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.19

DISCUSSION

This study is a meta-analysis with the theme of the influence of stigma on anxiety in health workers. The independent variable in this study is stigma, while the dependent variable in this study is the anxiety experienced by health workers. The research study design used in the inclusion criteria was cross sectional. The instrument used is an instrument measuring the level of anxiety, namely the Generalized Anxiety Disorder Assessment (GAD-7) directly or web-based.

This article was reviewed using PRISMA and the estimation of the influence of stigma on anxiety was processed using the Review Manager (RevMan) 5.4 application. Study results from this meta-analysis are presented in forest plots and funnel plots. The forest plot aims to depict information from each study in the results of this meta-analysis by estimating the overall results (Murti, 2018). Funnel plot diagrams in this meta-analysis are used to show publication bias wherein funnel plots show the effect size and sample size of the studies or the standard error of the effect sizes of the various studies studied which can be measured in different ways (Murti, 2018).

Based on article searches in electronic databases, there are 5 cross-sectional articles that are the source of a meta-analysis of stigma against anxiety in health workers. Stigma is defined as a sign / disgrace associated with certain circumstances, qualities, or people.

Based on the results obtained in this meta-analysis, it was found that stigma increased the risk of anxiety by 2.33 times compared to those who were not stigmatized/without stigma (aOR= 2.33; 95%CI= 1.44 to 3.76; p= 0.0006) in health workers. These results are in line with other studies related to several factors such as receiving negative feedback from family or friends while serving as health workers in the front line (OR= 2.53, 95% CI= 1.50 to 4.26) so that health workers who feel it carries a higher risk of anxiety (Que et al., 2020).

The results of other studies that are in line also show that the perception of stigma is significantly higher for health workers who work directly with COVID-19 patients when compared to the general population.

In addition, based on the results of other studies, it was found that the prevalence of anxiety during the pandemic was very high at 32.3% when compared to the prevalence before the pandemic (Sadang, 2020). Based on other literature, it is also revealed that health workers such as nurses and other health professionals who work as the vanguard during a pandemic can experience various psychological disorders, especially when working with high risks (Tamrakar et al., 2021).

The limitation of this research is that the researcher only uses 4 databases as the source of the article search (Google Scholar, Pubmed, Proquest, and Science Direct) so that other article search sources are ignored. This study only focused on one instrument for measuring anxiety, namely GAD-7, so that other

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.19

anxiety measurement instruments were ignored.

The conclusion from the results of this meta-analysis is that stigma increases anxiety among health workers.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGE

Researchers thank and give appreciation to electronic databases such as Google Scholar, Pubmed, Proquest and Science Direct.

REFERENCES

Adhikari SP, Rawal N, Shrestha DB, Budhathoki P, Banmala S (2021). Prevalence of anxiety, depression, and perceived stigma in healthcare workers in Nepal during later phase of first wave of COVID-19 pandemic : A web-based cross-sectional survey. Cureus, 13(6): 1–15. https://doi.org/10.7759/cureus.16037

Baral S, Pandeya P, Sapkota K, Paudel S, Pariyar J, Baral YN, Neupane A, Yadav RK (2021). Anxiety and Depression among COVID Positive Frontline Health Care Workers in Nepal. International Journal of Health Sciences and Research, 11: 84–92.

Elenin AMM (2021). Immediate Psychological Outcomes Associated with COVID-19 Pandemic in Frontline Physicians: a Cross-Sectional Study in Egypt. BMC Psychiatry, 21(1), 1–10. https://doi.org/10.1186/s12888-021-03225-y.

Han S, Choi S, Cho SH, Lee J, Yun J (2021). Associations between the working experiences at frontline of COVID-19 pandemic and mental health of Korean Public Health Doctors. BMC Psychiatry, 21(298): 1–18.

Khanal P, Devkota N, Dahal M, Paudel K, Joshi D (2020). Mental Health Impacts among Health Workers during COVID-19 in a Low Resource Setting: A cross-Sectional Survey from Nepal. Globalization and Health, 16(1), 1–12. https://doi.org/10.1186/s12992-020-00621-z.

Murti B (2018). Prinsip dan Metode Riset Epidemiologi (Epidemiological Research Principles and Methods). Edisi ke 5 (Prinsip dan Metode Penelitian Epidemiologi. Edisi ke-5). Surakarta: Program Studi Ilmu Kesehatan Masyarakat.

Nishiura H, Sung-mok J, Linton N, Kinoshita R, Yang Y, & Hayashi K (2020). The Extent of Transmission of Novel Coronavirus in Wuhan, China, 2020. J Clin Med. 9: 1–5. https://www.mdpi.com/2077-0383/9/2/330.

Park C, Hwang JM, Jo S, Bae SJ, Sakong J (2020). COVID-19 outbreak and its association with healthcare workers' emotional stress: a cross-sectional study. J Korean Med Sci. 35(41): e372. https://doi.org/10.3346/jkms.2020.35.e372.

Que J, Shi L, Deng J, Liu J, Zhang L, Wu S, Gong Y, et al. (2020).

Psychological Impact of The Covid-19 Pandemic on Health-care Workers: A Cross-Sectional Study in China. General Psychiatry, 33(3): 1–12. https://-doi.org/10.1136/gpsych-2020-100259.

Sadang JM (2020). The lived experience of filipino nurses' work in COVID-19 quarantine facilities: A descriptive phenomenological study. Pacific Rim International Journal of Nursing Research, 25(1), 154–164.

Serrano J, Hassamal S, Hassamal S, Dong F, Neeki M (2021). Depression and Anxiety Prevalence in Nursing staff during the COVID-19 Pandemic. Nursing Management, 52(6), 24–32. https://doi.org/10.1097/01.NUMA.0000752784.86469.b9.

Tamrakar P, Pant SB, Acharya SP (2021). Anxiety and Depression among Nurses in COVID and Non-COVID Intensive Care Units. Nursing in Critical Care, July, 1–10. https://doi.org/10.-1111/nicc.12685.

Teksin G (2020). Stigma-Related Factors and Their Effects on Healthcare Workers during COVID-19 Pandemics in Turkey: a Multicenter Study. SiSli Etfal Hastanesi Tip Bulteni / The Medical Bulletin of Sisli Hospital, 54(3), 281–290. https://doi.org-/10.14744/semb.2020.02800.

Tsegaye D, Shuremu M, Oljira D, Dubale S, Befekadu G, Bidira K (2021). COVID – 19 related knowledge and preventive practices early in the outbreak among health care workers in Selected Public Health Facilities of Illu aba Bor and Buno Bedelle zones, Southwest Ethiopia. BMC Infectious Diseases, 21(1), 1–17. https://doi.org/10.1186/s12879-021-06218-0.

Wu Y, Chen C, Chan Y (2019). The Outbreak of COVID-19 : An Overview. J Chin Med Assoc, 217–220. https://doi.org/10.10-97/JCMA.0000000000000270 >Wu.

Yitayih Y, Lemu YK, Mekonen S, Mecha M, Ambelu A (2021). Psychological Impact of COVID-19 Outbreak Among Jimma University Medical Centere Visitors in Southwestern Ethiopia: A Cross-Sectional Study. BMJ Open, 11(1), 1–8. https://doi.-org/10.1136/bmjopen-2020-04-3185.

HOUSEWIVES CHARACTERISTICS ON REDUCE, REUSE, RECYCLE (3R) BEHAVIORS OF DOMESTIC WASTE MANAGEMENT: AN EVIDENCE FROM MEDAN, NORTH SUMATERA, INDONESIA

Sri Malem Indirawati, Umi Salmah, Lanova Dwi Arde

Faculty of Public Health, Universitas Sumatera Utara

ABSTRACT

Background: According to the "waste hierarchy" (reduce, reuse, recycle), the most effective means of reducing waste is to prevent waste in the first place (e.g., avoiding products with excessive packaging; consuming fewer products), followed by reusing or finding new uses for items, while recycling is the least effective strategy for reducing waste. While public awareness of waste-related problems is growing and recycling rates are increasing in many countries, there has been less progress in reduce and reuse behaviors. The purpose of this study was to investigate housewives characteristics on reduce, reuse, recycle (3R) behaviors of domestic waste management.
Subjects and Methods: This was a cross-sectional study located in 15 sub-districts in Medan, North Sumatera, Indonesia. A sample of 277 housewives was selected by purposive sampling. The dependent variable was reduce, reuse, and recyle behavior. The independent variables were knowledge and education. The data were collected by questionnaire and analyzed by Chi square test.
Results: As many as 44.4% of housewives had a good understanding of 3R domestic waste management, but only 13.3% of them housewives applied it well. Poor knowledge (OR= 0.54; 95% CI= 0.29 to 0.99; p= 0.063) and low education (OR= 0.55; 95% CI= 0.18 to 1.64; p=0.39) reduced 3R behavior of domestic waste management in housewives.
Conclusion: Poor knowledge and low education reduce 3R behavior of domestic waste management in housewives.

Keywords: domestic waste management, reduce, reuse, recycle, housewives

Correspondence:
Sri Malem Indirawati. Faculty of Public Health, Universitas Sumatera Utara. Jl. Universitas 21 Padang Bulan, Medan, North Sumatera, Indonesia. Email: srimalem@usu.ac.id. Mobile: 081397095501.

BACKGROUND

The Global Waste Management Goals (GWMO) initiated and launched a program to reduce waste generation substantially in 2015 through prevention and the 3R (reduce, reuse, recycle) movement by 2030 as one of its main goals (Wilson and Velis, 2015). Indonesia has adopted 3R activities starting from the household level as stated in the Government Regulation of the Republic of Indonesia number 81 of 2012 concerning household waste and waste similar to household waste. The government does this to reduce waste generation and environmental burden.

The Ministry of Environment and Forestry stated that the increase in landfill waste in Indonesia had reached 175,000 tons/day, or the equivalent of 64 million tons/year (Baqirah, 2019). This means an increase in waste products every year and requires good management.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.20

Medan City is one of the most densely populated cities in North Sumatra, the increase in population greatly affects the amount of waste. The residents of Medan City produce 5,616 m^3/day or 2,000 tons/day of waste, not all of which is transported by officers from the Temporary Shelter (TS) to the Final Shelter (Medan City Sanitation and Parks Office, 2016). Currently, almost all waste management ends in the Final Shelter (FS), causing the burden of the FS to be very heavy, the capacity of the FS is no longer able to accommodate waste, and finally, it is still left in households (Suwerda, 2012).

Reducing waste generation at the FS can be pursued by applying the 3R (Reduce, reuse, recycle) system. The 3R system, Reduce, Reuse, and Recycle, is a waste management system that is oriented towards preventing waste generation, minimizing waste by reusing goods that can still be used, recycling waste into something useful and implementing environmentally friendly waste disposal. Reduce or waste reduction is an effort to reduce the waste generation in the source environment and can even be done before waste is generated (Ahmadi, 2017). Reduce is an effort to reduce waste from its source by changing the consumptive lifestyle to be economical or efficient (Bouanini, 2013). These activities include carrying a bag or pouch when shopping, preferring to use a handkerchief instead of using tissue, buying products that can be refilled, or not buying single-use products. Reuse is reusing materials or materials so they don't become waste, for example, using the empty side of the paper for writing, reusing used drink bottles, reusing plastic shopping bags from stores and so on (William, 2005). Meanwhile, the recycling process includes collecting, separating, and processing waste with productive value, such as inorganic fractions (paper, metal, plastic, glass), which can be recycled into other materials after processing. Recycling activities include utilizing and processing used tires into flower pots, processing leftover patchwork into blankets or foot mats, processing organic waste into compost and so on (William, 2005).

Housewives are the spearhead who, in their daily lives, deal directly with activities that cause waste. Besides that, housewives can play an effective role in influencing and providing positive values to all members (Zuhroh, 2020). Housewives have an important role in waste management because most of the waste is generated by household activities. Therefore, housewives have to know how to manage waste properly.

The results of research by Setyowati and Surahma (2012) found that around 80% of householders dispose of plastic waste around their homes and burn the plastic waste, and 75% of household workers who work as farmers are often seen carrying drinks using bottles of mineral water. As many as 60.8% of household members have bad behavior, and 39.2% have good behavior towards plastic waste management.

Waste management can reduce waste, waste management that relies on waste reduction and handling.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.20

Waste reduction can be made by limiting waste generation, recycling and reusing waste, or 3R (Reduce, Reuse, and Recycle). Therefore, it is necessary to have household waste management carried out by the community, especially housewives, to reduce the volume of waste. Community participation, especially housewives, is important in managing waste independently through 3R solutions in Medan City. This study aims to analyze waste management with the 3R principle by Housewives in Medan City to reduce the volume of domestic waste.

SUBJECTS AND METHOD

1. Study Design

This was a cross-sectional study. The population was housewives who lived in 15 sub-districts in Medan, North Sumatra, Indonesia. 277 housewives were selected by purposive sampling. Housewives were divided into three categories based on age, generation X (who are over 40 years old), generation Y (who are between 25-40 years old), and generation Z (aged 18-24 years), according to Stewart et al. (2017).

2. Study Variables

The dependent variable was 3 R's Behaviour. The independent variables were knowledge and education about reduce, reuse, and recycle.

3. Operational Definition of Variables

Reduce behavior was an effort reducing waste activity include carrying a bag or pouch when shopping, preferring to use a handkerchief instead of using tissue, buying products that can be refilled or not buying single-use products.

Reuse behavior is reusing materials or materials, so they don't become waste, for example, using the empty side of the paper for writing, reusing used drink bottles, reusing plastic shopping bags from stores and so on.

Recycle behavior is the recycling process that includes collecting, separating, and processing waste with productive value, including utilizing and processing used tires into flower pots, processing leftover patchwork into blankets or foot mats, and processing organic waste into compost and so on. Knowledge was information received by housewives about 3 R action.

Education is the education level of housewives from elementary school to college divided into two categories elementary until middle is one category, then college to be higher education.

4. Study Instruments

Study instruments use a questionnaire that contains questions about respondent characteristics, 3R knowledge, the behavior of reducing, reusing and recycling. Statistical data analysis was conducted to see the frequency and percentage analysis and used Chi-Square.

5. Analysis Data

Univariate analysis was conducted to show the frequency distribution of sample characteristics. The bivariate analysis was carried out using chi-square test.

RESULTS

1. Univariate Analysis

Characteristics of housewives including age, education, monthly income, knowledge, and housewives'

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.20

actions in waste management with 3R principles can be explained in the Table 1.

Table 1 showed that the number of subjects with the highest percentage by age was the 26 -40 years group (46.6%), followed by the over 40 years old group (44.4%) then the below 25 years group (9%). The age range was 20 – 71 years. The largest percentage of low education level until the middle was (89.2%). The results of the analysis based on the monthly income obtained the largest percentage of income below the regional minimum wage in Medan city, Rp. 3,222,500 was 81.9%. The lowest income was IDR 1500,000 per month and the highest was IDR 10,000,000 per month. The largest percentage was found that 55.6% of housewives have poor knowledge about the application of the 3 Rs in Raging domestic waste, especially plastic. Knowledge with a very low percentage included: reduction of waste at source (42.8%), use of paper waste (36%), and waste segregation (33%). Only 20.9% of housewives carry out the 3R action. This could be due to the lack of knowledge about 3R waste management.

Table 1. Sample characteristics (categorical data)

	Frequency (n)	Percentage (%)
Age (years)		
> 40	123	44.4
26-40	129	46.6
< 25	25	9.0
Education		
Low education	247	89.2
Higher education	30	10.8
Monthly income		
< Regional Minimum Wage in Medan	227	81.9
≥ Regional Minimum Wage in Medan	50	18.1
Knowledge		
Good	123	44.4
Poor	154	55.6
3R action		
Yes	58	20.9
No	219	79.1

2. Bivariate Analysis

Table 2. Relationship between housewives education and knowledge with 3 R action

Variables	Categories	3R action		OR	95% CI	p
		Yes	No			
Education	Low education	54 (21.9%)	193 (78.1%)	0.55	0.18-1.64	0.397
	Higher education	4 (13,3%)	26 (86.7%)			
Knowledge	Good	19(15.4%)	104 (84.6%)	0.54	0.29-0.99	0.063
	Poor	39 (25.3%)	115 (74.7%)			

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.20

Table 2 showed as many as 44.4% of housewives had a good understanding of 3R domestic waste management, but only 13.3% of them housewives applied it well. Poor knowledge (OR= 0.54; 95% CI= 0.29 to 0.99; p= 0.063) and low education (OR= 0.55; 95% CI= 0.18 to 1.64; p= 0.39) reduced 3R behavior of domestic waste management in housewives.

3. Questionnaires Results

Reduce

The following were the 3R components, namely reduce, in Table 3 below it can be seen that subjects have taken actions to reduce but the percentage was still low, reduce actions with the largest percentage carried out were using used towels and old bed linen which are cut into small pieces to be used as rags (97.8 %), avoiding the purchase of products or items that are less necessary (82.7%) and reducing the use of single-use materials (68.6%) while the minimal action taken is refusing plastic bags when shopping (39.7%).

Table 3. Reduce action by housewives in Medan city

Questions	Yes		No	
	n	%	N	%
Do you bring a shopping basket when going shopping?	179	64.6	98	35.4
Do you avoid using single-use materials?	190	68.6	87	31.4
Do you prefer to use your own container (foldable cup) when buying drinks?	178	64.3	99	35.7
Do you save and reuse the plastic containers of the items you buy?	166	59.9	111	40.1
Do you use unused/misprinted paper as notes?	160	57.8	117	42.2
Do you use old towels and old sheets that are cut into small pieces to be used as washcloths?	271	97.8	6	2.2
Do you avoid buying unnecessary products or items?	229	82.7	48	17.3
Do you prefer buying used clothes over buying new ones?	132	47.7	145	52.3
Do you prefer to use a handkerchief instead of a tissue?	177	63.9	100	36.1
Do you refuse to use plastic bags when shopping?	110	39.7	167	60.3

The results of further analysis obtained that a total of 140 subjects (50.5%) had implemented the reduced action, and 137 people (49.5%) had not implemented it. This was in line with the poor understanding of waste management. The role of the mother as a waste manager is very important, housewives often carry out the involvement of managing waste in the household. Women can carry out waste management activities to contribute social capital and human capabilities (Widiyanto et al., 2020). The results of Ahmadi M (2017) research conducted on housewives in Tehran found that only 26% of the subjects participated in reducing at home. Previous studies have shown that almost a 20% reduction in waste generation can be made by choosing product packaging with the right design, durable with a larger volume (Ramachandra, 2011). The first option in the waste hierarchy was strict waste prevention by implementing waste reduction strategies at the source. This is the "avoid waste" prevention principle. Waste prevention is closely related to increasing waste production, methods of manufacturing design changes such as reducing packaging, and influencing consumers

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.20

to demand bigger products and less packaging (Bouanini, 2013).

Table 4. Reuse action by housewives in Medan city

Questions	Yes		No	
	n	%	N	%
Don't you use plastic straws when drinking?	173	62.5	104	37.5
Are you reducing the use of single-use materials?	183	66.1	94	39.9
Do you carry bags/pouches when shopping?	178	64.3	99	35.7
Do you use old tires and old plastic bottles for plant pots?	166	59.9	111	41.1
Do you avoid burning plastic waste?	147	53.1	130	46.9
Do you reuse plastic waste such as making crafts, or as liquid containers?	152	54.9	125	45.1
Do you have a Tumblr/non-disposable water bottle and take it with you when you travel?	251	90.6	26	9.4
Do you have non-disposable food boxes, cutlery (spoons, forks, straws)?	235	84.8	42	15.2
Do you use clean paper waste for packaging such as for wrapping kitchen spices, and so on.	182	65.7	95	34.3
Do you use trash cans and plastic containers for other functions (flower pots/makeup containers/accessories storage)?	161	58.1	116	41.9

Reuse

Based on Table 4, the reuse action with the highest percentage carried out by subjects was having a tumbler/non-disposable drinking bottle and taking it when travelling (90.6%), followed by having a food box, eating utensils (spoon, fork, straw). Disposables (84.8%), and reduce the use of single-use materials (66.1%). The results of the further analysis found 52.7% of subjects do reuse. The act of reuse was better than recycling because the item does not need to be reprocessed. In addition to environmental considerations, sensitive reuse schemes can have important social and cultural benefits (UNEP, 2003). Reuse can be done by repairing, selling, or donating these items to charities and community groups to reduce waste and reuse bottles (drinks) or plastic shopping bags from stores (Williams, 2005). Waste management activities at the reuse stage can be carried out through a process of selecting waste from each house, such as separating and classifying waste according to its type, making it easier for activities to manage and sort waste that can be sold directly or processed first. Examples of waste that can be sold directly include aqua bottles, paper from paper and cardboard to cardboard to be collected and then sold to existing stalls (Eprianti, et al, 2021).

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.20

Recycle

Table 5. Recycle action by housewives in Medan city

Questions	Yes		No	
	n	%	n	%
Do you collect plastic waste and turn plastic waste into souvenirs?	234	84.5	43	15.5
Do you process non-organic waste into useful products such as handmade goods or industrial products?	113	40.8	164	59.2
Do you make compost from household waste such as vegetable scraps?	116	41.9	161	58.1
Do you make crafts out of paper pulp?	58	20.9	219	79.1

Based on Table 5, it was found that the recycle action taken by subjects with a larger percentage was to collect waste from plastic materials, turning plastic waste into souvenirs 84.5%, this can be done because the plastic waste collected will be more valuable than being thrown into a landfill or burned and can produce money. The act of recycling that has the least percentage is making skills from the paper pulp (20.9%). Study subjects who do recycling are 60.3%. Economic needs that can be met become a motivation for housewives to recycle. Factors related to economic needs are one of the factors that motivate housewives to recycle (Buana, 2016). Housewives are aware that by doing recycling, reusing waste after undergoing a processing process can reduce waste from generation sources, efforts are needed to reduce waste from upstream to downstream, one of which was recycling (Dwiyanto, 2011).

DISCUSSION

Among 277 housewives the highest percentage by age was 46,6%, and low education was 89.2 %. As many as 44.4% of housewives had a good understanding of 3R domestic waste management, but only 20.9% of them housewives applied it well. Only 13.3% of housewives with high education carry out waste management 3R.

Waste management with the 3R principle by housewives is very minimal. This happens due to low education so it affects knowledge. The application of 3 R waste management can be improved by providing information and education to them.

Setyawati's research (2013) in Keradenan village found that around 56.8% of respondents had poor knowledge of 3R waste management among housewives. Poor knowledge about waste was influenced by lacking information and community outreach activities. A high level of understanding was needed to implement the 3R movement. An understanding of the 3R waste management in Sukaluyu Village shows that 85% of the community has good knowledge of waste management. However, some thought that waste management should be carried out by the local government (Lia et al., 2021).

Chi-square test showed no significant relationship between the education level of housewives (p= 0.397) and knowledge (p= 0.063) with waste management 3 R behavior. This means that higher education does not guarantee that housewives implement

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.20

the 3R's waste management properly. The following is a breakdown of the knowledge and actions of housewives in implementing the 3Rs. Housewife's knowledge with a very low percentage included: reduction of waste at source (42.8%), use of paper waste (36%), and waste segregation (33%).

Knowledge did not always contribute positively to changes in one's behavior so good knowledge does not necessarily guarantee good behavior (Azwar, 2011). Higher education did not guarantee good waste management behavior. This was due to a lack of awareness of waste management, lazy and unwillingness to be bothered with waste problems (Issabela et al., 2020). Hikmah and Ruing's research (2020) found that waste from people's homes is piling up, awareness to reuse used goods that can be used was still low, and people were still not trying to reduce waste and recycle waste so that it can be used.

The result shows that housewives in Medan city who carry out reduce actions as many as 140 people (50.5%), reuse actions as many as 146 people (52.7%), carry out recycling actions as many as 167 people (60.3%), from 277 housewives who did the 3R as many as 58 people (20.9%). Reducing actions that were commonly taken are using used towels and old bed linen, which are cut into small pieces to be used as washcloths, avoiding the purchase of unnecessary items, and reducing the use of single-use materials. Common reuse actions were to have a non-disposable tumbler/drink bottle taken when traveling while Recycle was commonly used to collect waste from plastic materials to turn it into souvenirs.

The inhibiting factor was the more dominant factor owned by housewives to reduce, reuse, and recycle, especially those related to the lack of awareness and knowledge to carry out 3Rs, which causes 3R-based waste management cannot be carried out properly (Buana, 2016).

This study concluded that 44.4% of housewives have good knowledge of 3Rs waste management, but only 20.9% do it well, amount 13.3% from high education apply good waste management. Chi-square test showed that there was no significant relationship between the education level of housewives (p= 0.397) and knowledge (p= 0.063) with waste management 3 R behavior.

It is necessary to carry out mentoring activities for housewives to increase knowledge and skills in 3R waste management at the household level establish cross-sectoral collaboration in community empowerment, especially housewives in waste management. The local government can provide rewards and punishments for villages that implement the 3 Rs.

FUNDING AND SPONSORSHIP

This study was funded by Ministry of research and Technology/ National Research and Innovation Agency.

CONFLICT OF INTEREST

We have no conflict of interest to declare. We attest to the fact that all Authors listed on the title page have contributed significantly to the work, have read the manuscript, attest to the validity and legitimacy of the data and

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.20

its interpretation, and agree to its submission.

REFERENCES

Ahmadi M (2017). Evaluating the performance of 3Rs waste practices: case study-region one municipality of Tehran. Advances in Recycling & Waste Management. 2(2): 1-6.

Azwar (2011) Sikap manusia teori dan pengukurannya. Yogyakarta: Pustaka Pelajar

Baqirah NFA (2019). Timbulan Sampah Nasional Capai 64 juta ton per tahun, Agribisnis, https://ekonomi.bisnis.com/read/20190221/99/891611/timbulan-sampah-nasional-capai-64-juta-ton-per-tahun Accessed September 2021.

Baro'ah S, Mazidatul S (2020). Penanaman CiLi (Cinta Lingkungan) pada siswa melalui program lingkungan sekolah tanpa sampah plastik. Jurnal PANCAR (Pendidik Anak Pintar dan Cerdas), 4(1): 11-16.

Buana CLA (2016). Motivasi, pendorong dan penghambat ibu rumah tangga dalam pengelolaan sampah berbasis 3R (Reuse, Reduce, Recycle) berdasarkan kelas sosial. PARSIMONIA, 2(3): 112-124.

Bouanini S (2013) THe Importance of the 3R Principle of Municipal Solid Waste Management for Achieving Sustainable Development. MJSS 4: 129-135.

Dinas Kebersihan dan Pertamanan Kota Medan. (2016). Laporan Dinas Kebersihan dan Pertamanan Kota Medan Tahun 2016.

Dwiyanto BM (2011). Model Peningkatan Partisipasi Masyarakat dan Penguatan Sinergi dalam Pengelolaan Sampah Perkotaan. Jural Ekonomi Pembangunan, 12(2).

Ediana D, Fatma F, Yuniliza (2018). Analisis pengolahan sampah Reduce, Reuse, Recycle (3R) pada masyarakat di Kota Payakumbuh. Jurnal Endurance, 3(2): 238-246. https://doi.org/10.22216/jen.v3i2.2771.

Eprianti N, et al. (2021). Analisis implementasi 3R pada pengelolaan sampah. Jurnal Ecoment Global, 6(2): 179-184.

Gosal, et al. (2020). Perbedaan pola pengolahan sampah padat antara masyarakat pesisir dan non-pesisir di Desa Touliang Oki Kecamatan Eris Kabupaten Minahasa. Jurnal Kesehatan Masyarakat UNIMA, 1(1): 9-16. https://doi.org/10.53682/ejk-mu.v1i1.569.

Hikmah, Ruing (2020). Sosialisasi pembuatan bank sampah dan pengelolaan sampah organik serta anorganik. Masyarakat Berdaya dan Inovasi, 1(2): 90-95. https://mayadani.org/index-.php/MAYADANI.

Issabela S, Hayati R, Dhewi R (2020). Analisis faktor yang berhubungan dengan upaya 3R (Reduce, Reuse, Recycle) pada Ibu-Ibu di Jalan Jati RT 03 Rw 08 Kelurahan Panarung Kecamatan Pahandut Kota Palangka Raya Tahun 2020.

Kementerian Lingkungan Hidup dan Kehutanan (2015). Penanganan Sampah Plastik (Limbah dan B3)

Kustiah T (2005). Kajian Kebijakan Pengelolaan Sanitasi Berbasis Masyarakat. Bandung: Pusat Penelitian dan Pengembangan Permukiman, Badan Penelitian dan Pengembangan.

Natalia L, Wihardja H, Ningsih PW (2021). Pendampingan pengelolaan sampah terpadu berbasis masyarakat dengan konsep 3R di Desa Sukaluyu. Jurnal Pengabdian Kepada Masyarakat. 4(1): 21-26.

Puspitawati Y, Rahdriawan M (2012). Kajian pengelolaan sampah berbasis masyarakat dengan konsep 3R (Reduce, Reuse, Recycle) di Kelurahan Larangan Kota Cirebon. Jurnal Pembangunan Wilayah dan Kota, 8(4): 349-359. https://doi.org/10.14710/-pwk.v8i4.6490.

Ramachandra TV (2011). Integrated management of municipal solid waste, environmental security. HAH 30: 465-484.

Renwarin A, Rogi OAH, Sela RLE (2002). Studi identifikasi sistem pengelolaan sampah permukiman di Wilayah Pesisir Kota Manado. Spasial: Perencanaan Wilayah dan Kota, 2(3): 80-89.

Stewart JS, et al. (2017). Managing millennials: Embracing generational differences. Business Horizons. Kelley School of Business, Indiana University. 60(1): 45–54. doi: 10.1016/j.-bushor.2016.08.011.

Setyowati, Mulosari SA (2013). Pengetahuan dan perilaku ibu rumah tangga dalam pengelolaan sampah plastik. Jurnal Kesehatan Masyarakat Nasional. 7(12): 562-566.

Sumah FM (2013). Hubungan antara pengetahuan dan sikap dengan tindakan ibu rumah tangga dalam pengelolaan sampah rumah tangga di Lingkungan II Kelurahan Istiqlal Kecamatan Wenang Kota Manado Tahun 2013. Bidang Minat Kesehatan Lingkungan.

Suwerda B (2012). Bank Sampah. Yogyakarta: Pustaka Rihama.

Widiyanto AF, Zeha HN, Rahardjo S, Suratman S (2020). Faktor-faktor yang berpengaruh terhadap praktik masyarakat dalam pengelolaan sampah di Desa Ketenger, Kecamatan Baturaden, Kabupaten Banyumas. Jurnal Kesehatan Lingkungan Indonesia, 19(2):76-81. https://-doi.org/10.14710/jkli.19.2.76-81.

Williams PT (2005). Waste Treatment and Disposal. 2nd edn, West Sussex, John Wiley and Sons, England.

Wilson DC, Velis CA (2015). Waste management-still a global challenge in the 21st century: An evidence-based call for action. Waste Manag. 33: 1049-1051

UNEP (2003). A Manual for Water and Waste Management: What the Tourism Industry Can Do to Improve its Performance, United Nations Publication.

Zuhroh S (2020). Peran ibu rumah tangga guna menjaga bumi bebas dari polusi sampah plastik. Journal of Community Service, 4(1): 9-14.

PICTURE-BASED POCKET BOOK TO IMPROVE EARLY DETECTION OF CERVICAL CANCER AMONG WOMEN OF REPRODUCTIVE AGE

Hesty Widyasih, Sumarah

School of Health Sciences, Ministry of Health, Yogyakarta

ABSTRACT

Background: Health education materials are not always appropriately written for those with low health literacy. The materials that do take low health literacy into account are limited. The Mayer's cognitive theory of multimedia learning (CTML) insisted three principles: (1) People process information through auditory and visual channels; (2) Each channel has a limited account of memory, and (3) Learning consists of actively filtering and sorting information. Given these principles, multimedia, which may be defined as "the combination of text and pictures", should help improve an individual's capacity to learn. This study aimed to determine the effectiveness of picture-based pocket book in enhancing health literacy in early detection of cervical cancer among women of reproductive age.
Subjects and Method: This was a randomized controlled trial (RCT) conducted in Yogyakarta. A sample of 120 women of reproductive age were selected at random and then assigned randomly into two groups: (1) 60 women in the experimental group received picture-based pocket book health education; (2) 60 women in the control group did not receive picture-based pocket book health education. The dependent variable was health literacy in early detection of cervical cancer. The independent variable was picture-based pocket book health education. The health literacy was measured by a questionnaire. The mean difference in health literacy after intervention between the experimental and control groups was tested by independent t-test.
Results: The mean health literacy in the experimental group (Mean= 74.3; SD= 5.7) was higher than that in the control group (Mean= 46.7; SD= 5.3), and it was statistically significant (p= 0.023).
Conclusion: The picture-based pocket book health education is effective to improve health literacy in early detection of cervical cancer among women of reproductive age.

Keywords: picture-based pocket book, health literacy, early detection, cervical cancer, women of reproductive age

Correspondence:
Hesty Widyasih. School of Health Polytechnics. Ministry of Health, Yogyakarta, Gamping, Sleman, Yogyakarta 55293. Email: hesti.widyasih@poltekkesjogja.ac.id. Mobile: 08156860937.

BACKGROUND

Cancer is a disease that raises the economic, social, physical, psychological burden and leads to many deaths in the world. The most common cancers in women are breast cancer and cervical cancer. The World Health Organization (WHO) estimates that every year around 500,000 new cases of cervical cancer are diagnosed. The number of deaths from cervical cancer is about 3,750 deaths per year (Herbert and Coffin, 2008).

Cervical cancer often occurs in developing countries. This is because in developed countries the screening

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.21

program has been implemented well. According to the World Health Organization (WHO), cervical cancer is currently in the top rank among various types of cancer that cause death in women in the world (Sasieni and Cuzick, 2003; Rasjidi, 2009).

Knowledge affects women's participation in cervical cancer screening examinations. Providing information about cervical cancer and screening for cervical cancer increases the number of women to do screening (Lee et al, 2008).

The behavior of early detection of cervical cancer is influenced by knowledge and attitudes. Good knowledge will support a positive attitude. A positive attitude towards cervical cancer screening supports a woman to do cervical cancer screening. A negative attitude is that there is no need to do screening if there are no symptoms and it is better to live life as usual. This statement can be an obstacle for women to do cervical cancer screening (Theresia et al., 2012).

Public awareness to do early detection needs to be pursued by disseminating information about the dangers of cervical cancer. One of the efforts that can be done is to provide health education to women of childbearing age who are a group at risk of cervical cancer.

Printed materials are important in health education. This can clarify the message that is delivered. The material is effective in strengthening the information delivered orally. It can also be used as a medium to deliver the information itself (Bensley and Fisher, 2009). Pocketbooks are able to disseminate information faster and with a wider reach. Pocketbooks contain elements of text, images and photos which if presented properly will be able to create an attraction that can increase someone's reading interest. This will make it easier for the recipient of the message to understand the message delivered. The small size of the pocketbook will make it easier for someone to carry or store it. Pocket books can be read whenever needed.

This study aims to determine the effect of the pocketbooks about cervical cancer on the knowledge level of cervical cancer early detection.

SUBJECTS AND METHOD

1. Study Design

The type of this research is quasi-experiment with pre-post test experimental design with control group.

2. Population and Sample

The population in this study were all fertile married women in Yogyakarta City, Indonesia. In this study, the sample size was obtained from the results of calculations based on the sample size formula for the proportion of two populations according to Lemeshow, 120 women were found as research subjects.

3. Study Variables

This research was conducted in the Mantrijeron Region as the intervention group and the Danurejan Region as the control group. The independent variable in this study was the Pocket Book of Cervical Cancer. The dependent variable in this study is the level of knowledge of cervical cancer early detection.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.21

4. Operational Definition of Variables

An image-based pocket book is a printed media in the form of a small book the size of a shirt pocket that contains elements of text, images and photos about early detection of cervical cancer.

Early detection of cervical cancer is the behavior of respondents who come to health services to perform early detection of cervical cancer as measured by asking respondents one month after the intervention.

5. Study Instruments

Questionnaire and image-based pocket book from the Ministry of Health.

6. Data Analysis

This study uses primary data by using a questionnaire. Data analysis with univariate analysis, bivariate analysis (Wilcoxon and Man-Whitney test), and multivariate analysis (logistic regression). On the characteristics of the respondents using the Chi-Square test to determine the relationship between the characteristics of the respondents and the level of knowledge.

7. Research Ethics

Research Ethics (KEPK Poltekkes Kemenkes Yogyakarta No LB.01.01/-KE-02/XXV/614/2017 on May 23, 2017.

RESULTS

Based on the study result of 120 women as research subjects, here is the result:

Table 1. Respondent Characteristics

Characteristics	Category	Control Group		Intervention Group	
		n	%	n	%
Age	15 - 44 years old	35	58.3	44	73.3
	≥ 45 years old	25	41.7	16	26.7
Education	Basic Education	21	35.0	17	28.3
	Middle/Higher Education	39	65.0	43	71.7
Occupation	Working	19	31.7	27	45.0
	Not working	41	68.3	33	55.0
Parity	None	5	8.3	5	8.3
	≥ 1	55	91.7	55	917
Marital Status	Married	5	95.0	55	91.7
	Divorced	55	5.0	5	8.3
Family Income	< Rp. 1.572.200,-	47	78.3	34	56.7
	≥ Rp. 1.572.200,-	13	21.7	26	43.3
Distance to Health Services	Close	41	68.3	57	95.0
	Far	19	31.7	3	5.00
Perception of VIA Cost	Expensive	13	21.7	3	5.00
	Cheap	47	78.3	57	95.0
Perception of Papsmear Cost	Expensive	12	20.0	6	10.0
	Cheap	48	80.0	54	90.0

Based on Table 1, the characteristics of the respondents in the intervention and control groups are relatively the same. The majority of the research subjects were women of reproductive age, aged 15-44 years, had middle/ higher education, did not work, had given birth, had married status, earned less than the minimum wage, was close to health services, and perceived that the cost of VIA and Pap smears was cheap.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.21

Tabel 2. Description of knowledge level of respondents in the intervention and control group

Variable	Pre-test						Post-test					
	High		Middle		Low		High		Middle		Low	
	n	%	n	%	n	%	n	%	n	%	n	%
Intervention	34	56.7	24	400	2	3.3	49	81.7	11	18.3	0	0.001
Control	26	43.3	28	46.7	6	10.0	32	53.3	24	40.0	4	6.7

Based on Table 2, the number of respondents with good knowledge showed an increase in the intervention group and the control group.

Table 3. Analysis of The Mean Difference in Pretest and Posttest Knowledge Level in the Intervention and Control Group

Variable	Mean	Median	SD	Minimum-Maximum	Δ Mean	p
Intervention						
Pre-test	18.68	19.0	2.36	8.0-23.0	1.45	<0.001
Post-test	20.13	20.0	1.77	16.0-23.0		
Control						
Pre-test	17.46	18.0	2.87	7.0-22.0	0.85	0.004
Post-test	18.31	19.0	2.11	14.0-22.0		

Table 3 shows that the average of the level of knowledge in the intervention group and the control group from pretest to posttest increased.

The results of the Wilcoxon test on the level of knowledge in the pretest-posttest of the two groups were both significantly different with $p<0.05$. The p-value in the intervention group was <0.001 and the p-value in the control group was 0.004.

Table 4. Analysis of the mean difference on the posttest in the intervention and control group

Variable		Median (Minimum-Maksimum)/ n	Mean Rank / %	p
Knowledge Level	Intervention	20(16-23)	74.34	<0.001
	Control	19(14-22)	46.66	

Based on Table 4, the results of the analysis test on the posttest knowledge level score between the intervention and control groups showed a p-value <0.05, meaning that there was a significant difference in the level of knowledge between the two groups.

Based on Table 5, the results of the analysis test using the Chi-Square test can be seen that the level of education has a correlation with the level of knowledge. Other variables are not related.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.21

Table 5. Analysis of Correlation between Respondent Characteristic and Knowledge Level

Characteristics	Knowledge Level				p	PR	95% CI (Min.-Max.)
	High		Middle and Low				
	n	%	n	%			
Age							
15 - 44 tahun	55	69.6	24	30.4	0.491	1.09	0.83-1.44
≥ 45 tahun	26	63.4	15	36,6			
Education							
Basic	19	50.0	19	50.0	0.005	0.66	0.47-0.93
Middle/Higher	62	75.6	20	24.4			
Occupation							
Working	34	73.9	12	26.1	0.237	1.16	0.91-1.48
Not Working	47	63.5	27	36.5			
Parity							
None	9	90.0	1	10.0	0.113	1.38	1.07-1.76
≥ 1	72	65.5	38	34.5			
Marital Status							
Married	76	67.9	36	32.1	0.755	1.09	0.63-1.89
Divorced	5	62.5	3	37.5			
Family Income							
< Rp. 1,572,200	53	65.4	28	34.6	0.486	0.91	0.71-1.17
≥ Rp. 1,572,200	28	71.8	11	28.2			
Distance to Health Services							
Close	69	70.4	29	29.6	0.151	1.29	0.86-1.93
Far	12	54.5	10	45.5			
Perception of VIA Cost							
Cheap	68	65.4	36	34.6	0.207	0.81	0.61-1.06
Expensive	13	81.3	3	18.8			
Perception of Papsmear Cost							
Cheap	67	65.7	35	34.3	0.313	0.85	0.64-1.12
Expensive	14	77.8	4	22.2			

Tabel 6. Result of Multivariate Analysis of Respondent Characteristic and Knowledge Level

Variable	OR	p	95% CI	
			Lower limit	Upper limit
Education	3.10	0.006	1.38	6.98

Table 6 shows the results that there is only one variable that has a p value < 0.05, the education level variable with a p value of 0.006. The higher of education level, the better knowledge increases by 3.1 times than women with low levels of education.

DISCUSSION

The results of the study describe that most of the respondents have good knowledge. Knowledge according to Notoatmodjo (2010) is the result of knowing, and this occurs after a person has sensed a certain object. Sensing

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.21

through the human senses, that is the senses of sight, hearing, smell, taste, and touch. Most knowledge is obtained through the senses of sight (eyes) and hearing (ears). This is also in accordance with the theory by Riyanto (2013) that knowledge can be influenced by several factors such as education, information, age, different environments.

According to Riyanto (2013), one that affects knowledge is the source of information. The source of information is something that can be known, but there are also those who emphasize information as a transfer of knowledge.

The existence of new information about something provides a new cognitive foundation for the formation of attitudes (Azwar, 2009). So, in addition to counseling activities about cervical cancer, women can also access information from other mass media such as electronic media, print media, and others so that their knowledge and attitudes in early detection of cervical cancer may vary.

The effort needed to increase the participation of women in screening for cervical cancer is providing information about cervical cancer and how to prevent it. Providing information to women aged 40 years and over should use a special strategy so that the information provided can be absorbed optimally (Nene et al., 2007).

Pocket books are one of the print media, which are smaller in size than ordinary books. The contents of the pocket book include text, images and photos that make it clear for the reader to get an overview of the topic in the pocket book. According to Eliana and Solikhah (2012) a pocket book is a small pocket-sized book so it is effective to carry everywhere and can be read anytime when needed.

The results showed that most of the subjects were 15-44 years old. According to WHO, the age group of 15-44 years is a category of reproductive age. According to Riyanto (2013), age affects a person's perception, the older she gets, the more her capture power and mindset will develop.

In India, age has significant correlation with participation in screening of cervical cancer ($p<0.001$) (Nene et al., 2007). Study in Taiwan showed that age less than 30 years old increases the women participation of cervical cancer screening (Wang and Lin, 1996).

The study showed that most of respondents had middle/higher education. This is accordance with Simanjuntak (2007) that education can increase knowledge level and absorb practical knowledge in the environment.

The results of the study illustrate that most of the research subjects do not work. One of the factors that influence knowledge according to Riyanto (2013) is social, cultural and economic. Economic status will determine the availability of a necessary facility for certain activities so that socioeconomic status can affect knowledge. The economic status can be influenced by employment status, because most jobs make money.

This study showed that most of the respondents had given birth. Based on Riyanto (2013) experience is one of the factors that affect the level of

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.21

knowledge. One way to obtain the truth of knowledge is by repeating the knowledge that has been obtained in solving problems in the past.

Based on the results of the study, most of the research subjects were married. Winkler et al., 2008) found that married women increase participation in screening programs compared to unmarried women. Women who have been married (divorced and widowed) cause women not to undergo cervical cancer screening.

The results showed that most of the research subjects stated that the distance from their homes to health services was close. The results of this study are in accordance with Lee's research which states that low barriers, one of which is the distance from home and close examination sites can increase women's participation in cervical cancer screening programs (Lee et al., 2008).

The results of research by Lee et al., (2008) stated that most of the research subjects had the perception that the cost of an IVA or Pap smear was cheap. This is in accordance with research conducted in Korea that the free of charge to do a screening program, the community participation will be higher. If there are costs that must be paid to do a screening, the participation will be lower.

Tshering and Pandup (2014) shows that there is a significant relationship between older age and women's behavior for Papsmear. In addition, Tshring also mentioned that marital status and knowledge also influenced respondents to do a Pap smear.

The conclusion in this study is that the average knowledge score in the intervention group and the control group both increased. There was a difference in the level of knowledge between the intervention group and the control group. The results of the multivariate indicate that the level of education has an influence on the knowledge level in early detection of cervical cancer.

FUNDING AND SPONSORSHIP

This work was supported by Poltekkes kemenkes Yogyakarta.

ACKNOWLEDGEMENT

The author would like to say thank you to Director of Health Polytechnics, Ministry of Health Yogyakarta, and The Head of PUI Novakesmas Health Polytechnics, Ministry of Health Yogyakarta.

REFERENCE

Azwar S (2009). Sikap Manusia Teori dan Pengukurannya. Yogyakarta: Pustaka Pelajar.

Bensley R, Fisher J (2009). Metode Pendidikan Kesehatan Masyarakat Edisi 2. Jakarta: EGC.

Dhendup T, Tshering P (2014). Cervical cancer knowledge and screening behaviors among female university graduates of year 2012 attending national graduate orientation program. Bhutan. BMC Women's Health. doi.org/10.1186/1472-6874-14-44.

Eliana D, Solikhah (2012). Pengaruh Buku Saku Gizi terhadap Tingkat Pengetahuan Gizi pada Anak Kelas 5 Muhammadiyah

Dadapan Desa Wonokerto Kecamatan Turi Kabupaten Sleman Yogyakarta, Jurnal Kesmas UAD. 6(2): 162-232.

Herbert J, Coffin J (2008). Reducing patient risk for human papillomavirus infection and cervical cancer. The Journal of the American Osteopathic Association, 108(2), 65–70.

Lee EE, Fogg L, Menon U (2008). Knowledge and beliefs related to cervical cancer and screening among Korean American women. Western J Nurs Res. 30(8): 960–974.doi.org/10.1177/0193945908319250.

Nene B, Jayant K, Arrossi S, Shastri S, Budukh A, Hingmire S, Muwonge R, et al. (2007). Determinants of womens participation in cervical cancer screening trial, Maharashtra, India. Bulletin of the World Health Organization, 85(4): 264–272. doi.org-/10.2471/blt.06.031195.

Notoatmodjo S (2010). Promosi Kesehatan Teori dan Aplikasi. Jakarta : Rineka Cipta

Rasjidi I (2009). Deteksi Dini Dan Pencegahan kanker Pada Wanita. Sagung Seto. Bandung.

Riyanto BA (2013). Kapita Selekta Kuisioner: Pengetahuan dan Sikap. Jakarta: Salemba Medika.

Sasieni P, Cuzick J (2003). Epidemiology of gynaecological cancer. Dalam: Shaw RW, Soutter WP, Stanton SL, penyunting. Gynaecology. Edisi ke-3. Philadelphia: Elsevier Science. 513-7.

Simanjuntak, E. N (2007). Gambaran Pengetahuan Ibu Tentang Kanker Serviks di Dusun III Desa Limau Manis Kecamatan Tanjung Morawa Kabupaten Deli Serdang. Sumatera Utara: FKM USU.

Theresia E, Karnianingsih, Delmaifanis (2012). Pengetahuan Merupakan Faktor Dominan Perilaku Wanita Dalam Pemeriksaan Visual Inspection With Acetic Acid (VIA). Jurnal Madya. 13(2).

Wang PD, Lin RS (1996). Sociodemographic factors of Pap smear screening in Taiwan. Public health, 110(2), 123–127. doi.org/10.1016/s0033-3506(96)80059-x

Winkler J, Bingham A, Coffey P, Handwerker WP (2008). Women's participation in a cervical cancer screening program in northern Peru. Health education research, 23(1): 10–24. doi.org/10.1093/her/cyl156.

UNSAFE BEHAVIOR ON DOCKWORKERS AT LEWOLEBA SEA PORT

Maria M.Ure Wukak[1)], Noorce C. Berek[2)], Mustakim Sahdan[3)], Diana J. Nabuasa[4)]

Faculty of Public Health, Universitas Nusa Cendana

ABSTRACT

Background: Dockworkers are the individuals responsible for loading and unloading ships in busy harbors. In addition to loading and unloading cargo, often in perilous weather conditions, dockworkers have to maintain the piers, docks and shipping terminals of the ports where they work; they're also employed by shipyards to build and maintain ships. These activities come with their own risks, including falls from piers, injuries from construction equipment, and any of the other, sundry hazards encountered by the average factory worker or user of heavy machinery. This study aimed to investigate factors leading to unsafe behavior in stevedores at Lewoleba Sea Port.

Subject and Method: This study was conducted at Lewoleba Seaport in August-September 2019. This type of research is an analytic survey with a cross-sectional design. The population in this study was the entire dockworkers in Lewoleba Sea Port, with as many as 116 workers. A sample of 53 workers was selected using a simple random sampling method. The data were collected with questionnaires and analyzed using simple linear regression with $\alpha = 0.05$.

Results: Good knowledge (b= -0.92; 95% CI= 0.53 to 2.38; p<0.001), positive attitude (b= -0.56; 95% CI= 1.44 to 2.56; p= 0.002), and good supervision reduced unsafe behavior (b= -0.86; 95% CI= 1.07 to 2.80; p< 0.001).

Conclusion: Good knowledge, positive attitude, and good supervision reduce unsafe behavior.

Keywords: knowledge, attitude, supervision, unsafe behavior

Correspondence:
Noorce Christiani Berek. Faculty of Public Health, Universitas Nusa Cendana. Jl. Adi Sucipto Penfui, Kupang, East Nusa Tenggara. Email: noorce.berek@staf.undana.ac.id Mobile: 081228521127.

BACKGROUND

Occupational Helath and Safety (OHS) is an effort to protect workers so that workers are always safe and healthy while doing work in the workplace as well as for other people who enter the workplace as well as sources and production processes can occur safely and efficiently in their use (Indonesian Ministry of Manpower, 2015).

The International Labor Organization (ILO) estimates that 2.78 million workers die every year due to work accidents and occupational diseases. Around 2.4 million (86.3%) of these deaths were due to occupational diseases, while more than 380,000 (13.7%) were due to occupational accidents (ILO, 2018).

Based on BPJS Employment data, the number of work accidents in 2019 was 77,295 cases (BPJS Employment of the Republic of Indonesia, 2019). Work accidents are still one of the public health issues in the Province

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.22

of East Nusa Tenggara (NTT). Data from BPJS Employment for the Province of NTT reported that cases of work accidents in 2017 increased by 4 times compared to the previous year. Work accidents in 2016 were found to be 19 cases. This number increased significantly in 2017 to 76 cases. In 2018, work accident cases fell to 71 cases(BPJS Employment of NTT Province, 2019).

Accidents are generally caused by human actions that do not meet safety (unsafe human action)unsafesuch as not wearing personal protective equipment (PPE), working not according to procedures, working while joking, putting goods or work tools incorrectly, work attitudes, working near moving or rotating tools, fatigue, boredom, and others (Suma'mur, 2013). According to Suma'mur (2013), 80-95% of all work accidents that occur are caused by unsafe behavior. Meanwhile, the National Safety Council (NSC) stated that 88% of work accidents were caused by unsafe behavior (National Safety Council, 2011). Based on this, it can be concluded that human behavior is one of the elements that cause work accidents. Work accidents can be minimized by maximizing the realization of safe behavior during work.

Dockworkers is one part of the workers who need attention because the work process they do contains a lot of risks to accidents and health (Setiyowati and Siti, 2016). Dockworkers are the individuals responsible for loading and unloading ships in busy harbors. In addition to loading and unloading cargo, often in perilous weather conditions, dockworkers have to maintain the piers, docks and shipping terminals of the ports where they work; they're also employed by shipyards to build and maintain ships. These activities come with their own risks, including falls from piers, injuries from construction equipment, and any of the other, sundry hazards encountered by the average factory worker or user of heavy machinery. Dockworkers an inseparable part of Human Resources at ports because their functions and roles at ports are more specific in the field of loading and unloading goods, so they are called dockworkers (Sugiyono, 2012).

Lembata is one of the islands in NTT and has 2 ports, namely the Lewoleba Seaport and the Waijarang Ferry Port which are only devoted to ferries, while at the Lewoleba Seaport various ships enter and leave both PELNI ships and commercial ships, so loading and unloading activities at the Lewoleba Seaport is higher than at the Waijarang Ferry Port. Dockworkers activities at the Lewoleba Seaport include unloading goods on board, lifting and transporting goods from and to cargo ships and passenger ships. This activity is always supervised by supervisors, namely EB 2 or field foreman, Interpreter Teli 1, and Interpreter Teli 2 with details of working hours per day starting in the morning at 08.00-11.00, at 12.00 break time and continued at 13.00-16.00 in the afternoon.

The results of the initial survey based on the Annual Final Report of the Lewoleba Sea Port Dockworkers Cooperative, data on work accidents in the previous three years, namely in 2014-2016 amounted to 27 people with

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.22

details of 2 people dying of illness due to cement dust that was inhaled while working unloading cement, 4 people were crushed by cement, 2 people fell from a car, 2 people were crushed by electric poles and 17 of them got sick because they got zinc scratches on their hands, iron scrapes on their feet and inhaled cement dust. Whereas in 2017 and 2018 the number of accident cases for workers was 6 people, with details of 4 people having accidents because they were crushed by a drum containing TER and pressed by cement, 2 people got sick from cement dust and were stabbed by iron in their feet and hands while unloading goods from ships (TKBM Cooperative, 2019).

The results of an interview with one of the dockworkers, work accidents that often occur are caused by unsafe behavior of workers, namely when unloading and transporting cement, electricity poles, TER drums they do it in a hurry, carry excessively and impose their abilities, punctured by iron, zinc, and fell out of the car due to careless, and hasty work. In addition to unsafe behavior, the dockworkers also do not wear PPE (Personal Protective Equipment) when carrying out activities to unload and lift goods from the ship and to the ship such as shoes, hats, gloves, masks so that they are often exposed to cement dust and there are even some of them who don't use sandals because they think the stairs are very slippery and some work in shorts. Unsafe behavior dockworkers often occurs even though there is supervision, but they think they are used to this kind of thing but if it continues it will cause accidents, work-related diseases, and even death every year. Causes Unsafe behavior that often occurs is an error due to lack of motivation so that they often work in a hurry because they want to finish quickly, take shortcuts, want to feel comfortable, and are lazy to wear PPE.

Dockworkers at Lewoleba Seaport have work procedures but regarding Personal Protective Equipment there is no procedure, if there is an incoming cargo ship or fleet, all workers must come before 08.00 am and start working right at 08.00. Dockworkers is divided into 2 groups or teams, namely team A and team B, dockworkers activities occur at 2 locations, namely at the port and in the warehouse, the work system of these two teams is carried out alternately, for example, there are cargo ships that enter team A at the port and the team B was in the warehouse, from team A, they were divided into 2 groups, one group unloaded the goods on the ship while the rest were in the truck or outside the ship, the goods were unloaded by the first group hooked to a crane, to move this tool there was one person on the top of the ship. to move and control the cran, another group is on the truck to release goods from the crane and arrange them into the truck, while team B is also divided into 2 groups, one group following the truck to the warehouse and unloading goods from the truck into the warehouse while the other group lift it from the truck and arrange it in the warehouse.

The behavior of the dockworkers observed during the initial survey, they work in shorts, they use sandals and clothes or cloth to cover their nose and mouth from cement dust when unloading cement, as well in a truck they sit

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.22

on a load that will be brought to the warehouse. The dockworkers activities they carry out on passenger ships, each worker looks for passengers who need their energy to lift goods from port to ship and from ship to port, these goods transport activities are carried out quickly and in a hurry so that they can get passengers. These behaviors can jeopardize the health and safety of the dockworkers. Working in a hurry and not using PPE can cause work accidents while working without wearing a mask causes frequent exposure to harmful dust and can cause respiratory disorders, so to overcome this problem it is necessary to take preventive measures at the dockworkers, but before taking precautions, it must be done. first, find out what factors influence the behavior of thedockworkers.

The formulation of the problem in this study is the analysis of factors that influence unsafe behavior indockworkers at the Lewoleba Seaport? This study aims to analyze the factors that influence the dockworkers at the Lewoleba Seaport. Research hypothesis: there is an effect of knowledge, attitude, and supervision on unsafe behavior on dockworkers at Lewoleba Seaport.

SUBJECTS AND METHOD

1. Study Design

This type of research is an analytic survey with a cross-sectional design. This research was conducted at Lewoleba Seaport in August–September 2019.

2. Population and Sample

The population in this study were all dockworkers at Lewoleba Seaport as many as 116 workers. A sample of 53 workers was selected using the simple random sampling method.

3. Study Variables

The dependent variable of the study is unsafe behavior, while the independent variables of the study are knowledge, attitudes, and supervision.

4. Operational Definition of Variables

Unsafe behavior is a failure (human failure) in following the correct work requirements and procedures, causing work accidents. Knowledge is the respondent's ability to think and know several things about hazards and risks in the workplace and their control. Attitude is the tendency or reaction response of workers to take actions that are by safety. Supervision is the perception of workers against what is done by their superiors.

5. Study Instruments

The instrument for using the data used is a questionnaire sheet about factors related to unsafe behavior in dockworkers.

6. Data Analysis

This study uses simple regression analysis with= 0.05. Before performing a simple regression analysis of the data, the classical assumption test was carried out first. to determine the feasibility of a regression model. In this study, the classical assumption tests used are: the normality test aims to determine whether the data distribution is normally distributed or not. To find out the linearity assumption, it can be seen from the Anova table (overal F test), if the results are significant (p-value <0.05) then the assumption of linearity fulfilled, and the multicollinearity test aims to determine whether the independent

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.22

variables are strongly correlated. After the data is analyzed the data is presented in the form of tables and narratives.

7. Research Ethics

This study was ethically approved by Health Faculty Ethics Review Team Community, Nusa Cendana University with Ethical Approval Number: 2019042-KEPK.

RESULTS

Table 1 shows the analysis of the effect starting with the assumption test, which consists of tests for normality, linearity, and multicollinearity. The test results show that the data in this study have met the requirements and can be continued in hypothesis testing with linear regression testing.

Table 1. Descriptive Statistics

Variables	Mean	SD	Min.	Max.
1. Knowledge	8.28	1.31	8.28	10
2. Attitude	13.77	1.65	13.77	18
3. Supervision	16.11	1.22	16.11	18
4. Unsafe Behavior	16.32	2.05	16.32	20

Table 2. Results of the Regression Linear Regression

Model	b	SE	β	p
(Constant)	8.90	1.49		0.001
Sciences	-0.92	0.21	0.52	0.001
(Constant)	16.13	2.33		0.001
attitude	-0.56	0.17	0.42	0.002
(Constant)	9.95	3.55		0.007
Monitoring	-0.86	0.22	0.48	0.001

Table 2 shows that after a simple linear regression test, the results obtained are that knowledge has a significant and significant effect on unsafe behavior with a value of B=-0.922 and a value of P=0.001, meaning that if the knowledge value increases by 1, the unsafe behavior of dockworkers in Lewoleba Seaport decreases of -0.922 or the value of knowledge increases, it will decrease the value of unsafe behavior. Attitude has a significant influence on unsafe behavior with a value of B=-0.562 and a value of P=0.002, meaning that if the attitude value increases by 1 then the unsafe behavior of dockworkers in Lewoleba Seaport decreases by -0.562 or the attitude value increases it will decrease the value of unsafe behavior. safe. Supervision has an influence on the unsafe behavior of dockworkers at Lewoleba Seaport with a value of B=-0.864 and a value of P=0.001, meaning that if the supervision value increases by 1, the unsafe behavior of dockworkers at Lewoleba Seaport decreases by -0.864, or the value of supervision increases. the monitoring value will decrease.

DISCUSSION

The Effect of Knowledge on Unsafe Behavior

Knowledge of a worker affects a person's mindset in dealing with the work entrusted to him, including how to prevent accidents and avoid work accidents when doing his job. Knowledge of cognition is a very important

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.22

dominant in shaping one's actions (Geller, 2001). The knowledge referred to in this study is knowledge about Occupational Health and Safety in the process of dockworkers at the Lewoleba Seaport which includes the introduction of risks/hazards in the work environment, the use of PPE, regarding accident prevention measures, and others.

The results of the simple regression test show that there is a significant effect between knowledge and unsafe behavior on dockworkers at the Lewoleba Seaport. This is in line with the opinion Notoatmodjo (2003), where behavior based on knowledge, awareness, and a positive attitude will last a long time. On the other hand, if the behavior is not based on knowledge and awareness, it will not last long.

A person's knowledge can be influenced by the level of education, where the higher a person's education the better his knowledge. The education level of the respondents in this study was elementary, junior high, and high school/vocational school. Looking at the level of education of the respondents, it can be said that the respondents do not have good thinking power so that their knowledge of the importance of using PPE, concentration at work, and behaviors that risk the occurrence of work accidents are still not maximized. The results of the interviews revealed that so far the respondents had only attended OHS counseling once and had not participated in job training. The education obtained greatly influences the behavior of workers, in addition to formal education, non-formal education such as counseling and training also affects the behavior of workers at work.

Knowledge of dockworkers at Lewoleba Seaport is also influenced by age. With increasing age, a person will be able to show rational thinking patterns, be more able to control emotions and other traits that show intellectual and psychological maturity (Suma'mur, 1996). Based on the results of interviews, it is known that most of the dockworkers at the Lewoleba Seaport are between the ages of 21-35 years, which is still a young age. Workers at a young age tend to have unstable emotions and underestimate the dangers and risks that exist in the workplace so that they can make workers less careful at work.

This study is in line with Bancin (2016), which found that there was an influence between knowledge and unsafe acts. Research Pratiwi (2012) also found that workers' knowledge had a significant relationship with unsafe behavior. Increased knowledge does not always lead to changes in behavior. Knowledge is something that is necessary but not a strong enough factor so that a person acts according to his knowledge. Lack of knowledge of Occupational Health and Safety (OHS) in the work environment makes it difficult for a person to know the potential hazards around him, making it difficult to determine actions to control these potential hazards. Therefore a person will become less aware of the risks that can arise from his behavior during work (Halimah, 2010).

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.22

Influence of Attitudes on Unsafe Behavior

Attitude is a complex matter, which can be expressed as an evaluative statement, either pleasant or unpleasant. In addition, attitudes can also be in the form of judgments about objects, people, and events related to safe behavior (Robbins at al., 2001). Attitude is an important determinant of work safety (Winarsunu, 2008).

The results of this study indicate that there is a significant influence of attitudes towards unsafe behavior. The existence of this significant effect is because the dockworkers at the Lewoleba Seaport often drink before work or after their lunch break. Judging from the number of respondents who answered the question "I will not work drunk" as many as 47 people or 90%, this is because the dock workers in Lewoleba admit that they will be more enthusiastic at work if they are drunk even though there has been a warning from the foreman but they don't follow it.

The results of this study are in line with Agiviana (2015), which found that there was a positive and significant influence between attitude towards safety behavior. Attitude affects behavior if a person believes that he is doing it then he will know the results. Attitudes can also be seen from the impact of these behaviors, both positive and negative impacts on the workforce (Ajzen, 2005).

The Effect of Supervision on Unsafe Behavior

Supervisors are key in influencing the knowledge and attitudes of workers who are in their responsibilities. Supervisors are very important to give warnings to workers who do unsafe acts or give praise when workers follow work procedures well (Halimah, 2010).

The results of the simple regression test show that there is a significant effect between supervision and unsafe behavior. The better the level of supervision, the less chance for unsafe behavior to occur. Supervision can be said to be successful if the manager or supervisor conducts inspections, checks, controls inspections, and regulates and prevents possible events that may occur (Sarwono, 1997). The results of the study found that supervision was carried out by the foreman according to the implementation schedule, namely every working hour if there was a fleet. Based on the results of observations and interviews with the foreman, it is known that workers have often been given warnings if they work drunk, but they say that they will be more enthusiastic and faster when working when they are drunk. The PPE owned by the workers is still limited, they only use masks when unloading cement, while apart from dusty items such as cement they do not use PPE, such as shoes, gloves, hats, etc. They also don't have their work uniforms, only the clothes that are used when there is a passenger ship so that passengers can recognize them.

The results of the interview with the head of the dockworkers at Lewoleba Sea Port, uniforms, and other PPE are planned for next year at the latest. So the presence or absence of a foreman or supervisor supervising

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.22

them does not guarantee them to behave safely. However, this does not mean that supervision is not needed to change the behavior of workers, on the contrary, the implementation of routine supervision will encourage workers' motivation to behave safely.

This study is in line with Suryanto (2017), which found that the lower the supervision, the greater the risk ofunsafe actionand vice versa, the better the supervision, the risk of unsafe actionsmaller. According to Bird and Germain (1990), supervisors have a key position in influencing the knowledge, attitude, skill, and habit of each worker's safety. The role of the supervisor is very important to notify or give a warning to workers who do unsafe acts and praise workers who follow work procedures.

The unsafe behavior of dockworkers at Lewoleba Seaport is influenced by factors of knowledge, attitude, and supervision. Good knowledge, a positive attitude, and good supervision will reduce unsafe behavior in dockworkersin the workplace. The dockworkers cooperative as an organization that accommodates dockworkers needs to provide assistance, supervision, and provision of OHS facilities. The availability of the facilities in question is personal protective equipment such as work glasses, masks, and gloves. The availability of OHS facilities is one of the supporting factors in forming safe behavior at work.

FUNDING AND SPONSORSHIP

This research is self-funded.

ACKNOWLEDGEMENT

We thank the dockworkers at the Lewoleba Seaport who have allowed this research and to the Faculty of Public Health, Nusa Cendana University, Kupang who always provides both material and non-material assistance so that research can proceed smoothly.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Bancin AB (2016) Factors affecting unsafe actions on workers at pt. kharisma cakranusa rubber industry in 2016. University of Northern Sumatra.

Ajzen I (2005) Attitudes, personality, and behavior. 2nd Editio. New York: Open University Press/ McGraw-Hill.

Agiviana AP, Indi D (2015). Analysis of the effect of perception, attitude, knowledge and workplace on employee safety. Diponegoro J Manage. 4(3): 1–9. https://-ejournal3.undip.ac.id/index.php/djom/article/view/13185.

Pratiwi AD (2012) Analysis of factors affecting action unsafe (unsafe act) on workers to workers at pt.x in 2011. Faculty Public Health University of Indonesia.

Bird Jr FE, Germain GL (1990) Practical loss control leadership. Revised Ed. USA: Division Of International Loss Control Institute Loganville, Georgia.

BPJS Employment of NTT Province (2019) Number of work accidents in ntt province year 2018.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.22

BPJS Employment of the Republic of Indonesia (2019) Work Accident Data. Jakarta.

Suryanto DID, Noeroel W (2017). Relationship between individual characteristics and k3 supervision with unsafe action for loading and unloading workers. Indones J Public Health. 12(1): 51–63. http://dx.doi.org/10.20473/ijph.v12i1.2017.51-63.

Geller ES (2001) The pshychology of safety handbook. USA: Boca Raton, Fla. : Lewis Publishers.

Halimah (2010) Factors that affecting safe behavior employees at pt. sim plant fat. Jakarta.

ILO (2018) Improving the safety and health of young workers. 1st Editio. Jakarta: International Labour Organization. Available at: https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_625223.pdf.

Indonesian Ministry of Manpower (2015). Decree of the minister of manpower of the republic of Indonesia number 370 of 2015 concerning stipulation of indonesian national work competency standards.

National Safety Council (2011) Injury facts. 2011 Editi. Itasca: IL:Author.

Notoatmodjo S (2003) Health education and behavior. Jakarta: PT. Rineka Cipta.

Robbins, Stephen P, Iskandarsyah, Triyana P, Hadyana (2001) Behavior organization: concept, controversy, application. Eighth edi. Jakarta: Prenhallindo. Available at: https://lib.ui.ac.id/detail.jsp?id=120938.

Sarwono SW (1997) Social psychology; group psychology and applied psychology. Jakarta: Balai Pustaka.

Setiyowati, Siti (2016) Implementation of the use of personal protective equipment as an effort to protect workers at pt bayer indonesia-bayer cropsceince. Surakarta: Eleven March University.

Sugiyono (2012) Loading and unloading manpower and human resources at the port. Jakarta.

Suma'mur PK (1996) Ergonomics for work productivity. Jakarta: CV Haji Masagung.

Suma'mur PK (2013) Corporate hygiene and occupational health. Jakarta: Sagung Seto.

TKBM Cooperative (2019) Lewoleba seaport tkbm cooperative annual final report.

Winarsunu T (2008) Psychology work safety. Cet. 1. Malang: UP University Publishing Muhammadiyah Malang.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.22

APPLICATION OF INFORMATION-MOTIVATION-BEHAVIOR MODEL IN ANTI RETROVIRAL THERAPY ADHERENCE AMONG ADOLESCENTS IN MANOKWARI, WEST PAPUA

Niluh Gede Susantie[1)], Ivonne Junita Fabanjo[1)], Arnoldus Tiniap[2)]

[1)]Diploma III Program in Nursing, School of Health Polytechnics, Ministry of Health, Sorong, West Papua
[2)]Provincial Health Office, Sorong, West Papua

ABSTRACT

Backgroud: HIV medication adherence is important to help people with HIV live longer and healthier. Taking HIV medicines every day prevents HIV from multiplying, which reduces the risk that HIV will mutate and produce drug-resistant HIV. Skipping HIV medicines allows HIV multiply, which increases the risk of drug resistance and HIV treatment failure. The IMB is a health behavioral change model that includes three primary constructs: (1) Information and knowledge about the behavior; (2) The individual's motivation to perform the behavior; and (3) The behavioral skills necessary to perform the behavior. This study aimed to determine factors affecting adherence to antiretroviral therapy (ART) using IMB model among patients with HIV/AIDS.
Subjects and Method: This was a cross-sectional study conducted at Amban Community Health Center in Manokwari, West Papua. A sample of 21 adolescents aged 15 – 24 years who were diagnosed with positive HIV and had undergone ART for least 3 months, was selected for this study. The dependent variable was ART medication adherence. The independent variables were information, motivation, and behavioral skills. The data were collected by the Standard Life Windows Information, Motivation, and Behaviour skills ART Adherence Questionnaire (LW-IMB-AAQ). The data were analyzed using simple logistic regression.
Results: Adherence to ART medication increased with better information (OR= 2.21; p= 0.023), stronger motivation (OR= 2.75; p= 0.008), and better medication taking skills (OR= 3.41; p= 0.027).
Conclusion: Adherence to ART medication increases with better information, stronger motivation, and better medication taking skills. Further studies with larger sample size are needed to allow the use of a better analysis model such as multiple logistic regression or path analysis.

Keywords: IMB model, ART, HIV/AIDS, adolescents

Correspondence:
Ivonne Junita Fabanjo. Diploma III Program in Nursing. School of Health Polytechnics, Ministry of Health, Sorong, West Papua. Email ijunitaf73@gmail.com.Mobile: 087896465.

BACKGROUND

Adolescence is a critical transition period, marked by rapid and unique physical and biological growth, as well as intellectual, behavioral, emotional, and social development. This period is marked by the characteristics of secondary sex growth or puberty (reproductive maturity), increased independence and responsibility, and finding one's identity (Southern African HIV Clinicians Society, 2017).

The population of adolescents in the world reaches 1.2 billion people or

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.23

1 in 6 of the world's population is adolescents aged 10 to 19 years, most of them are healthy, but there are still quite large deaths due to illness and injury among adolescents. The use of alcohol or tobacco, lack of physical activity, unsafe sex and experiencing violence can inhibit optimal adolescent growth and development (WHO, 2018).

According to the WHO 2018 it was estimated that around 2.1 million adolescents were living with HIV in 2015, and the most was in Africa, although the overall number of deaths due to HIV has decreased since 2016, most of the youth with HIV are not aware of their status, and many are even aware of their status. already know the status but did not receive anti-retroviral treatment.

Worldwide, every three minutes a young woman aged 15 -19 years in 2017. Adolescent girls are more at risk of contracting and are responsible for two out of three new HIV infections. Young women and youth members of key populations (men who have sex with men, injecting drug users, young sex workers, teenagers who are lesbian, gay, bisexual, transgender) are the groups most at risk of contracting HIV (Unicef, 2018).

According to Fisher 2006 states that information, motivation and ability to behave are fundamental determinants of behavior. The results of research by Horvath, PLWHA show that information (knowledge) and motivation affect the level of adherence of PLWHA through the ability to behave. The IMB Model of ART Adherence is a behavioral model that specifically addresses ARV medication adherence in HIV patients (Fisher, 2006). According to Amico (2006) IMB Model of ART Adherence contributes greatly to encourage efforts to prolong and improve the quality of life of HIV patients on ART through behavior change interventions.

Data on the number of AIDS cases per 100,000 population in West Papua is still the highest category in Indonesia, which is 216.46 where the national figure was only 28.45 in 2017. HIV cases in West Papua increased in the 20-24 year age group and were highest in the 24-year age group. 49 years old (Health Profile of West Papua Provincial Health Office, 2018).

People living with HIV/AIDS must comply to continue taking ART drugs, from data from the Health Department of West Papua Province in 2016 that PLWHA in Manokwari Regency who are eligible for antiretroviral therapy as many as 1263 people, but only 737 who have started ART and who are still actively undergoing therapy only 331 patients, this shows low awareness to remain compliant with therapy (BALITBANGKES, Papua, 2019).

Lack of information on Adolescents with HIV/AIDS about ARV therapy and the low motivation of HIV/AIDS Adolescents in undergoing ARV therapy on a regular basis have an influence on behavioral skills; HIV adolescents are inadequate and consistent in undergoing ARV therapy.

SUBJECTS AND METHOD

1. Study Design

The design used in this study is a cross-sectional study which took place from July to September 2019.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.23

2. Population and Sample

The population in this study were adolescents aged 15 – 24 years who were diagnosed as HIV positive and had undergone ARV therapy for at least 3 months in the working area of the Amban Health Center totaling 21 people, the Total Sampling Technique which is part of the Nonprobability Technique that will be used in this study.

3. Variable

The dependent variable is adherence to ARV. The independent variable is the Information-Motivation-Behavior Skills model.

4. Operational Definition of Variables

a. Independent Variable

1) **Information**: Everything the respondent knows about ARV therapy regimens, drug side effects, medication adherence.
2) **Motivation**: The desire or encouragement of the respondent to maintain the level of compliance
3) **Behavioral skills:** The ability or methods taken by the respondent to maintain or increase the level of compliance

b. Dependent Variable

Medication Compliance: The behavior shown by the respondent in taking ARV drugs according to the therapy regimen.

5. RESEARCH INSTRUMENT

The tool used in data collection in this study was the standard Life Windows Information Motivation Behavioral Skill ART Adherence Questionnaire (LW-IMB-AAQ) questionnaire (The Lifewindows Project Team, 2006). This questionnaire consists of 33 questions, 9 questions about information, 10 questions about motivation, 14 questions about behavioral skills. Questions regarding information on the score strongly agree is worth 1, other responses are worth 0. Questions about motivation, scores strongly disagree are worth 1, other responses are worth 0, questions M4 and M5 score strongly agree are worth 1, other responses are 0. Questions about behavioral skills, questions B1 Score strongly agree and do not drink alcohol or drugs is worth 1, other responses 0. Questions B2-B14 Very easy score is worth 1, other responses. While measuring compliance using the Morisky Medication Adherence Scale).

6. Data Analysis

a. Univariate Analysis

Univariate analysis used in this study is to describe the overall data that has been collected as it is without making conclusions that apply in general. In this study using the Proportion test to describe the demographic data or characteristics of the respondents.

b. Bivariate Analysis

Statistical analysis of the data used in this study is logistic regression analysis. Logistic regression analysis is a regression that tests whether there is a probability that the dependent variable can be predicted by the independent variable.

Logistic regression analysis does not require a normal distribution in the independent variables. Therefore, logistic regression analysis does not need to test for normality, heteroscedasticity test, and classical assumption test on variables.

RESULTS

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.23

1. Respondents Characteristic

Table 1. Characteristics of the Respondents

Characteristics	n	%
Age (year)		
15 - 18	4	19
19 - 21	6	29
22 - 24	11	53
Gender		
Male	5	24
Female	16	76
Education		
PS	-	0
JHS	4	19
SHS	13	62
College	4	19

Based on table 1 shows that the age of most respondents is 22 -24 (53%), respondents by gender are mostly women 16 (76%) and high school education is 13 (62%).

2. Bivariate Analysis

Table 2. Effect of information, motivation, behavioral skills on adherence to taking medication

Variable	b	p
Information	-0.03	0.602
Motivation	-0.04	0.596
Behavioral skills	-0.16	<0.001

Table 2 shows that there is no effect between information and motivation with adherence to ART. There was an effect between behavioral skills and adherence to ART (b= -0.16; p<0.001).

DISCUSSION

1. Information

Based on table 2, information or knowledge shows that there is no effect between information and adherence to ART. Information is basic knowledge about disease, health conditions, correct information about compliance that must be owned by people with HIV / AIDS is about the ART regimen, dosage, time to take medication, side effects and the impact of non-adherence to therapy (Sucerni, Sudirman, & Afni, 2019).

Adherence to ART is a factor that significantly extends the life expectancy of people living with HIV/AIDS. Research conducted by Surilena and Valeria in 2015 showed that knowledge, side effects, depression, peer support are factors that determine adherence to ART, the most dominant factor being knowledge. The results of this study are not in line with the research of Surilena and Valeria because there are many other factors that influence obedience, the research conducted by Stefanie Hornschuh, Janan Janine Dietrich, Celokuhle Tshabalala, and Fatima Lah 2017 in Saweto South Africa about the

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.23

knowledge and experiences of adolescents and adults about ART shows that despite good knowledge about ART, there are several situations and conditions that can prevent their adherence to ART such as fear of disclosure of HIV status, HIV-related stigma, alcohol use and drug abuse, forgetfulness, overly complex ART regimens, side effects, transportation and financial costs.

The results of this study are also in line with research conducted by Sucerni, Surdirman and afni (2019) which showed that there was no relationship between information and adherence to ART. The results of this study are not in accordance with the Information-Motivation-Behaviour theory which says that information is one of the main factors that can influence individual behavior to prevent disease and adherence to therapeutic regimens (Amico, et al, 2005).

2. Motivation

Data from table 2 shows that motivation does not affect adherence to ART. Motivation is a form of attitude which is the impact of obedient and disobedient behavior. Research conducted by Sung-Hee Kim, et al about the importance of self-motivation and social support in medication adherence in HIV-infected adolescents in the UK and Ireland, the results show that self-motivation such as adolescents who have routines and specific self goals, and social support from family and peers strongly supports adolescent adherence to ART. Puspitasari (2017) shows that motivation affects the consumption of taking medication. The results of this study are not in accordance with the research that has been done because motivation is an impulse that moves individuals to behave positively towards the desired goals and this motivation can come from both within the individual and from outside the individual's non-compliance with family or friends (Puspitasari). Lacking, both from within the individual and from outside the individual, there will definitely be non-adherence to ART. Motivation is very important for people with HIV/AIDS in undergoing therapy and increasing adherence.

3. Behavioural skill

The results of the study indicate that there is an influence between behavioral skills and adherence to ART. People living with HIV/AIDS (PLWHA) need behavioral skills that ensure that patients have the behavioral strategies needed to perform compliance behaviors such as asking for social support and self-management (Zeleke, 2015). Behavioral skills possessed by PLWHA can affect the level of adherence, so behavioral skills are needed to be able to manage their own therapeutic regimen, ways to deal with side effects which will ultimately increase the level of adherence of PLWHA to ART (Fisher, 2006). This study is in line with Hovart (2015) which showed that behavioral skills had an effect on ART adherence. The behavioral skills component of adherence to the IMB model consists of the individual's objective ability and perceived self-efficacy related to adherence to ART and the individual's ability to take preventive action, ensuring that the individual is able to self-administer therapy regimens, minimize or overcome side effects,

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.23

communicate effectively with staff health, and motivate oneself to adhere to the ART regimen.

REFERENCES

Amico KR, Barta W, Konkle-Parker DJ, Fisher JD, Cornman DH, Shuper PA, Fisher WA (2009). The information-motivation-behavioral skills model of ART adherence in a Deep South HIV+ clinic sample. AIDS and behavior, 13(1): 66–75. doi.org/10.-1007/s10461-007-9311-y.

Balitbangkes Provinsi Papua (2019). Genotipik. resistensi hiv-1, efekterapi, dan kepatuhan minum obat pada orang dengan hiv/aids di kabupaten manokwari, kota sorong, dan kabupaten fakfak di provinsi papua barat (genotypic. HIV-1 resistance, therapeutic effect, and medication adherence in people with HIV/AIDS in Manokwari District, Sorong City, and Fakfak District in West Papua Province). Jayapura: Balitbangkes Provinsi Papua Barat.

Dinkes Provinsi Papua Barat (2018). Profil Kesehatan Provinsi Papua Barat tahun 2018 (West Papua Province Health Profile 2018). Manokwari: Dinkes Provinsi papua Barat.

Fisher JD, Fisher WA, Amico KR, Harman JJ (2006). An information-motivation-behavioral skills model of adherence to antiretroviral therapy. Health psychology : official journal of the Division of Health Psychology, American Psychological Association, 25(4), 462–473. doi.org/10.1037/-0278-6133.25.4.462

Horvart KJ, Smolenski D, Amico KR (2015). An Empirical Test of the Information-Motivation-Behavioral Skills Model of ART Adherence in a Sample of HIV-Positive Persons Primarily in Out-of-HIV-Care Settings. AIDS Care 26 (2): 142-151. doi.org/10.1080/-09540121.2013.802283.

Puspitasari DE (2016). Analisis Faktor Yang Mempengaruhi Kepatuhan Minum Obat Antiretroviral (ARV) Pada Pasien HIV Berbasis Information Motivation Behavioral Skills (IMB) Model Of Antiretroviral Therapy (ART) Adherence Di Poli UPIPI RSUD Dr. Soetomo (Analysis of Factors Affecting Compliance with Antiretroviral Drugs (ARV) in HIV Patients Based on Information Motivation Behavioral Skills (IMB) Model Of Antiretroviral Therapy (ART) Adherence At UPIPI Poly Hospital Dr. Soetomo). Skripsi; Universitas Airlangga.

Southern African HIV Clinicians Society (2017). Guidelines for adherence to antiretroviral therapy in adolescents and young adults. Johannesburg, South Africa: Southern African HIV Clinicians Society

Hornschuh S, Dietrich JJ, Tshabalala C, Laher F (2017). Antiretroviral Treatment Adherence: Knowledge and Experiences among Adolescents and Young Adults in Soweto, South Africa. AIDS research and treatment. 5192516. doi.org/10.1155/2017/5192516.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.23

Surilena S, Valeria J (2015). Knowledge of HIV-AIDS a dominant factor of antiretroviral therapeutic adherence in women with HIV-AIDS. Universa Medicina. 34(2): 129–137. doi.org/10.18051/UnivMed.2015.v34.129-137

Kim SH, McDonald S, Kim S, Foster C, Fidler S. (2015). Importance of self-motivation and social support in medication adherence in HIV-Infected adolescents in the United Kingdom and Ireland: A Multicentre HYPNet Study. AIDS patient care and STDs, 29(6): 354–364. doi.org/-10.1089/apc.2014.0335.

Sucerni, Sudirman, Afni N (2019). Hubungan informasi dan motivasi dengan kepatuhan minum obat ARV pada pasien HIV-AIDS di Poli PDP RSUD UNDATA Provinsi Sulawesi Tengah (Relationship of information and motivation with adherence to taking ARV drugs in HIV-AIDS patients at the PDP Poly Hospital UNDATA Central Sulawesi Province). Jurnal Kolaboratif Sains. doi.org/10.31934/jom.v1i1.844

Unicef (2018). HIV and AIDS. Diakses tanggal 2 Agustus 2019. https://www.unicef.org/hiv

World Health Organization (2018). Adolescents: health risk and solution. Accessed August 2019 https://www.who.int/news-room/fact-sheets/detail/adolescents-health-risks-and-solutions

Zeleke AB (2015). Evaluation of the impact of the information-motivation- behavioural skills model of adherence to antiretroviral therapy in ethiopia.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.23

CORRELATION OF ATTITUDE AND READINESS OF NEW NORMAL BEHAVIOR IN COVID-19 PANDEMIC IN TASIKMALAYA, WEST JAVA, INDONESIA

Imas Masturoh, Andi Suhenda, Fery Fadly

Department of Medical Record and Health Information, Health Polytechnics
Ministry of Health, Tasikmalaya, West Java, Indonesia

ABSTRACT

Background: The COVID-19 pandemic is far more than a health crisis: it has unpredictably changed our whole way of life. To stop the COVID-19 pandemic, it is imperative to institute effective infection prevention and control practices globally, nationally, and at the community level. Consequently, it is urgent to understand the public knowledge, reactions, adherence to, and acceptance of such measures that affect their daily life in several ways, especially psychologically, socially, and physically. The purpose of this study was to examine the correlation of attitude and readiness of new normal behavior in the COVID-19 pandemic.
Subjects and Method: This was a mixed-method study conducted in Tasikmalaya, West Java, Indonesia, from July to December 2020. A sample of 254 study subjects aged >15 years was selected for a quantitative study. The dependent variable was the readiness to face new normal behavior in the COVID-19 pandemic. The independent variable was attitude. The qualitative data were collected by in-depth interviews. A quantitative study was assessed by Chi-square.
Results: Positive attitude was positively associated with the readiness of new normal behavior in the COVID-19 pandemic (OR= 2.88; 95% CI= 1.70 to 4.90; p= 0.001) and it was statistically significant. The results of the in-depth interview show that the obstacles that occur in dealing with COVID-19 in the city of Tasikmalaya are the lack of public awareness, the existence of community stigma against sufferers, weak central and local government policies, and lack of socialization.
Conclusion: Positive attitude is positively associated with the readiness of new normal behavior in the COVID-19 pandemic.

Keywords: attitude, readiness, new normal, COVID-19 pandemic.

Correspondence:
Imas Masturoh. Department of Medical Record and Health Information, Health Polytechnic Ministry of Health, Tasikmalaya. Email: imas.mth@gmail.com. Mobile: 081320133137.

Keywords: Knowledge, Attitude, Practice, COVID-19

BACKGROUND

Coronavirus Disease 2019 (COVID-19) is a new type of disease that has never been previously identified in humans. The virus that causes COVID-19 is called Severe acute respiratory syndrome coronavirus 2 (Sars-CoV-2). This virus spreads very quickly and has spread to almost all countries, including Indonesia. The Covid-19 case in Indonesia began with the positive statement of COVID-19 on 2 March against two Indonesian citizens after contact with a Japanese citizen who came to Indonesia and on 11 March 2020 for the first time there

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.24

was an Indonesian citizen who died, namely a man. -a 59-year-old man, is known to have previously attended a seminar in the city of Bogor. Since then the number has continued to grow, it was reported that in less than three months the number of Covid-19 cases in Indonesia increased rapidly, on 17 May 2020 the number of Covid-19 cases was 17,514 people spread across several provinces with 1148 people who died (CFR = 6.5%). The number of covid-19 in West Java province ranks third after DKI Jakarta and East Java, namely 1621 people with 110 people who died (CFR= 6.7%) (Ministry of Health, 2020).

Covid-19 has had a tremendous impact on all people and all aspects of life. The health aspect as the front line in prevention and treatment is directly felt in the face of this covid-19 pandemic, as reported by the COVID-19 handling group stating that at least 55 health workers have died due to COVID-19 in Indonesia. WHO states that the high number of risks to health workers is caused, among others, by the length of exposure and the amount of exposure to the virus. This factor is exacerbated by the scarcity of PPE, lack of knowledge regarding the use of PPE and the many cases of patients who are dishonest when seeking treatment due to fear of stigma.

The spread of COVID-19 is not only a health problem because it causes other problems in various aspects of people's lives, such as economic, political, defense, security, social, educational and even cultural issues. Various efforts have been made by the government in order to break the chain of transmission of the virus, among others by emphasizing social distancing rules, wearing masks, washing hands and large-scale social restrictions (PSBB) with health quarantine. . Including in the city of Tasikmalaya, the PSBB policy has also been carried out, but public awareness is lacking and the PSBB rules are relaxed so that certain places are crowded again such as shopping centers, both malls and traditional markets, until May 17, the number of COVID-19 has increased to 37 people, with 8 people died (CFR = 21.6%). The CFR of the city of Tasikmalaya exceeds the provincial and national CFR.

The impact of Covid-19 has unwittingly caused changes in various aspects that have also changed people's behavior, especially attitudes and behavior in their lives or activities. Attitude itself is a tendency to carry out an action/behavior, because to be able to realize an action, other factors are needed, such as the existence of facilities or infrastructure. Recently, there is the term new normal, which is the latest policy and is considered the best by the government to live life in the midst of the Corona virus pandemic. Therefore, behavioral change will be the key to optimism in dealing with COVID-19 by implementing health protocols according to government recommendations or known as the new normal.

The problem is, when the incidence of new cases of COVID-19 is high, there are still many COVID-19 prevention behaviors that are lacking, such as not wearing masks, not washing their hands and always traveling

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.24

to crowded places, including in some areas in the city of Tasikmalaya, some people on the streets do not use them. face mask. To analyze these various problems, a study was conducted with the aim of analyzing the relationship between attitudes and people's behavior in readiness to face the new normal in the midst of the COVID-19 pandemic.

SUBJECTS AND METHOD

1. Study Design

This research was conducted using a qualitative quantitative mix method research design with a cross sectional research design supported by a qualitative phenomenological study. The research was carried out in the work area of the Tasikmalaya City Health Office. The research implementation time is about 6 months, namely from July to December 2020.

2. Population and Sample

The population in this study were residents of the city of Tasikmalaya aged 15 years and over as many as 481,262 people. The minimum sample estimate is 99.97 rounded up from 100 to 399.66. The samples obtained were 254 people. The qualitative research subjects consisted of 3 people, namely the Covid task force from the Health Service and BPDB Tasikmalaya City and the community.

3. Study Variables

In this study, there is 1 independent variable, namely attitude and 1 dependent variable, namely community behavior/practices in readiness to face the new normal in the midst of the COVID-19 pandemic.

4. Operational Definition of Variables

Attitude is the respondent's readiness or willingness to act which is expressed in the response of agreeing or disagreeing in the face of the new normal in the midst of covid-19.

Behavior is the practice of people's habits that are carried out in the face of the new normal in the midst of covid-19.

5. Study Instruments

This quantitative research instrument is a questionnaire with a google form which is distributed via a link to whatsapp group by cadres. The qualitative instrument used interview guides, stationery, camera and voice recorder.

The method of collecting data is by distributing questionnaire sheets via google form to obtain information from respondents. The questionnaire sheet contains closed questions/ statements about the attitudes and behavior of the community in readiness to face the new normal in the midst of the covid-19 pandemic. The questionnaire used has been tested for validity and reliability beforehand and is declared valid and reliable. Furthermore, in the second stage, interviews were conducted with research subjects consisting of 3 people, namely: the Covid-19 task force from the Health Service and BPDB and the community.

6. Data analysis

Quantitative data were analyzed univariately to produce descriptive data on the frequency distribution on characteristic variables and bivariate analysis using chi square to analyze the relationship between attitude and

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.24

practice. Qualitative data were analyzed by content analysis, starting with a data transcript, namely transferring the interview recordings into writing or narration, then reading and rereading and marking and noting important things in the transcript. Then develop and collect similar answers by determining and mapping the relevance of the interview results in narrative form.

7. Research Ethics

This research has obtained ethical approval No. 078.1/EC-KEPK/XII/-2020 from KEPK Poltekkes Ministry of Health Tasikmalaya.

RESULTS

1. Univariate Analysis

This univariate analysis aims to describe the characteristics of respondents.

Table 1. Distribution of respondent characteristics

No	Characteristics of Respondents	N	%
1	Level of Education		
	PS	10	3.9
	JHS	17	6.7
	SHS	130	51.2
	College	97	38.2
	Total	254	100
2	Working Status		
	Unemployed	22	8.7
	Labor	31	12.2
	Employee	47	18.5
	Civil Servant	23	9.1
	Housewife	27	10.6
	Student	50	19.7
	Others	54	21.3
	Total	254	100
3	Working Location		
	One sub-district, different village	80	31.5
	Different district	78	30.7
	Out of town	24	9.4
	At home	72	28.3
	Total	254	100
4	Category of Age		
	Teenager	112	44.1
	Adult	108	42.5
	Elderly	33	13.0
	Older than elderly	1	0.4
5	Income Category		
	<1 million	146	57.5
	1 – 2 millions	53	20.9
	2– 5 millions	37	14.6
	>5 millions	18	7.1

In Table 1, regarding the characteristics of the respondents, it shows that most of the respondents have a high school education (51.2%), with the background of employment status being dominated by students, employees and others. Most of the locations where they work are still in

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.24

the city of Tasikmalaya but differ in the sub-district where they live, while only 9.4% of those who work outside the city. The age of the respondents is dominated by productive age, namely teenagers and adults and most of the income is < 1 million (57.5%).

The most recent education of respondents is high school as many as 130 people (51.2%). The oldest age was adolescent (44.1%). The highest income was under 1 million Rupiah (57.5%).

2. Analysis Bivariate

Table 2. Relationship between Attitudes and Practices in Readiness to Face the New Normal in the midst of the COVID-19 Pandemic

Attitude	Practice				Total		OR (95%) CI	p
	Poor		Good					
	N	(%)	N	(%)	N	(%)		
Poor	57	48.7	60	51.3	117	100	2.878	0.001
Good	34	24.8	103	75.2	137	100	1.7 – 4.9	

The results of the analysis obtained are as many as 103 people (75.2%) who have good attitudes have good practices, and as many as 60 people (51.3%) who have bad attitude but have good practice.

Table 2 shows that there is a significant relationship between respondents' attitudes and practices in readiness to face the new normal in the midst of the COVID-19 pandemic with a value of OR = 2.878; 95% CI 1.7 to 4.9 with p < 0.05, meaning that respondents who have a good attitude have 2.878 times the opportunity to carry out good practices compared to respondents with a bad attitude.

3. Content Analysis

The qualitative informants consisted of 3 people, namely the Covid-19 task force from the Tasikmalaya City Health Service (Informant 1), the BPDB Covid-19 task force staff (Informant 2) and the community represented by a 39-year-old woman whose husband had been treated at an RSU because suffering from Covid-19 (Informant 3). Following are the results of the in-depth interview:

a. Handling Covid-19 in the city of Tasikmalaya

Control and prevention of COVID-19 in the city of Tasikmalaya is carried out through preventive and curative efforts. When the Covid-19 outbreak began, it was carried out through socialization or counseling about '3M' actively traveling around using a car directly led by the mayor, installing banners, voice services at red lights, regional radio and television as well as setting PSBB with a curfew, shops closing hours. 08.00 pm. Had experienced a decrease in cases even zero for a period of approximately 1 month. So the government began to prepare for the adaptation of new habits (new normal). The implementation of the curfew received protests from several parties, especially from the economic sector, so that the curfew was finally lowered again until 22.00 WIB. Finally, the case of Covid-19 reappeared and even increased very rapidly spreading throughout the city of Tasikmalaya.

Another strategy that has been carried out is by holding a tough

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.24

Covid regional competition called civil overtime, in collaboration with TV radar by assessing the implementation of counseling carried out by each sub-district, almost the same as a standby village but the concept is adjusted to conditions during the covid pandemic..

b. Problems/obstacles

All informants stated that public awareness is getting lower and lower in implementing the 3M health protocol (wearing masks, maintaining distance, washing hands). As stated in one of the following informant quotes:

> *"The people are tired of wearing masks with a lifestyle of keeping their distance, they usually keep their distance to public places, now they are meeting again. (I1)"*

Another obstacle is that there is still a stigma towards patients who are confirmed positive for Covid-19 and their families. As stated by the following informant:

> *"There has been discrimination, stigma against people and families affected by COVID-19 has also become a burden for us, yes, because of confusing information. I don't know where this came from, suddenly there was information that the person concerned was positive, the people didn't want to know, sir, they made barricades and refused to do it, finally they were evacuated... secured, stored in the flats"* (I1)

Reinforced by three informants who have experienced stigma from the surrounding community because their husband was confirmed positive for Covid-19, the following is an excerpt:

> *"It's like I don't want my family and I to be here, so I'm too scared... I really hurt the attitude of some neighbors to the point that some don't want to pass in front of my house"* (I3).

Another problem was conveyed by a key informant that the central policy was not firm in handling Covid, so that local governments were sometimes confused and had to make their own decisions. Here's the quote:

> *"All the sentences that previously issued a letter with 4 ministers including the Minister of Health also signed that, right, after the policy was made, everyone could meet face-to-face, because all the protests were annulled... the sentence was handed over to the local government, if the local government didn't want to open it, don't open it, if you want to open it, open it, but it's a risk... if it's positive, it must be provided for evacuation... it doesn't feel good, ma'am"* (I1)

Furthermore, the lack of socialization was also felt as one of the obstacles, which at first was intensively carried out, even the mayor immediately jumped in using a mobile car, as the following quote:

> *"So the socialization continues to be carried out at the beginning, not only socialization, but also the provision of masks, maybe the health department also continues to carry out socialization, but at this time the IMR is only we are*

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.24

now only carrying out supervision."(I2)

The peak of the addition of cases in the city of Tasikmalaya is the emergence of family clusters and Islamic boarding schools, as quoted below:

> *"Family transmission is the biggest transmission compared to religion, religion is actually a very high family cluster, family cluster, if the boarding school is actually safe for the students themselves, but because there are many teachers who come in and out of the boarding school, there is transmission"* (I2)

DISCUSSION

1. Sample Characteristics

The characteristics of the respondents studied consisted of education, occupation and location of work, age and income. The most recent education of respondents is high school, followed by tertiary education. This is an important capital in increasing one's knowledge. In theory, a person's level of education will affect his level of knowledge. If the level of education and knowledge is good, then attitudes and behavior will also be good.

The next characteristic is work. It can be seen that most of the respondents are self-employed and the lowest are those who do not work. The distribution of the respondent's place of work is mostly in one sub-district with different urban villages and the lowest is outside the city. Work allows a person to leave the house more and interact with many people, but currently it is limited by rules, including work that is still possible to be done at home in such a way as to schedule work form office and work form home. The more often we interact with many people, the greater the chance of contact with people without symptoms (OTG) because we don't know that those around us are free from COVID-19 or not..

2. Attitudes and practices regarding readiness to face the new normal in the midst of the COVID-19 pandemic in Tasikmalaya

a. Attitude

Most of the people in their readiness to face the new normal in the midst of a pandemic have a good attitude. There is a significant relationship between attitudes and community practices in readiness to face the new normal in the midst of the COVID-19 pandemic in the city of Tasikmalaya. In line with the results of research by Rachmani et al. (2020) the same results were obtained, namely there was a significant relationship between attitudes and community practices related to the prevention of COVID-19, namely people with good prevention practices were more commonly found in people with good attitudes towards COVID-19 prevention. -19 compared to people with poor attitudes towards COVID-19 prevention.

The highest attitude score was found in statements about health protocols to always wash hands and the lowest scores in statements about concerns about COVID-19.

b. Practice

Most of the community practices regarding readiness to face the new normal in the midst of the COVID-19 pandemic in Tasikmalaya have good practices. The lowest practice score

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.24

was on the question of traveling out of the house, only 37.80% had good practice because there were still many who frequently traveled outside the house (62.20%), followed by questions about the presence of respondents around COVID-19 sufferers, which was 59 0.05% live in rural areas around COVID-19 sufferers. Next is the habit of not using a mask when talking to colleagues, relatives, friends or friends by 38.39%. In line with the results of research by Rachmani, et al (2020) it was found that 27.8% of respondents had not complied with the use of masks. Masks that have good effectiveness for prevention are surgical masks, because they have a level of protection of 56% from nanometer-sized particles, but the public can still use cloth masks as an effort to prevent the transmission of COVID-19 through splashes of saliva/droplets.

3. Problems or obstacles in dealing with COVID-19 in the city of Tasikmalaya

a. Low public awareness in implementing health protocols.

In line with the results of the survey of knowledge, attitudes and practices in implementing health protocols, there are still people who are not good, especially in terms of attitudes and practices of 46% and 34.5%, respectively.

b. There is still community stigma towards sufferers and their families affected by COVID-19.

In the midst of the COVID-19 pandemic, a social phenomenon emerged that has the potential to exacerbate the situation, namely social stigma against people who have an illness. If it continues to be maintained in the community, social stigma can make people hide their illness so they are not discriminated against. Stigma will actually cause the spread of disease in the community to be increasingly out of control.

c. Weak central and local government policies in implementing policies in dealing with COVID-19.

In line with the results of research by Juaningsih, et al (2020) stated that less than optimal coordination between the center and regions has an impact on the spread of the COVID-19 virus in Indonesia. So there is a need for policies that the government can provide so that COVID-19 can be resolved optimally.

d. Lack of socialization or counseling related to COVID-19 prevention.

In order to suppress the rate of increase in COVID-19 cases, socialization or counseling must still be carried out so that people will become accustomed to it over time and the need to provide clarification on rumors/issues/hoaxes and public questions related to the confusion of COVID-19 cases..

e. The increase in cases is partly due to the emergence of family clusters and Islamic boarding schools.

The number of new cases of patients infected with COVID-19 is increasing with the finding of an increase in cases in family clusters and Islamic boarding schools. Often because of feeling with family, when you arrive at

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.24

home you have not washed your hands or have not changed clothes, you directly interact with your family, so of course this has the potential to transmit the virus if you are exposed to the virus from outside.

The city of Tasikmalaya is known as the city of santri, where pesantren is a place where a large number of people live, which can have the potential for rapid transmission of an infectious disease. There was a fairly high increase in cases at the Assunah and Condong Islamic boarding schools, each with more than 100 people who tested positive for COVID-19. Even though in the two Islamic boarding schools they were quite strict in implementing the acceptance of students for boarding, among others, before entering they were required to do a rapid test first, but based on information that the strictness of students was not strictly followed by teachers who were in and out of the boarding school, so this has the potential to bring virus from outside the hut.

AUTHOR'S CONTRIBUTION

The contribution of each author in this article is Imas Masturoh as the main contributor who is responsible for the overall concept of writing the article. Andi Suhenda and Fery Fadly as member contributors are responsible for data processing and analysis.

CONFLICT OF INTEREST

In this study there was no conflict of interest, because the respondents who filled out the questionnaire were not known by the researcher and the respondents also received a written explanation at the beginning that the research was non-binding and voluntary without any coercion and if they did not like it, they could resign at any time without being penalized.

FUNDING AND SPONSORSHIP

This research was funded by DIPA Poltekkes Ministry of Health Tasikmalaya.

ACKNOWLEDGMENT

The author would like to thank the Director of Poltekkes Kemenkes Tasikmalaya, the Covid-19 Task Force Team of the Health Service and the Regional Disaster Management Agency (BPDB) of the City of Tasikmalaya and to all parties that we cannot mention one by one who have helped the completion of this research..

REFERENCES

ALMI. Riset Dampak COVID-19. https://almi.or.id/2020/05/03-/riset-dampak-COVID-19-po-tret-gap-akses-online-belajar-dari-rumah-dari-4-provinsi/

Bramasta, Bayu D (2020). Mengenal Apa Itu New normal di Tengah Pandemi Corona... (Knowing what is new normal in the mid-dle of the Corona Pandemic...)", https://www.kompas.com/tren/read/2020/05/20/063100865-/mengenal-apa-itu-new-nor-mal-di-tengah-pandemi-corona-?page=2.

Gannika L, Sembiring E (2020). Ting-kat pengetahuan dan perilaku pencegahan Coronavirus Dise-ase 2019 (COVID-19) Pada Ma-

syarakat Sulawesi Utara (Level of knowledge and behavior of prevention of Coronavirus Disease 2019 (COVID-19) in North Sulawesi Community). Jurnal Keperawatan. 16(2). doi.-org/10.25077/njk.16.2.83-89.-2020.

Habibi, Andrian. Normal Baru Pasca COVID-19. Buletin Hukum dan Keadilan (Law and Justice Bulletin). 4(1).

Kemenkes. perkembangan kasus Coronavirus Disease (COVID-19), menggunakan sumber data WHO dan PHEOC Kemenkes tanggal 14 Mei. https://covid19-.kemkes.go.id/situasi-infeksi-emerging/info-corona-virussitu-asi-terkini-perkembangan-coronavirus-disease-COVID-19-15-mei-2020/#.Xt1H2UUzaM8.

Kompas. https://bebas.kompas.id/-baca/riset/2020/04/18/rangkaian-peristiwa-pertama-covid -19/

Kompas. https://www.kompas.com/-tren/read/2020/04/04/090100665/capai-1-juta-kasus-bagaimana-virus-corona-menyebar-ke-seluruh dunia-?page=all,

Kompas. https://tirto.id/update-corona-14-mei-2020-di-indonesia-dunia-info-data-hari-ini-ftr7

Kompas. https://bebas.kompas.id/-baca/riset/2020/04/18/rangkaian-peristiwa-pertama-covid- 19/.

Kompas. Salah Kaprah Stigmatisasi dan Diskriminasi terhadap Pasien COVID-19. https://www-.kompas.com/tren/read/2020/04/13/164454765/salah-kaprah-stigmatisasi-dan-diskriminasi-terhadap-pasien-COVID-19

Mubarak W (2012). Promosi kesehatan untuk kebidanan. Jakarta: Salemba Medika.

Notoatmodjo S (2013). Ilmu Perilaku Kesehatan. PT Rineka Cipta. Jakarta.

Pusat Penelitian Politik. Dampak Politik-Keamanan COVID-19. http://www.politik.lipi.go.id/kolom/kolom-2/politik-nasional-/1383-dampak-politik- keamanan-COVID-19

The Conversation. Petugas Kesehatan Gugur Akibat COVID-19. https:-//theconversation.com/petugas-kesehatan-gugur-akibat-COVID-19-pentingnya-data-terbuka-dokter-dan-perawat-yang-terinfeksi-virus-corona-137627.

https://doi.org/10.26911/ICPHpromotion.FP.08.2021.24

TOPIC IV :
HEALTH POLICY AND MANAGEMENT

REGULATION OF HOSPITAL OCCUPATIONAL HEALTH AND SAFETY AS A PREVENTIVE AND REPRESIVE INSTRUMENT ON OCCUPATIONAL ACCIDENT IN HOSPITAL

Radit H. Mayangkara[1)], A.A. Subiyanto[1)], Didik Gunawan Tamtomo[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Patient safety is the avoidance of unintended or unexpected harm to people during the provision of health care. Safe patient handling programs, policies, and equipment can help cost-effectively reduce the biggest cause of occupational accident or injuries in hospital. The purpose of this study was to explore regulation of hospital occupational health and safety as a preventive and represive instrument on occupational accident in hospital.
Subjects and Method: This was a qualitative study. The study subjects were all hospital stakeholders, included administrative staff, hospital occupational health and safety staff, regulatory agency, and education cooperation. The data were collected by observation, focus group discussion, document review, and filling the questionnaire. The data were analyzed by triangulation.
Results: This study found that many regulations had applied to the hospital. However, the regulations were arranged separately by each sectors, e.g. Ministry of Health, Ministry of Manpower, and Ministry of Environment. Many regulations cause overlap and confound the hospital administrators to implement them.
Conclusion: The effectiveness of regulation need to be improved as a preventive and repressive instrument toward work accidents in hospitals.

Keywords: occupational health and safety regulation, preventive, represive, hospital, work accidence

Correspondence:
Radit Hartantyo Mayangkara. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: raditmayangkara@-gmail.com. Mobile: (+62)8122938885.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.01

PATH ANALYSIS OF FACTORS ASSOCIATED WITH WORK PERFORMANCE OF HEALTH CENTER PERSONNEL IN CIAMIS, EAST JAVA

Latty Indriastuti[1)], Endang Sutisna Sulaeman[2)], Eti Poncorini Pamungkasari[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Work performance was the outcome of all cumulative actions that the nurses' performs using their skills, abilities, and knowledge in providing health services to the community. Many factors influence work performance in health personnels. The purpose of this study was to examine factors associated with work performance of health center personnel using path analysis.
Subjects and Method: A cross sectional study was conducted in Ciamis, West Java, from November to December 2020. Total sample of 200 health personnel in health centers was selected by simple random sampling. The dependent variable was work performance. The independent variables were leadership style, work motivation, work satisfaction, education, patient, patient health treatment status, health worker status, tenure, perceived income, training, and type of human resources. The data were collected by questionnaire and analyzed using a multiple linear regression.
Results: Work performance in health personnel increased with good leadership style (b= 6.09; 95% CI= 1.63 to 3.18; p <0.001), strong motivation (b= 3.91; 95% CI= 0.73 to 2.22; p<0.001), high work satisfaction (b= 4.09; 95% CI= 0.78 to 2.22; p<0.001), high education (b= 4.62; 95% CI= 0.99 to 2.45; p<0.001), inpatients (b= 4.67; 95% CI= 1.00 to 2.46; p<0.001), health workers (b= 4.62; 95% CI= 1.12 to 2.77; p< 0.001), tenure ≥3 years (b= 3.53; 95% CI= 0.59 to 2.07; p<0.001), good perceived income (b=4.14; 95% CI= 0.87 to 2.45; p<0.001), had trained (b= 4.96; 95% CI= 1.40 to 3.23; p< 0.001), and civil servants (b=3.97; 95% CI= 0.73 to 2.16; p<0.001).
Conclusion: Work performance in health personnel increases with good leadership style, strong motivation, high work satisfaction, high education, inpatients, health workers, tenure ≥3 years, good perceived income, has trained, and civil servants.

Keywords: work performance, health personnel, community health center

Correspondence:
Latty Indriastuti. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: lattyindria.drg@gmail.com. Mobile: +628999976544.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.02

CORRELATIONS BETWEEN HEALTH CARE FACILITIES AVAILABILITY AND ACCEPTANCE ON QUALITY OF LIFE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

Dian Handayani[1)], Noor Alis Setiyadi[2)], Anisa Catur Wijayanti[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Public Health Department, Faculty of Health Sciences,
Muhammadiyah Surakarta University

ABSTRACT

Background: Quality if life is based on both objective and subjective parameters. The subjective parameters include wellbeing, happiness, and personal acceptance, while objective parameters are related to the satisfaction of basic needs, such as availability and access to health care facilities. The purpose of this study was to investigate correlations between health care facilities availability and acceptance on quality of life in patients with type 2 diabetes mellitus.
Subjects and Method: A cross sectional study was carried out at General Hospital of Surakarta, Central Java from October to November 2019. A sample of 131 type 2 diabetes mellitus patients aged ≤65 years was selected by purposive sampling. The dependent variable was quality of life. The independent variables were health facilities and patient acceptance. Quality of life was measured by Quality of Life Instrument for Indian Diabetes patients (QOLID). Other variables were masured by questionnaire. The data were analyzed by Chi square.
Results: Good health facilities (OR= 3.28; 95% CI= 1.41 to 7.60; p= 0.004) and patient acceptance (OR= 4.02; 95% CI= 1.57 to 10.30; p= 0.002) improved quality of life of type 2 diabetes mellitus patients.
Conclusion: Good health facilities and patient acceptance improve quality of life of type 2 diabetes mellitus patients.

Keywords: diabetes mellitus, quality of life, health facilities, patient acceptance

Correspondence:
Dian Handayani. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: dianhan1812@gmail.com. Mobile: 085876686231

https://doi.org/10.26911/AB.Management.ICPH.08.2021.03

COMPARISON BETWEEN ONLINE AND OFFLINE TRAINING IN IMPROVING KNOWLEDGE TOWARD COVID-19 PREVENTION IN COVID-19 VOLUNTEER

Victoria Sari[1)], Lely Pangesti[1)], Vitri Widyaningsih[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: With the increasing use of technology and current COVID-19 pandemic situation, online training has become a common learning method. The effectiveness of online training is influenced by many factors. Some factors create barriers for online training, such as administrative issues, social interaction, technical skills, motivation, time, technical problems, cost and access to the internet. Other factors could result in low-quality online training, for example an ineffective design and arrangement of multimedia materials. The purpose of this study was to examine comparison between online and offline training in improving knowledge toward COVID-19 prevention in COVID-19 volunteer.
Subjects and Method: A randomized controlled trial was conducted in Klaten, Central Java. A sample of 55 COVID-19 volunteers was selected for this study. A day offline training was attended by 21 volunteers, meanwhile 34 volunteers attended online training. The dependent variable was knowledge. The independent variable was training. Their knowledge toward COVID-19 prevention before and after training was measured by a questionnaire. The data were analyzed by independent t-test.
Results: Mean of volunteer's knowledge after offline training (Mean= 8.38; SD= 0.80) was higher than online training group (Mean= 7.47; SD= 1.13) and it was statistically significant (p= 0.002).
Conclusion: Offline training is more effective than online training to improve knowledge toward COVID-19 prevention in volunteers.

Keywords: knowledge, COVID-19 volunteer, training

Correspondence:
Victoria Husadani Permata Sari. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta, 57126, Central Java. Email: victoria-husadani@students.uns.ac.id. Mobile: 081393539020.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.04

EVALUATION PROGRAM OF PREGNANCY CLASS IN MOJOGEDANG II HEALTH CENTER IN KARANGANYAR, CENTRAL JAVA

Kristuti Catur Sumarah[1)], Gita Kostania[2)], Emy Suryani[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Diploma IV of Midwivery, Health Polytechnics, Ministry of Health Surakarta

ABSTRACT

Background: The importance of parenting education programmes stems from the fact that they empower the woman and/or her partner at the time when they are most vulnerable: during pregnancy and the postnatal period. The main aims of antenatal class is to promote healthy practices, minimize excessive anxiety and prevent or minimize the discomforts of pregnancy and labor. So that, antenatal class assessment is needed to evaluate current quality of these programmes. This study aimed to investigate the evaluation program of pregnancy class.
Subjects and Method: This was a qualitative study conducted at Mojogedang II health center, Karanganyar, Central Java, in March 2017. Head of health center, midwife, and cadres were purposively selected as the key informants. Research problem was evaluation of pre-implementation of pregnancy class. The data were collected by in-depth interview and observation.
Results: Pre-implementation of antenatal class at Mojogedang II health center in Karanganyar, in 2016, is in accordance with the World Health Organization recommendations. Monitoring, evaluation and reporting activities are in accordance with the provisions of antenatal class guidebook. The involvement of health workers and cadres is quite high, but the support of husbands and parents is still low.
Conclusion: Tt is necessary to increase the participation of husbands and families in prenatal class.

Keywords: evaluation program, antenatal class, maternal health

Correspondence:
Kristuti Catur Sumarah. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: skristuticatur@gmail.com. Mobile +6182314289595.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.05

PERCEPTION AND EXPECTATION DIFFERENCES TOWARD QUALITY OF OUT-PATIENTS REGISTRATION SERVICE

Lilik Anggar Sri Rahayuningsih[1)], Yeni Tri Utami[2)], Joko Parjianto[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Diploma III of Medical Record and Health Information, Faculty of Health Sciences, Universitas Duta Bangsa, Surakarta

ABSTRACT

Background: Nowadays, patient satisfaction is one of the most important performance and quality outcome indicators for healthcare delivery services. Patient satisfaction refers to a patient assessment of the services received from the healthcare provider, which is affected by both the levels of expectation and experience of a patient. The purpose of this study was to examine perception and expectation differences toward quality of out-patients registration service.
Subjects and Method: A cross sectional study conducted at Pajang health center in Surakarta, Central Java, from May to July 2020. A sample of 99 out-patients was selected by accidental sampling. The dependent variables were patients perception and expectation. The independent variables were SERVQUAL dimensions, including reliability, responsiveness, assurance, emphaty, and tangibles. Mean differences of perception and expectation on each SERVQUAL dimensions were assessed by paired t-test.
Results: There was no difference between patient perception and expectation on the SERQUAL dimensions. Reliability (perception: Mean= 21.30; SD= 2.84 vs expectation: Mean= 21.19; SD= 2.24; p= 0.392). Responsiveness (perception: Mean= 21.13 ; SD= 3.13 vs expectation: Mean= 21.19; SD= 2.49; p= 0.692). Assurance (perception: Mean= 21.55; SD= 3.09 vs expectation: Mean= 21.32; SD= 2.32; p= 0.193). Emphaty (perception: Mean= 21.21; SD= 3.13 vs expectation: Mean= 21.67; SD= 4.97; p= 0.311). Tangibles (perception: Mean= 21.85; SD= 3.08 vs expectation: Mean= 21.63; SD= 2.45; p= 0.109).
Conclusion: There is no difference between patient perception and expectation on the SERQUAL dimensions (reliability, responsiveness, assurance, emphaty, and tangibles).

Keywords: expectation, perception, SERVQUAL, health care service administration

Correspondence:
Lilik Anggar Sri Rahayuningsih. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java, Indonesia. Email: lilikanggar@gmail.com.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.06

HEALTH CENTERS PREPAREDNESS IN FACING THE COVID-19 PANDEMIC IN KARANGANYAR, CENTRAL JAVA, INDONESIA

Fajar Novianto[1,2)], Saryanto[1,2)], Tofan Aries Mana[2)], Nur Rahmawati Wijaya[2)], Ahmad Saikhu[2)], Harimat Hendarwan[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Center for Research and Development of Medicinal Plants and Traditional Medicines, Tawangmangu, Indonesia
[3)]Center for Research and Development of Health Resources and Services, Jakarta, Indonesia

ABSTRACT

Background: COVID-19 is a highly contagious respiratory disease. Preparedness of health facilities to prevent the spread of COVID-19 is an immediate priority to safeguard patients and healthcare workers and to reduce the spread of the pandemic. However, the preparedness of health centers in Karanganyar, Central Java is unknown.
Subjects and Method: A cross sectional study was conducted at 21 community health centers in Karanganyar, Central Java, Indonesia. The research problem was health centers preparedness in facing the COVID-19 pandemic. The data were collected twice in April and September 2020 by questionnaire.
Results: At the beginning of the COVID-19 pandemic, in April 2020, many health centers in Karanganyar were not ready to face the COVID-19 pandemic. After the second measurement in September 2020, there was an increase in the readiness of the health centers in terms of health workers and facilities availability.
Conclusion: Public Health Centers in Karanganyar are increasing readiness to face the COVID-19 pandemic by providing more facilities and the number of health workers in the COVID-19 treatment unit.

Keywords: COVID-19, community health center, pandemic preparedness

Correspondence:
Fajar Novianto. Center for Research and Development of Medicinal Plants and Traditional Medicines, Tawangmangu, Indonesia. Jl. Raya Lawu 11, Tawangmangu, Karanganyar, Central Java. Email: dr.fajarnovianto@gmail.com. Mobile: 081330700298.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.07

RELATIONSHIP OF QUALITY OF HEALTH SERVICES WITH OUTPATIENT'S SATISFACTION IN SLAMET RIYADI HOSPITAL, SURAKARTA, CENTRAL JAVA

Aditya Kurniawan

Slamet Riyadi Military Hospital, Surakarta, Central Java, Indonesia

ABSTRACT

Background: As health care becomes increasingly market-driven, service should focus on customers. Outpatient departments need to monitor the quality of care and patient satisfaction for continuous quality improvement. Thus, the influence of patients' characteristics on their self-reported health care experiences merits research. The purpose of this study was to investigate relationship of quality of health services with outpatient's satisfaction in Slamet Riyadi Hospital.
Subjects and Method: A cross-sectional study was conducted at Slamet Riyadi Hospital in Surakarta, Central Java, Indonesia. A number of 94 out-patients was selected randomly. The dependent variable was patients satisfaction. The independent variables were SERVQUAL dimensions, included reliability, responsiveness, assurance, empathy, and tangibility. The data were collected by questionnaire and analyzed by Pearson correlation.
Results: Out-patients satisfaction was positively associated with reliability ($r= 0.39$; $p <0.001$), responsiveness ($r= 0.39$; $p<0.001$), assurance ($r= 0.34$; $p=0.001$), empathy ($r= 0.42$; $p<0.001$), tangible ($r= 0.39$; $p<0.001$), and overall SERVQUAL dimensions ($r= 0.47$; $p<0.001$).
Conclusion: Out-patients satisfaction is positively associated with reliability, responsiveness, assurance, empathy, tangible, and overall SERVQUAL dimensions.

Keywords: patients satisfaction, quality of life

Correspondence:
Aditya Kurniawan. Slamet Riyadi Military Hospital Surakarta. Jl. Slamet Riyadi 321 Kvi, Surakarta 57148, Central Java. Email: akur88@gmail.com. Mobile: 0856420-88532.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.08

META-ANALYSIS OF CORRELATION BETWEEN BURNOUT AND WORK SATISFACTION IN NURSES

Arista Gunawati[1)], Agus Kristiyanto[2)], Hanung Prasetya[3)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Sport, Universitas Sebelas Maret
[3)]Study Program of Acupuncture, Health Polytechnics,
Ministry of Health Surakarta

ABSTRACT

Background: Current evidence reveals job satisfaction as a predictor of the length of stay in a job, motivation and job productivity. The main sources of nursing dissatisfaction include lack of staff, high care pressure, burn out, and lack of professional acknowledgement. Burnout explained the highest amount of variance in mental health of nurses. These are known to compromise productivity and performance, as well as affect the quality of patient care. This study aimed to investigate correlation between burnout and work satisfaction in nurses.
Subjects and Method: This meta-analysis used articles from the Google Scholar database, PubMed, Sciencedirect, published from 2010 to 2021. Eligibility criteria were defined using the PICO model as follows, (1) population= nurse, (2) intervention= high burnout, (3) comparison= low burnout, and (4) outcome= work satisfaction. The keywords to collect the articles were ("job satisfaction" OR "work satisfaction" OR "occupational satisfaction") AND "job burnout" AND ("adjusted odds ratio" OR "multivariate analysis") AND "nurse." Inclusion criteria were full text, cross-sectional study, and reported adjusted odds ratio. The meta-analysis articles were written using the PRISMA rules. Data were analyzed using Revman 5.3
Results: There were four studies from China, Croatia, and Europe included in the inclusion criteria. This study found that high burnout lowered work satisfaction in nurses 0.56 times than those with low burnout (aOR= 0.56; 95% CI= 0.26 to 1.21; p<0.001)
Conclusion: The higher burnout, the lower the work satisfaction in nurses.

Keywords: burnout, work satisfaction, nurse

Correspondence:
Arista Gunawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57216, Central Java. Email: aristagunawati@gmail.com. Mobile: 085647093646.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.09

HEALTH PERSONNELS PERFORMANCE AND HEALTH CARE SERVICE DURING THE COVID-19 PANDEMIC

Dwi Marwanto

Masters Program of Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Healthcare professionals are highly vulnerable to COVID-19 infection due to their clinical role in the healthcare settings. Most healthcare professionals are working in isolation units, critical care units, intensive care units, emergency units, working in frontline positions, and having contact with suspected and confirmed COVID-19 cases. Recent studies reported the challenges facing frontline healthcare workers during the COVID-19 pandemic which includes high risk of infection, insufficient personal protective equipment, heavy workloads and manpower shortages, confusion, discrimination, isolation, separation from families, and burnout. The HCPshave worked tirelessly and played a crucial role in the management of COVID-19 cases, despite high personal risks and worries about the current pandemic crisis. This study aimed to systematically review on the health personnels performance and health care service during the COVID-19 pandemic.
Subjects and Method: This was a systematic review conducted by collecting articles from Google Scholar and Researchgate about work performance in health personnel and health care service. The articles selected from the last ten years. Three studies were met the criteria for systematic review.
Results: This study found that factors associated with work performance in health personnels during COVID-19 pandemic was leadership, communication, reward, and control system. An effective leadership includes focus on inspiring, motivating, and planning. Communication consist of frequency of interaction and discussion with the leader. Reward was financial and non financial incentives. Control system was The control system consists of monitoring, evaluation, and feedback.
Conclusion: Factors associated with work performance in health care service during COVID-19 pandemic were leadership, communication, reward, and control system.

Keywords: work performance, health performance, health care service

Correspondence:
Dwi Marwanto. Masters program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: dwiantox74@gmail.com. Mobile: 082138064130.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.10

CONTEXTUAL EFFECT OF HEALTH CENTER AND QUALITY DIMENSIONS OF ANTENATAL SERVICE ON PATIENT SATISFACTION IN KLATEN, CENTRAL JAVA

Leny Rahmawati[1)], Didik Tamtomo[2)], Bhisma Murti[1)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Puskesmas plays an important role in reducing maternal and neonatal morbidity and mortality. Contextual factors of health center and dimensions of service quality may influence patients statisfaction. This study aimed to analyze the factors that influence patient satisfaction
Subject and Method: This was an observational study using cross sectional design conducted in Klaten Regency, Central Java. A sample of 200 antenatal patients was selected at random from 25 puskesmas (community health centers) comprising 8 antenatal patients from each selected puskesmas. The dependent variable was antenatal care (ANC) patient satisfaction. The independent variables were five dimensions of quality healthcare, including (1) reliability, (2) tangible, (3) empathy, (4) responsiveness, (5) assurance. The data were analyzed by multilevel linear regression using the Stata 14 application.
Results: Patient satisfaction was positively affected by reliability (b= 0.30; 95% CI= -0.48 to -0.13; p= 0.001), tangible (b= 0.28; 95% CI= 0.14 to 0.42; p<0.001), responsiveness (b=0.17; 95% CI = 0.07 to 0.27; p= 0.001), and assurance (b= 0.16; 95% CI= 0.04 to 0.28; p= 0.007). The relationship between patient statisfaction and empathy was statistically non significant (b=-0.02; 95% CI= -0.28 to 0.23; p=0.837). The contextual effect at the puskesmas level was substantial with intraclass correlation (ICC= 36.4%).
Conclusion: Patient satisfaction is positively affected by reliability, tangible, responsiveness, and assurance. The relationship between patient statisfaction and empathy is statistically non significant.

Keywords: satisfaction, community health center, quality of health service

Correspondence:
Leny Rahmawati. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: lovejesus251200@gmail.com. Mobile: +6288981023493.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.11

EFFECT OF MOTIVATION ON THE INTENTION TO PARTICIPATE IN THE SCIENTIFIC PUBLICATIONS AMONG MEDICAL RECORD STAFF

Isnaini Qoriatul Fadhilah[1)], Izatul Milla[2)], Robiatud Daniyah[3)], Namira Fitri Rahandiani[1)], Kurnia Eka Putri[1)]

[1)]Department of Medical Record, Health Polytechnics, Ministry of Health Semarang
[2)]Universitas Negeri Jember, East Java, Indonesia
[3)]Department of Medical Record, STIA Malang, East Java, Indonesia

ABSTRACT

Background: A medical records personnel is in charge of managing patient health files in a facility. They provide efficient health records service to patients, medical and nursing staff. They organise, update and store records in either paper-based documents or electronic records. However, it is indicated that many medical recorders in Indonesia have not been able to fulfill one of the activities required by professional organizations, namely writing and publishing scientific papers. This study aimed to examine the effect of motivation on the intention to participate in the scientific publications among medical record staff.
Subjects and Method: A cross sectional study. A number of 100 medical record staffs who work at health facilities was selected for this study. The dependent variable was intention to participate in the scientific publication. The independent variable was motivation. The data were collected by electronic questionnaire and analyzed by Chi square.
Results: Strong motivation was positively associated with intention to participate in the scientific publications among medical record staff (OR= 10.60; 95% CI= 2.36 to 4.48; p= 0.029).
Conclusion: Strong motivation is positively associated with intention to participate in the scientific publications among medical record staff.

Keywords: motivation, intention, medical record staff

Correspondence:
Isnaini Qoriatul Fadhilah. Department of Medical Record, Health Polytechnics, Ministry of Health Semarang. Jl. Tirto Agung, Banyumanik, Kota Semarang. Email: isnaini-qoriatul@gmail.com. Mobile: 089681918022.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.12

FRAUD PREVENTION STRATEGY WITH A MEDICOLEGAL APPROACH IN ELECTRONIC-BASED DATA COLLECTION OF THE HEALTH SYSTEM: A SYSTEMATIC REVIEW

Adji Suwandono, Ari Natalia Probandari, Ratih Puspita Febrinasari

Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: This form of fraud in the health system was not a new thing. The impact of fraud in health services has the potential to harm the state health budget. In addition, things that cannot be avoided can reduce the quality or quality of the health service itself. Regulation was an essential in one of the efforts to prevent fraud. This was used to provide clear standards to distinguish actions that are categorized as fraud or not. This study aimed to examine and analyze fraud prevention strategies in the health system with a medicolegal approach.
Subjects and Method: This study was a systematic review conducted using PRISMA flow diagram. Online articles from 2020 to 2021 were searched from databases, including PubMed, Science Direct, Scopus, and Springer Link. The PICO was as follows. Population: Health facilities. Intervention: An electronic-based health system. Comparison: Without electronic-based health system. Outcome: Fraud. Keywords ("prevention" OR "precaution" OR "deterrence") AND ("fraud" OR "abuse" OR "violation" OR "offense" OR "breach" OR "infraction") AND ("health system" OR "health care" OR "medical management" OR "health program"). A total of 1202 articles were identified. Five articles were included in the inclusion criteria.
Results: This study showed that fraud occurred when the sanctions were weak. Fraud could be prevented by the blockchain system and imposing severe sanctions. A prevention system with advanced technology was needed to reduce the number of frauds in the health services delivery.
Conclusion: A prevention system with advanced technology is needed to reduce the number of fraud in the health services delivery.

Keywords: fraud, medicolegal, electronic health system

Correspondence:
Adji Suwandono. Faculty of Medicine, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java, Indonesia. Email: adji.suwandono@staff.uns.ac.id. Mobile: 08164270612.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.13

TABLETOP EXERCISE SIMULATION FOR HOSPITAL DISASTER PREPAREDNESS: A SYSTEMATIC REVIEW

Diah Mutiarasari[1)], Sukri Palutturi[2)], Fridawaty Rivai[3)], Nurmala Sari[4)], Miranti[5)]

[1)]Doctoral Program, Faculty of Public Health, Hasanuddin University
[2)]Department of Health Policy Administration,
Faculty of Public Health, Hasanuddin University
[3,4)]Department of Hospital Management,
Faculty of Public Health, Hasanuddin University
[5)]Department of Public Health – Community Medicine,
Faculty of Medicine, Tadulako University

ABSTRACT

Background: Hospitals need disaster preparedness. Training model through a participatory approach to improve the knowledge and skills of officers so that they will better prepare for sudden disasters. One of the training media used is a simulation of the tabletop exercise with three level collaboration using a disaster scenario. This training model is intended to improve knowledge and skills in disaster preparedness management. This study aimed to review systematically whether tabletop exercise simulation improved disaster preparedness in hospital.
Subjects and Method: This was a systematic review using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The independent variable was tabletop exercise. The dependent variable was disaster preparedness. Research articles from November 2020 to January 2021 were accessed from Scopus, Pubmed, Proquest, Cambridge Core, Science Direct, and Google Scholar. The search keywords consisted of two domains, "Simulation" (tabletop exercise simulation OR simulation-based disaster) and "Hospital Disaster Preparedness." Initially 470 studies were identified. Six studies fulfilled the inclusion criteria of the review.
Results: This systematic review showed that tabletop exercise improved knowledge and skills in disaster preparedness management in hospital.
Conclusion: Tabletop exercise improves knowledge and skills in disaster preparedness management in hospital.

Keywords: tabletop exercise, simulation, hospital, disaster preparedness

Correspondence:
Diah Mutiarasari. Faculty of Public Health, Hasanuddin University. Jl. Perintis Kemerdekaan 10, Tamalanrea, Makassar, South Sulawesi 90245. Email: diah.mutiarasari@yahoo.com. Mobile: 0811452984.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.14

THE ASSOCIATION OF EMPLOYMENT STATUS AND INTERNET ACCESS WITH NATIONAL HEALTH INSURANCE MEMBERSHIP

Lely Khulafa'ur Rosidah, Rahma Novita Asdary

Academy of Midwivery Dharma Husada Kediri, East Java, Indonesia

ABSTRACT

Background: Many low- and middle-income countries are reforming their health financing mechanisms as part of broader strategies to achieve universal health coverage (UHC). This study aimed to determine the effect of employment status and internet access on national health insurance membership.
Subjects and Method: This was a cross-sectional study using secondary data of the Indonesian Demographic and Health Survey (IDHS) 2017. A total of 5,429 pregnant women was included in this study. The dependent variable was national health insurance membership. The independent variables were employment status and internet access. The data were analyzed by logistic regression.
Results: Employment (aOR= 2.34; 95% CI= 1.74 to 3.16) and internet access (aOR=1.46; 95% CI= 1.09 to 1.97) were significantly associated with national health insurance membership.
Conclusion: Employment and internet access are significantly associated with national health insurance membership.

Keywords: employment, internet access, national health insurance

Correspondence:
Lely Khulafa'ur Rosidah. Academy of Midwivery Dharma Husada. Jl Penanggungan No 41 A, Kediri, East Java, Indonesia. Email: lely_khulafaur@akbiddharmahusada-kdr.ac.id. Mobile: +6285664425144.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.15

THE COVID-19 PANDEMIC: A TRANSFORMATIVE LEARNING FROM A FAITH-BASED PHILANTHROPIC ORGANIZATION

Bambang Edi Prasetyo[1)], Erica Yunita Trisnawati[1)], Latifah Alifiana Rahmawati[1)], Mutiara Tirta P L Kusuma[2)]

[1)]Dompet Dhuafa Foundation, Yogyakarta Branch, Indonesia
[2)]Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Indonesia

ABSTRACT

Background: COVID-19 pandemic poses various challenges to any organization to maintain their work due to prolonged movement restriction and the ambiguity surrounding its end. Dompet Dhuafa Yogyakarta, a philanthropic organization based on Islam, has implemented changes to ensure service delivery and their reach to the targeted populations. This study aimed to identify the way Dompet Dhuafa Yogyakarta adapt with changes as well as explore innovation, best practice, and lesson learned.
Subjects and Method: This was a qualitative case study conducted at Dompet Dhuafa Yogyakarta, from June to October, 2021. The informants included branch manager, head of health program, and project assistant. The data were collected through focus group discussion. The data were analyzed according to themes (thematic analysis) using the IPO logic model (input-process-output) as a framework for analysis.
Results: Three major themes emerged: (1) Surviving the pandemic; (2) Making greater contributions; and (3) Ensuring sustainability. Several changes had been made in order to sustain the work of Dompet Dhuafa Yogyakarta and achieve organizational mission as part of crisis exit strategies. Crisis management was a part of strategic management aiming at ensuring organizations survive during major disruption. As part of the crisis responses, Dompet Dhuafa Yogyakarta implemented adaptive approaches by initiating new projects, collaborating with new partners, and diversifying funding sources. The key informants also stated that the digital technology was low-cost, flexible, sustainable, and was able to reach the poor population. The digital technology could be used to help support the newly implemented telemedicine and social media-based health education programs.
Conclusion: This study highlights how Dompet Dhuafa Yogyakarta responded to the pandemic. Several changes have been made in order to sustain their work and achieve organizational mission as part of crisis exit strategies. Lessons learned should be taken from this pandemic to develop future emergency preparedness plans.

Keywords: crisis management, emergency preparedness, exit strategy, COVID-19, faith-based philanthropic organization

Correspondence:
Mutiara T P L Kusuma. Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada. Jl. Farmako, Sekip Utara, Yogyakarta 55281 Indonesia. Email: mutiara.tirta@gmail.com. Mobile: 081398803205.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.16

THE EFFECTIVENESS OF TELENURSING IN IMPROVING THE QUALITY OF NURSING HEALTHCARE SERVICE IN WOUND CARE BASED ON OREM AND IMOGENE KING THEORIES: A SYSTEMATIC REVIEW

Indah Nursanti

Faculty of Nursing, Universitas Airlangga, Surabaya, East Java

ABSTRACT

Background: In the COVID-19 pandemic, patients who needed wound care became less visited the hospitals, health centers, or other health facilities due to the concerns about COVID-19 transmission. It may lead to worsening wound conditions, which will impact the quality of health services. The nursing staff is the main part of wound care practices, primarily conducted in private nursing practices. The advancement in telecommunications and development in telemedicine offer promising potential for setting up a tele-wound care program. Telenursing uses technology to deliver nursing care and conduct nursing practice as long-distance clinical health care. This study aimed to systematically review telenursing in improving the quality of nursing healthcare service in wound care based on Orem's and Imogene King's theories.
Subjects and Method: This was a systematic review. The research question was formulated in PICO: Population, Intervention, Comparison, and Outcome. The inclusion criteria were (1) Patients who can perform care independently at home; (2) The time used was in accordance with the winner scale criteria on wound healing; (2) A case study applied the integration of Orem's self-care theory and Imogene king interpersonal system, using Service Quality (ServQual) indicators with RATER scale (responsibility, assurance, tangibles, empathy, and responsiveness).
Results: Based on the theoretical concepts of the Orem self-care model and the Imogene King interpersonal system, telenursing was useful for delivering wound care services focused on client independence, which could improve the quality of nursing healthcare services.
Conclusion: Telenursing is effective in improving the quality of health services in wound care.

Keywords: telenursing, Orem self-care model, Imogene King interpersonal system, quality of health service, wound care, client independence

Correspondence:
Indah Nursanti. Faculty of Nursing, Universitas Airlangga, Surabaya. Jl. Dr. Ir. H. Soekarno, Mulyorejo, Surabaya, East Java. Email: inursanti791@gmail.com. Mobile: +6281351925833.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.17

EMPOWERMENT OF HOSPITAL SANITATION WORKERS AS A MEDIA FOR TRANSFERRING COVID-19 PREVENTION KNOWLEDGE TO THEIR FAMILIES

Masfiyah, Rahayu

Department of Clinical Microbiology, Faculty of Medicine,
Universitas Islam Sultan Agung - Sultan Agung Islamic Teaching Hospital

ABSTRACT

Background: From the outset of the Coronavirus disease 2019 (COVID-19) pandemic, it was clear that hospitals were an important setting for viral transmission. Hospital sanitation workers are high-risk group of exposure to COVID-19, which may lead to transmission of people whom they interact, especially their families. This study aimed to describe the percentage of knowledge transferred to families of hospital sanitation workers after receiving the COVID-19 transmission prevention training.
Subjects and Method: This was a cross-sectional study conducted at Islam Sultan Agung Hospital, Semarang, Central Java, from September to December 2020. The study subjects were (1) 25 hospital sanitation workers who received COVID-19 transmission prevention training; and (2) 25 family members of those hospital sanitation workers who answered the same questions of the conducted training. The variables of the COVID-19 transmission prevention training were the practice of personal protective equipment, disinfectants, environmental hygiene, cough etiquette, and hand washing practices. The data of transferred knowledge were collected using questionnaire answered by the family member and described in percent.
Results: Most of the family members of hospital sanitation workers were female (68%), high school level of education (83.3%), and self-employed or housewives (96%). From the score of knowledge gained from 0-100, the subject family members scored the knowledge about the practice of personal protective equipment (score= 100), environmental hygiene (score= 70 to 100), disinfectants (score= 84 to 100), cough etiquette (score= 76 to 100), and hand washing (80 to 100). As many as 72% family members of hospital sanitation workers was transferred knowledge about COVID-19 transmission prevention.

Conclusion: Hospital sanitation workers transfer the COVID-19 transmission prevention knowledge to their family members.

Keywords: COVID-19 transmission prevention, knowledge, ospital sanitation workers

Correspondence:
Masfiyah. Department of Clinical Microbiology, Faculty of Medicine, Universitas Islam Sultan Agung-Islam Sultan Agung Hospital. Jl Kaligawe Km 4 Semarang, Central Java. Email: masfiyah@unissula.ac.id. Mobile: 081901187887.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.18

WHAT THE PANDEMIC HAS TAUGHT US: A PRELIMINARY FINDING FROM MOOC DEVELOPMENT PROJECT IN DIETETIC EDUCATION

Mutiara Tirta P L Kusuma[1)], Latifah Alifiana Rahmawati[1,2)]

[1)]Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta
[2)]Dompet Dhuafa Foundation, Branch Yogyakarta

ABSTRACT

Background: Various teaching methods and digital learning platforms have been in use to support learning during the Covid-19 pandemic. We presented the preliminary findings from the development project of a massive open online course (MOOC) in dietetic education. The study aimed to illustrate the process that will allow methodological adoption in any health professional education institution.
Subjects and Method: An MOOC in dietetic education has been piloted between March and October 2021 in a state dietetic school in Yogyakarta. The overall study which aimed to evaluate the course quality, was qualitative in nature. This case study was a critical reflection from all lecturers and teaching assistants involved in the preparation and implementation stages. We used content analysis to examine the data from group discussions, documents, and reflective journals.
Results: There were 112 students enrolled in the course, most of them were dietetic students in their junior year. We used the MOOC platform provided by Universitas Gadjah Mada to run the 7-weeks courses (equal with 1 credit point). We utilized a flipped classroom model, in which all learning materials were provided way before class time. We also incorporated weekly quizzes with immediate feedback, interactive discussion forum, and gamification to promote active learning. Exam and assessment are underway, although the initial data shows challenges on facilitating large scale marking and feedback. Digital competency remains as a major challenge experienced by the lecturers.
Conclusion: With respect to the platform usability, MOOC has been able to support learning during the pandemic. It has the potential as an exit strategy given its flexibility and ability to reach a wider population. Further studies are required to develop ways to ensure easy adoption of the system.

Keywords: massive open online course, dietetic education, education, COVID-19

Correspondence:
Mutiara T P L Kusuma. Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada. Jl Farmako, Sekip Utara, Yogyakarta 55281. Email: mutiara.tirta@gmail.com. Mobile: +62 81398803205.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.19

DYNAMIC MODEL OF CONTROLLING OCCUPATIONAL DISEASES AT AN INSTANT NOODLE COMPANY IN MAKASSAR

Januar Ariyanto

Doctoral Program in Public Health Science, Universitas Hasanuddin, Makassar, South Sulawesi, Indonesia

ABSTRACT

Background: Decent work was closely related to health problems in every workforce. To maintain productivity in the workplace, one of the efforts that must be done was to control occupational diseases. Several factors were originating from the production process, which was known to cause occupational diseases. This study aimed to determine a dynamic model of managing the incidence of occupational diseases in an instant noodle company in Makassar

Subjects and Method: This was a research and development (R&D) method through a dynamic systems approach. It the located at an instant noodle company in Makassar, South Sulawesi. A sample of 546 were selected for this study. Then use Interpretative Structural Modeling (ISM) to get the right control scenario to reduce the incidence of occupational diseases. quantitative data were obtained from a total sampling of all employees in the production department, qualitative data from interviews with company management and policymakers

Result: Validation tests on the three sub-models and the overall model in this study using AME and AVE respectively are; sub-model of Labor Demand Based on Market Demand (p=0.004 & p=0.027); Sub-model of MSDS (p=0.0048 & p=0.012); Sub-model of the incidence of upper respiratory tract infection (p=0.009 & p=0.0068); work-related disease control model (p=0.006 & p=0.0162). The critical elements of an occupational disease control model at an instant noodle company in Makassar based on interpretive structural modeling are work posture, lifting load, dust, ventilation, and working time. There are four control scenarios carried out using a dynamic system approach, namely: Do Nothing Scenario, Musculoskeletal Disorders Scenario (work posture, lifting load and length of work), upper respiratory tract infection Scenario (dust, ventilation, and duration of work), and combined scenarios (MSDS and upper respiratory tract infections.

Conclusion: The most effective scenario for reducing the incidence of occupational diseases in instant noodle companies in Makassar is the combined scenario, with an average of 46.71% per year. The dynamic model of controlling occupational diseases is the first.

Keywords: Control Model of Occupational Diseases, MSDS, Upper Respiratory Tract Infection, Dynamic Model, Interpretive Structural Modeling.

Correspondence:
Januar Ariyanto. Public Health Science Doctoral Program, Universitas Hasanuddin, Makassar. Jl. Perintis Kemerdekaan KM. 10, Tamalanrea, Makassar, South Sulawesi 90245, Indonesia. Email: petjodz@gmail.com. Mobile: 082210346055.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.20

PERCEPTION OF POST PARTUM MOTHERS WITH SECTIO CAESAREA ON THE ROLE OF THE MATERNITY NURSE AT KARTIKA HUSADA HOSPITAL PONTIANAK, WEST BORNEO

Dwi Kurniasih, Elly Marce Titihalawa, Florida Listavia Panggus

Midwifery Academy of Dharma Insan, Pontianak, West Borneo

ABSTRACT

Background: The risk of morbidity and mortality in the postpartum period often occurs due to delays in handling and lack of knowledge. Maternity nurse has an important role in improving women's health status while still paying attention to the concept of family centered maternity care. This study aimed to explore what nurses need to do based on the patient's perception.
Subjects and Method: This was a qualitative study with phenomenology approach conducted at Kartika Husada Hospital, Pontianak, West Borneo, in March 2021. A sample of 8 study subjects was selected consisting of 5 key informants of post-partum mothers and 3 triangulation informants of nurses, including the head nurse of the team and the head of the room. The data were collected by semi-structured interviews and analyzed by content analysis.
Results: Three major themes of the role of maternity nurses were identified based on the perception of postpartum mothers with sectio caesarea in hospitals as follows: (1) Nurses acting as care providers; (2) Educators; and (3) Advocators. Those roles were carried out both for postpartum mothers and their families during hospitalization with the concept of family centered maternity care.
Conclusion: Maternity nurses based on the perception of postpartum mothers with sectio caesarea act as care providers, educators, and advocates for patients and families.

Keywords: maternity, post-partum, sectio caesarea, nurse

Correspondence:
Dwi Kurniasih. Midwifery Academy of Dharma Insan, Pontianak, West Borneo. Jl. Hasanuddin 115C, Pontianak, West Borneo. Email: dwi.kurniasih@akperdharmainsan-.ac.id. Mobile: +62 81351607978.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.21

LEGAL PROTECTION ON NATIONAL HEALTH INSURANCE MEMBERS IN INPATIENT HEALTH SERVICES AT R. SYAMSUDIN AND HERMINA HOSPITALS, SUKABUMI, WEST JAVA

Ni Putu Juwanita Dewi, Budi Heryanto

Masters Program in Law, School of Law Collage Pasundan, Sukabumi, West Java

ABSTRACT

Background: The hospital is one of the health facilities that collaborate with BPJS in providing health services. One of the national health insurance (BPJS) participants is a participant who receives BPJS health contribution assistance but can still use health service facilities including inpatient services at hospitals. BPJS Kesehatan participants who receive contribution assistance will still receive good quality and fast service even though they are recipients of financial assistance from the government. This study aimed to explore legal protection on national health insurance members among inpatients health services.
Subjects and Method: This was a qualitative study conducted at R. Syamsudin General Hospital and Hermina Hospital, Sukabumi, West Java, from September to November 2020. A total of 30 key informants consisting of inpatients who registered social health insurance, and hospital management staff from the study location was selected at random. The study variable was legal protection of inpatients who registered social health insurance. The data were collected by in-depth interview and observation. The data were analyzed descriptively.
Results: Legal protection provided by R. Syamsudin General Hospital and Hermina Hospital Sukabumi was more preventive, including: (1) Providing information and special complaints officer facilities for national health insurance; and (2) Providing information and complaints teams for hospital visitors and providing suggestion boxes in several strategic places in the hospital environment. However, repressive legal protection was not carried out because the characteristic of the patient or family of the national health insurance members, especially recipients of contribution assistance were more like to be passive and chose to accept any kind of health services provision.
Conclusion: The legal protection provided by R. Syamsudin General Hospital and Hermina Hospital, Sukabumi, West Java is more preventive in nature, and has been well implemented.

Keywords: legal protection, hospital, national health insurance members, patients

Correspondence:
Ni Putu Juwanita Dewi. Masters Program in Law, School of Law Collage Pasundan. Jl. Pasundan, Nyomplong, Warudoyong, Sukabumi, West Java, Indonesia. Email: happy-nitadewi@gmail.com. Mobile: +62 817438713.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.22

FACTORS AFFECTING THE IMPLEMENTATION OF NURSE THERAPEUTIC COMMUNICATION TO PATIENTS TREATED AT SANT ANTONIUS PONTIANAK GENERAL HOSPITAL DURING THE COVID-19 PANDEMIC

Dwi Kurniasih, Antonius Jumadi, Elisabeth Wahyu Savitri

Nursing Academy Dharma Insan, Pontianak, West Kalimantan

ABSTRACT

Background: The nurse-client relationship is a reciprocal relationship that is mutually beneficial in nursing care. All actions, thoughts, words, and interventions performed by nurses become therapy for the client's recovery. This study aimed to factors affecting the implementation of nurse therapeutic communication to the patients treated at Sant Antonius Pontianak General Hospital during the COVID-19 pandemic.
Subjects and Method: This was a cross-sectional study conducted at Santo Antonius General Hospital, Pontianak, West Kalimantan, from May 01 to 31 2021. A sample of 154 hospital nurses was selected for this study. The dependent variable was therapeutic communication. The independent variables were age, gender, education, work position, and length of work. The data were collected by questionnaire. The data were analyzed by odds ratio and chi-square.
Results: The therapeutic communication in hospital nurses was associated with age (OR= 1.08; 95% CI = 0.19 to 6.11; p= 1.000), female (OR= 0.57; 95% CI= 0.36 to 0.89; p< 0.001), education (OR= 1.41; 95% CI= 1.00 to 1.07; p= 1.000), COVID-19 patient care (OR= 1.09; 95% CI= 1.01 to 1.17; p= 0.009), and longer work experience (OR= 0.96; 95% CI= 0.93 to 0.99; p= 1.000).
Conclusion: The therapeutic communication in hospital nurses is associated with age, female, education, COVID-19 patient care, and longer work experience.

Keywords: therapeutic communication, hospital, nurses

Correspondence:
Dwi Kurniasih. Nursing Academy Dharma Insan, Pontianak. Jl Merdeka 55 Pontianak, West Kalimantan. Email: dwi.kurniasih@akperdharmainsan.ac.id. Mobile: +62 81351-607978.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.23

HEALTH BUDGET REFOCUSING POLICY AND ITS IMPLICATION FOR ACHIEVING MINIMUM SERVICE STANDARDS: A CASE STUDY IN EAST NUSA TENGGARA

Serlie Kristin Adriani Littik, Dominirsep Ovidius Dodo, Stefanus Pieter Manongga

Faculty of Public Health, Universitas Nusa Cendana, Kupang, East Nusa Tenggara, Indonesia

ABSTRACT

Background: Evidence shows that for countries to make progress towards UHC their health system needs to rely predominantly on public revenue sources. Budget allocations to health reflect political commitment, but effectively spending those funds the strength of the health system. In many countries, governments do not fully execute budget allocations for a variety of reasons, including deficiencies in public financial management. This study aimed to explore health budget refocusing policy and its implication for achieving minimum service standards.
Subjects and Method: This was a qualitative study with a phenomenological design. The study was conducted in Sumba District Health Office, Central Sumba, East Nusa Tenggara, Indonesia, from October 2020 to March 2021. Data was collected through semi-structured in-depth interview and focus group discussion, document review, and observation. Triangulation is done by comparing the results of interviews and focus group discussion. The data were analyzed using thematic analysis.
Results: The concept of budget refocusing was interpreted in various ways. Lack of instruction and coordination both internally and across sectors make planners do refocus according to their own perspective knowledge and abilities. Refocusing causes changes in activities, methods, time, budget, and personnel, and minimal standard service goals. Implementation of budget refocusing policy potentially creates new long and short terms problems within the health sector.
Kesimpulan: Arahan, komunikasi, dan koordinasi internal dan eksternal diperlukan untuk meningkatkan pencapaian target SPM.
Conclusion: Directions, communication, and internal and external coordination are needed to increase the achievement of minimal standard service targets.

Keywords: budget refocusing, minimum standards service, remote area

Correspondence:
Serlie K.A. Littik. Public Health Faculty, University of Nusa Cendana. Jl. Adisucipto Penfui Kupang, East Nusa Tenggara, Indonesia. Email: serlie.littik@staf.undana.ac.id. Mobile: 081339100780.

https://doi.org/10.26911/AB.Management.ICPH.08.2021.25

TOPIC V :
MEDICINE

FAMILY INTEGRATED SELF-MANAGEMENT EDUCATION ON LIPID PROFILE IN TYPE 2 DIABETES MELLITUS PATIENTS: META-ANALYSIS

Akhmad Azmiardi[1)], Bhisma Murti[2)], Ratih Puspita Febrinasari[3)], Didik Gunawan Tamtomo[4)]

[1)]Doctoral Program of Public Health, Universitas Sebelas Maret
[2)]Masters Program in Public Health, Universitas Sebelas Maret
[3)]Department of Pharmacology, Faculty of Medicine, Universitas Sebelas Maret
[4)]Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Self-management education is an essential part of diabetes care and family support is known to be a critical component of in self-care to achieve better health outcome such as lipid profile. This study aimed to review systematically the effect of family integrated with self-management education on lipid profiles in patient with type 2 diabetes.
Subjects and Method: Systematically searching was carried out on electronic databases, including PubMed, Cochrane Library, ProQuest, Springer link, Science direct, Scopus, and Google scholar for English language articles published from 2000 until 2020. Randomized controlled trials that evaluated the family integrated self-management education in patients with type 2 diabetes were included. The effect size was estimated as standard mean difference (SMD), with a confidence interval (CI) of 95% utilizing a fix-effects model.
Results: Eight randomized controlled trials were encompassed in the meta-analysis. Family integrated self-management education compared with usual care show that total cholesterol (SMD= -0.08; 95% CI -0.20 to 0.05; p=0.25), triglyceride (SMD= 0.03; 95% CI -0.11 to 0.17; p=0.71), HDL (SMD= -0.01; 95% CI -0.32 to 0.29; p=0.95), and LDL (SMD= 0.05; 95% CI= -0.22 to 0.32; p=0.73) were statistically did not significant. This finding show that family integrated in self-management education had no effect on lowering lipid profile
Conclusion: Family integrated in self-management education has no effect on lowering lipid profile among people with type 2 diabetes.

Keywords: meta-analysis, family, self-management, lipid profiles, type 2 diabetes

Correspondence:
Akhmad Azmiardi. Doctoral Program of Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta, Central Java. Email: aazmiardi@gmail.com

BACKGROUND

Diabetes mellitus is global public health issue with a substantial effect on the cost of living and human health. Type 2 diabetes mellitus (T2DM) is a metabolic problem in the production and response to insulin or insulin resistance and accounts for around 90% of all diabetes cases (American Diabetes Association, 2018; Galicia-Garcia *et al.*, 2020). The number of people with type 2 diabetes is rising in almost every country and 80 percent of adults with diabetes live in low- and middle-income countries (Lin *et al.*, 2020; Lam *et al.*, 2021).

The International Diabetes Federation (IDF) has estimated a rise of

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.01

693 million people with diabetes by 2045 (Cho *et al.*, 2018). For people with diabetes, there is a marginally higher chance of mortality than in the population without diabetes. Type 2 diabetes is a chronic disease with a major characteristic called hyperglycemia. Hyperglycemia is triggering defects in insulin secretion and/or its mechanism of action, causing disorders in distinct organs and systems (Jiménez *et al.*, 2020). A high level of hyperglycemia in diabetes is able to lead to micro and macrovascular complications.

Macrovascular complications in type 2 diabetes mellitus can cause several diseases including cardiovascular disease, stroke, and peripheral artery disease (Rangel *et al.*, 2019). There are several factors showed a strong association with macrovascular complication in type 2 diabetes including high Body Mass Index (BMI), high systolic/diastolic blood pressure, high total cholesterol, high triglyceride, high LDL, low HDL, increased intake of unhealthy foods, sedentary lifestyle, and smoke or do not engage in diabetes self-management behavior (Baena-Díez *et al.*, 2016).

Diabetes self-management education is important aspect in managing the disease to prevent the complication and developing the disease (Haas *et al.*, 2014). In order to initiate and maintaining self-management of diabetes, the role of family is becoming key success to reach better outcome and health condition. Prior systematic review and meta-analysis about the effect of family involvement in DSME on glycemic control for patients with type 2 diabetes that included 17 randomized control trial showed that family involvement in DSME effective to increases glycemic control for patients with type 2 diabetes than standard diabetes self-management education (Azmiardi *et al.*, 2021).

However, there are limited reports and review about whether there is a difference in the lipid profiles between the family integrated diabetes self-management education and standard diabetes management education. This study aimed to review systematically the effect of family integrated with self-management education on lipid profiles in patient with type 2 diabetes. The findings will promote the preparation of evidence-based interventions and help inform future studies.

SUBJECTS AND METHOD

1. Study Design

This was a meta-analysis of randomized controlled trials (RCT's) study that reported by Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guideline (Page *et al.*, 2021).

2. Searching Strategy

A systematic search of electronic databases and grey literature for relevant papers published in English between 2000 and 2020 was undertaken. Multiple journal databases were used to find relevant articles, including PubMed, SpringerLink, Science Direct, Google Scholar, and EBSCO. The search method included medical subject (MeSH) keywords and PICO framework articles (participants, intervention, comparison, and outcomes). "Type 2 diabetes" AND "self-

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.01

management" AND "diabetes self-management education" AND "family support" AND "Lipid Levels" OR "Lipid Profiles" OR “Total cholesterol” AND “Triglyceride” AND “Low density lipo-protein” AND “LDL cholesterol” AND “High density lipo protein” AND “HDL cholesterol” were utilized in combinations. In addition, for grey literature searches, nonprofit publications such as the Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), and the American Diabetes Association (ADA) were used.

3. Inclusion and Exclusion Criteria

The inclusion criteria for this study were a randomized controlled trial design, patients with type 2 diabetes, intervention utilizing the DSME program, intervention groups with DSME integrated with family were included and lipid profiles including total cholesterol, triglyceride, LDL and HDL as outcomes. In control group studies included usual care, standard care or waitlist assignment. Non-randomized control trials, studies, intervention did not utilize DSME, no family component, and studies that did not assess lipid profiles as outcome were excluded.

Study Selection

A screening process was conducted by two authors independently (AA and BM). First screening was done by the titles and abstracts of studies. Selected studies then reviewed full paper independently based on predefined exclusion and inclusion criteria and then data were extracted. Any disagreement was resolved by reaching a consensus.

4. Data Extraction

Two author independently (BM and DT) extracted data from included articles into the structured table. The extracted data consisted of the first author, year of publication, study design, settings, country, mean participant age, sample size, duration of intervention, definitions of intervention and control and also lipid profiles.

Bias and quality appraisal

The Cochrane Collaboration tool was used for assessment risk of bias. The Cochrane Collaboration tool had categories including selection bias, performance bias, detection bias, attrition bias, reporting bias, and other bias (Higgins *et al.*, 2011). This tool used the relevant criteria for classification as low, unclear, or high risk. Publication bias was assessed by funnel plot. The funnel plot is a scatter plot based on the predicted effect size on the sample size. The funnel plots will be distributed symmetrically if there is no publishing bias. On the other hand, if the funnel is asymmetrical, publication bias is indicated (Godavitarne *et al.*, 2018).

Statistical Analysis

Review Manager 5.2 was used to performed the analysis. Mean and standard deviation were used for analysis. The result of analysis was presented as in standard mean differences, 95% CI, and heterogeneity (I^2). Then, the data heterogeneity employed Cochran's Q and I^2, with p-values <0.05 for Cochran's Q values and $I^2 \geq 50\%$, suggesting substantial heterogeneity (Higgins, 2003). The meta-analysis result was presented in forest plot. A forest plot is a diagram displaying each experiment's details in

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.01

the meta-analysis and predictions of the total effects (Lewis *et al.*, 2001).

RESULTS

1. Study Characteristics

Figure 1 show the PRISMA flow chart. The initial search resulted in 636 articles obtained from PubMed, SpringerLink, Science Direct, Google Scholar, and EBSCO databases. After removing 19 duplicate articles, 615 articles remained. 598 records were excluded due title and abstracts screening and resulted 17 articles for full review. Due several reasons only 8 articles were selected for meta-analysis. Two studies reported their lipid profile findings in mmol/l and these were converted mg/dl to for analysis.

Table 1 shows the characteristics of the included studies. The number of respondents from all articles included were 947 respondents. The respondents' mean age was ranging from 49.1 to 60.3 years. The sample sizes were ranging from 12 to 113. The duration of diabetes ranging from 3.8 to 15.7 years. The majority of the studies were carried out in the United States (S. A. Brown *et al.*, 2002; Castejón *et al.*, 2013; García *et al.*, 2014; Ing *et al.*, 2016; McElfish *et al.*, 2019), Thailand (Withidpanyawong *et al.*, 2019), Taiwan (Kang *et al.*, 2010), and Brazil (Gomes *et al.*, 2017). Due to the heterogeneity of the study findings, the quality of evidence was rated as moderate.

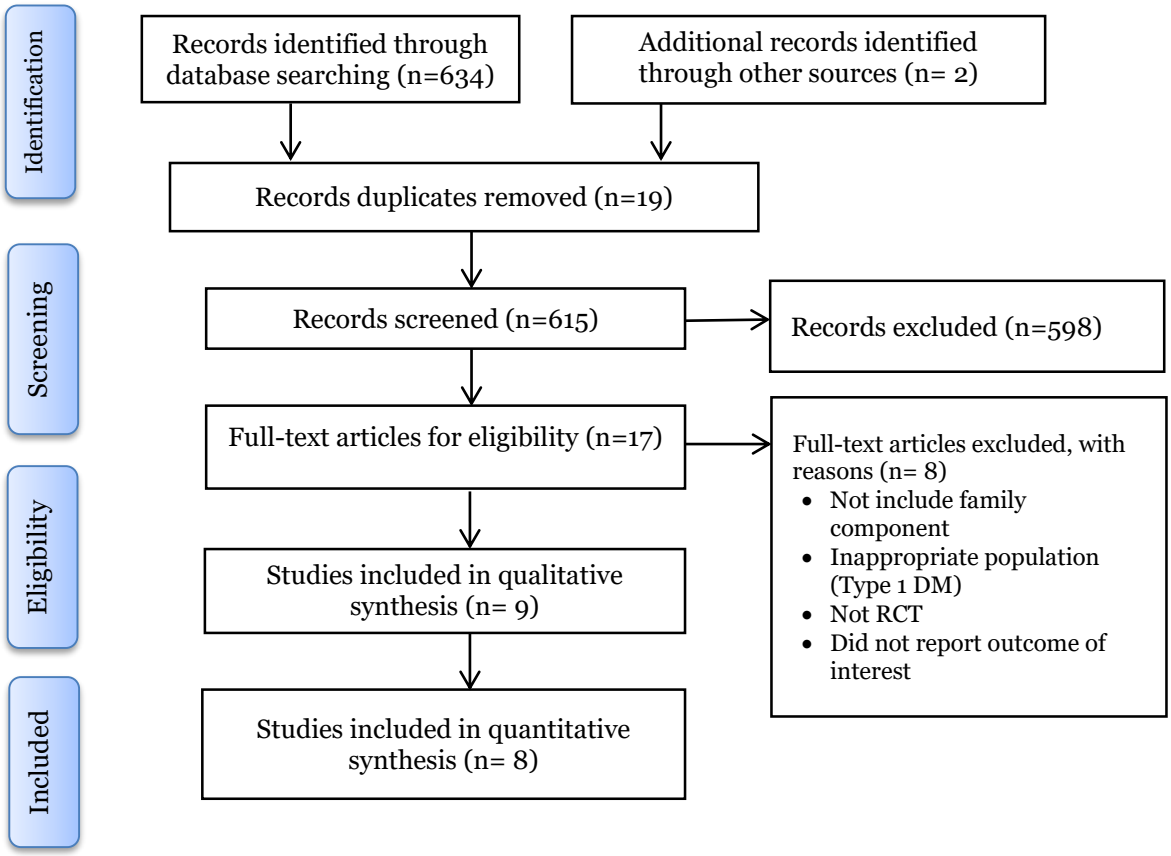


Figure 1. PRISMA flow chart

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.01

Table 1. Summary of 6 randomized controlled trials family involvement in DSME on glycemic control in patients with type 2 diabetes included in the analysis

Author	Year	Country	Design	Diabetes duration (year)		Mean age		Definition of Family	Family involvement in DSME intervention	Control	Duration
				IG	CG	IG	CG				
Brown et al., 2002	2002	US	RCT	7.6	8.1	54.7	53.3	First degree relative	The intervention involved: (1) 3 months of weekly instructional sessions on nutrition, self-monitoring of blood glucose, exercise, and other self-care topics; and (2) 6 months of biweekly support group sessions, family participation, to promote behavior changes.	Usual care	12 month
Kang et al., 2010	2010	Taiwan	RCT	3.8	4.4	55.3	51.7	Family members, or relative.	Comparing family partnership intervention care (FPIC) with conventional care (CC) across a number of outcome measures in patients with poorly controlled type 2 diabetes	Usual care	6 month
Castejón et al., 2013	2014	US	RCT	-	-	54	55	Family member	discussion and counseling sessions on medication, nutrition, exercise, and self-care to promote behavior changes by pharmacists. Sessions were culturally adapted for language, diet, family participation, and cultural beliefs.	Usual care	3 month
García et al., 2014	2015	US	RCT	6.2	7.2	50	49.1	Not-mentioned	8 weeklies, in-home, one-on-one educational and behavior modification sessions with a nurse focusing on symptom awareness, glucose self-testing and appropriate treatments, followed by eight biweekly support telephone session	Wait-listed control	6 month
Ing et al., 2016	2016	Hawaii	RCT	-	-	54.62	54.42	Not-mentioned	Comparing social support groups (SSG) to a control group, SSG receipt family involvement program	Usual care	6 month
Gomes et al., 2017	2017	Brazil	RCT	15.7	7.82	60.43	60.43	A family member or relatives.	The intervention group included a family caregiver, diabetes education provided through telephone calls to patients' family members and caregivers.	Usual care	12 month
Withidpanyawong et al., 2019	2018	Thailand	RCT	5.61	6.35	60.53	58.13	Living in the same Household	A pharmacist delivered the educational sessions and encouraged family members to take an active role in self-management practices for the intervention patients. The control patients received usual care.	Usual care	9 month
McElfish et al., 2019	2019	US	RCT	-	-	52.2	52.2	Living in Same households	The adapted DSME included 10 h of content delivered over an 8-week period and covered eight core elements of DSME. the adapted DSME curriculum engaged family members in the educational sessions delivered by certified educators.	Usual care	12 month

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.01

Table 2. Summary of lipid profiles in included studies

Author	Year	Country	Design	Total Cholesterol				Triglyceride				LDL				HDL			
				Sample (N)		IG	CG	Sample (N)		IG	CG	Sample (N)		IG	CG	Sample (N)		IG	CG
Brown *et al.*, 2002	2002	US	RCT	112	113	189.88 (36.35)	187.64 (42.66)	113	113	214.43 (194.93)	198.65 (148.38)	-	-	-	-	-	-	-	-
Kang et al. (2010)	2010	Taiwan	RCT	28	28	196.68 (32.56)	192.29 (35.18)	28	28	153.04 (62.35)	160.14 (89.12)	28	28	124.92 (29.67)	124.25 (30.81)	28	28	47.75 (8.87)	45.32 (9.66)
Castejon(Castejón et al., 2013)	2014	US	RCT	19	24	169.0 (38.79)	175.0 (42.13)	19	24	198.0 (113.33)	228.0 (186.16)	19	24	91.0 (38.53)	96.8 (26.45)	19	24	37.3 (10.46)	38.3 (12.73)
García et al., 2014	2015	US	RCT	39	33	164.1 (54.33)	195.6 (55.14)	39	33	166.3 (181.72)	224.2 (183.25)	39	33	89.95 (37.47)	106.88 (39.63)	39	33	43.9 (12.49)	44.4 (12.63)
Ing et al., 2016	2016	Hawaii	RCT	22	12	177,12 (32,92)	174,24 (35,52)	22	12	216,78 (175,14)	215,92 (140,63)	22	12	105,13 (34,53)	96,11 (34,63)	22	12	42,47 (12,93)	35,73 (9,71)
Gomes et al., 2017	2017	Brazil	RCT	82	82	166.71 (32.85)	165.4 (43.44)	82	82	210.94 (144.03)	182.78 (134.49)	82	82	95.83 (27.09)	94.27 (33.61)	82	82	34.85 (9.34)	36.28 (8.91)
Withidpanyawong et al., 2019	2018	Thailand	RCT	88	92	195.3 (49.17)	196.4 (44.38)	88	92	68.44 (35.85)	69.61 (32.81)	88	92	119.06 (46.86)	100.6 (39.58)	88	92	45.63 (9.23)	45.64 (8.91)
McElfish et al., 2019	2019	US	RCT	83	90	168.22 (36.54)	179.42 (41.10)	-	-	-	-	-	-	-	-	79	87	36.16 (10.75)	36.31 (9.57)

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.01

2. Total cholesterol

A meta-analysis was conducted using data from 8 studies. The comparison between the family integrated self-management education on total cholesterol did not show the significant result compared with usual care (SMD= -0.08; 95% CI -0.20 to 0.05; p= 0.25) (Figure 2). The heterogeneity was very low (I^2= 18%), and it was statistically non-significant (p=0.29) therefore, a fixed effect model was used. Funnel plot on included studies showed that there was publication bias, it was indicated by the circles location that was in the asymmetrically (Figure 3).

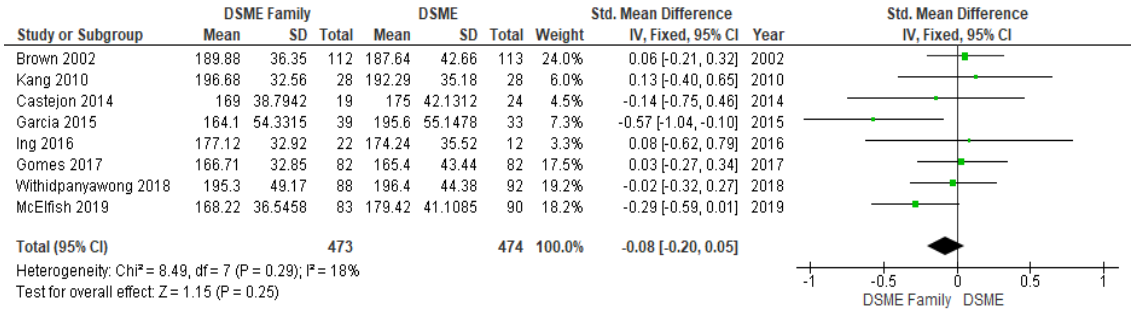


Figure 2. Forest plot of total cholesterol

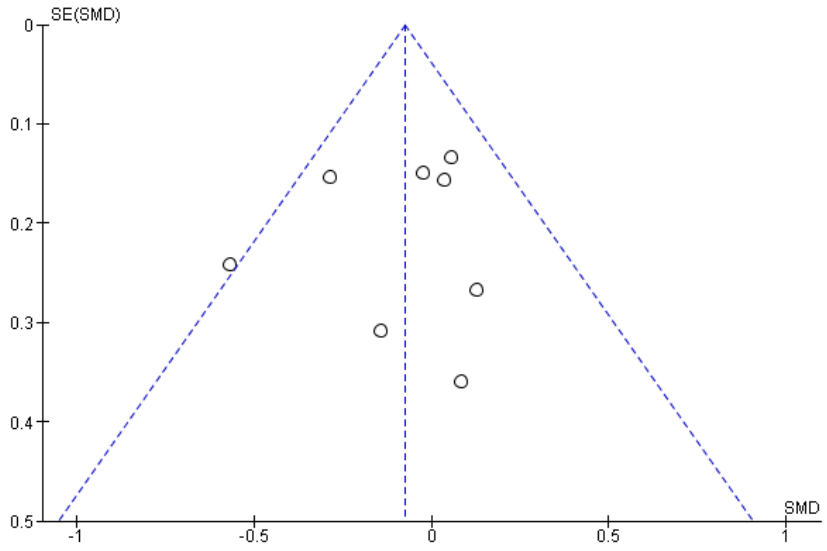


Figure 3. Funnel plot of total cholesterol

3. Triglyceride

A meta-analysis was conducted using data from 7 studies. The comparison between the family integrated self-management education on triglyceride did not show the significant result compared with usual care (SMD= 0.03; 95% CI -0.11 to 0.17; p=0.71) (figure. 4). The heterogeneity was very low (I^2= 0%), and it was statistically non-significant (p= 0.57) therefore, a fixed effect model was used. Funnel plot on included studies showed that there was no publication bias, it was indicated by the circles location that was in the symmetrically (Figure 5).

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.01

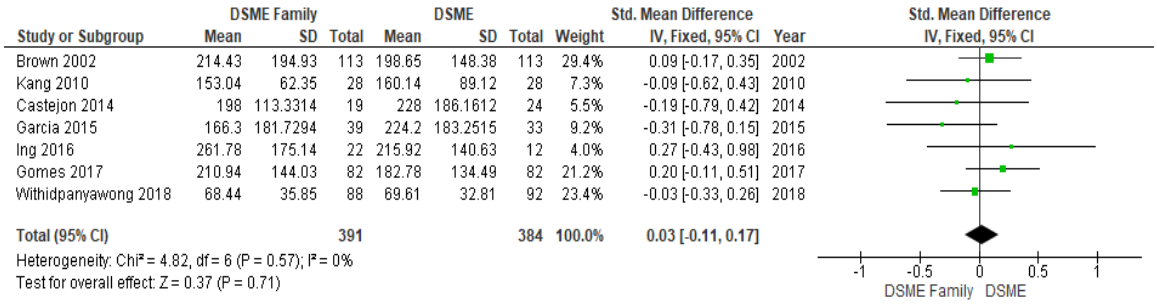


Figure 4. Forest plot of triglyceride

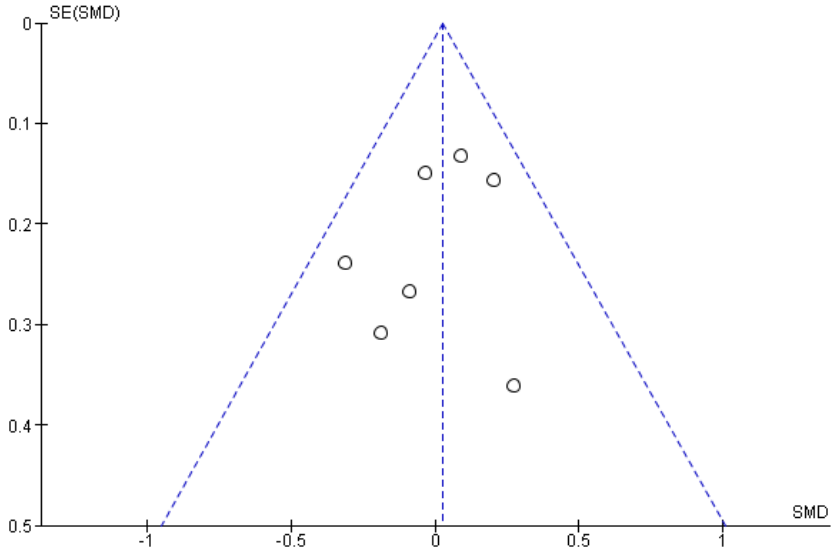


Figure 5. Funnel plot of triglyceride

4. HDL Cholesterol

A meta-analysis was conducted using data from 7 studies. The comparison between the family integrated self-management education on HDL did not show the significant result compared with usual care (SMD= -0.01; 95% CI -0.32 to 0.29; p=0.95) (Figure 6). The heterogeneity was very low (I^2= 0%), and it was statistically non-significant (p= 0.64) therefore, a fixed effect model was used. Funnel plot on included studies showed that there was publication bias, it was indicated by the circles location that was in the asymmetrically (Figure 7).

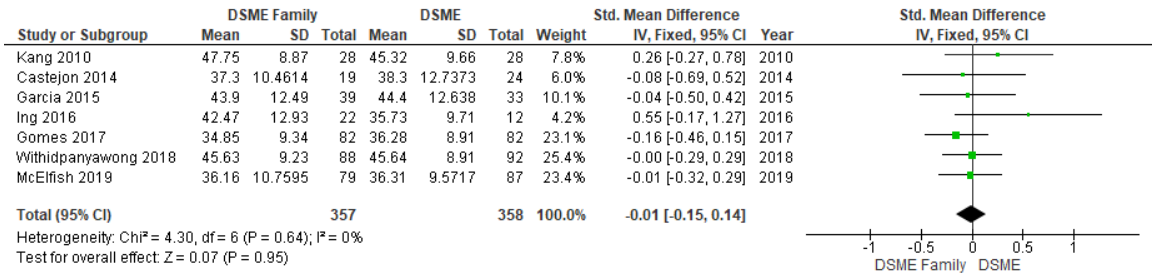


Figure 6. Forest plot of HDL Cholesterol

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.01

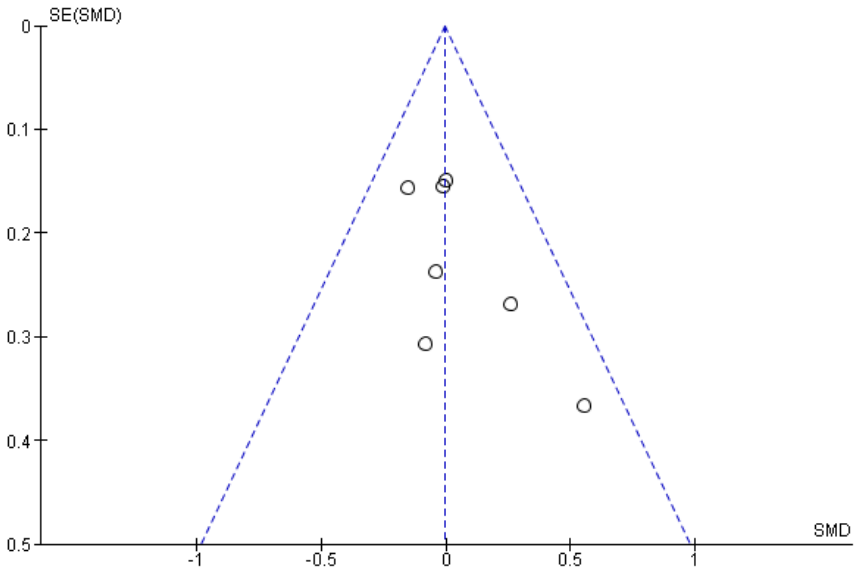


Figure 7. Funnel plot of HDL Cholesterol

5. LDL Cholesterol

A meta-analysis was conducted using data from 4 studies. The comparison between the family integrated self-management education on LDL show significant result compared with usual care (SMD= 0.05; 95% CI= -0.22 to 0.32; p=0.73) (figure 8). The heterogeneity was low (I^2= 54%), and it was statistically non-significant (p=0.06).

Therefore, a random effect model was used. Funnel plot on included studies showed that there was no publication bias, it was indicated by the circles location that was in the symmetrically (figure 9).

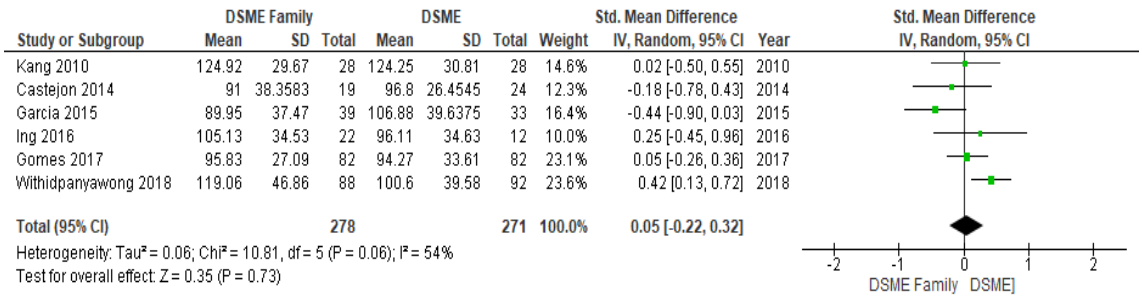


Figure 8. Forest plot of LDL Cholesterol

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.01

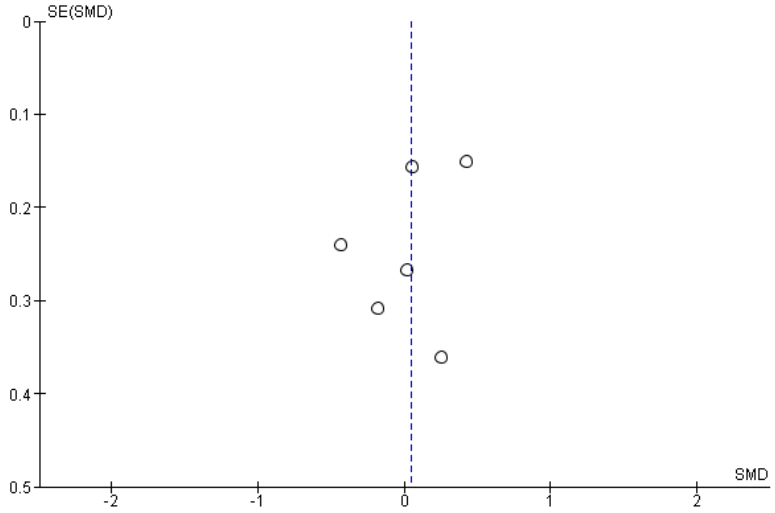


Figure 9. Funnel plot of LDL Cholesterol

DISCUSSION

As chronic disease type 2 diabetes are managed in a variety of ways to maintain health condition, including routine treat-ment as well as health education (Bekele *et al.*, 2021). As an effective method, diabetes self-management education also considered the role of family support as important element to a successful diabetes management (Fiallo-Scharer *et al.*, 2019).

Present meta-analysis was to review studies on family integrated with self-management education on lipid profiles in patient with type 2 diabetes. In this meta-analysis, only randomized control trials were included. This review included eight randomized control trial studies with 947 respondents. Total cholesterol, triglyceride, HDL and LDL cholesterol were assesses in this meta-analysis.

From eight articles included in this study, the findings show the comparison between the family integrated self-management education compared with usual care show that total cholesterol, triglyceride, HDL and LDL did not significant. This finding is in line with prior meta-analysis about group based diabetes self-management education compared to routine treatment for people with type 2 diabetes mellitus that found there were no differences between the groups in mortality rate, body mass index, blood pressure and lipid profile (Steinsbekk *et al.*, 2015).

This insignificant finding could be due to the difficulty in following the diet and the difficulty and complexity in losing weight and lipid profile. Self-care adherence issue that is often faced by diabetic patients is maintaining a better behavior after the end of the intervention period. at the beginning of intervention clinical outcomes including lipid profile showed a significant decrease (< 3 month) but with increasing time the clinical parameters seemed to return to close to the results of measurements at baseline. This results can be seen in several existing studies (Brown *et al.*, 2002; Ing *et al.*, 2016; Withidpanyawong *et al.*, 2019). As an example a study by (Ing et al., 2016) revealed that the mean total cholesterol level among the

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.01

participants decreased significantly in the initial measurement (Mean= −11.38; SD= 36), in the three month (Mean= 3.14; SD= 23.57) and in the sixth month (Mean= −5.43; SD= 49.94) (Ing *et al.*, 2016).

Interventions targeting glucose, blood pressure, and lipid profile concurrently have the potential reduction in cardiovascular events and the risk of microvascular complications. Reduction of hbA1C and improvement of blood pressure and lipid profile is expected to have a major impact on the prevention of morbidity and mortality (Boer *et al.*, 2017).

Application of diabetes self-management for educational intervention that aims to determine its effect on lifestyle, body mass index and cholesterol. Lifestyle changes that tend to be unhealthy, nutrition, communication, interpersonal communication/ support and stress management in addition to diabetes also increase cholesterol, HDL and LDL and body mass index (Evert *et al.*, 2013).

Our findings are less clear in several areas. Because it is not possible to clearly identify whether the patient, provider, intervention or combination is most effective. The results also did not indicate the location of care such as hospital, primary care, or community as the best place for intervention. Other features appear to have a positive effect, but definitive conclusions cannot be made due to the low number of studies identified. These features require further study to design interventions, delivery of comprehensive co-management education and family support to be part of problem solving.

This meta-analysis has several limitations. First, the researchers limited the selection of publications only to articles in the English language. Second, only peer-reviewed and published papers were evaluated. There was no assessment of grey literature, unpublished work, or dissertation studies. Third, the number of studies is frequently limited by the selective publication. Fourth, only main databases were used for articles searching. Fifth there were considerable variations found in the intervention programs' components. In conclusion, the current evidence suggests that family integrated in self-management education improves LDL levels in patients with type 2 diabetes.

AUTHOR CONTRIBUTION

.....

FUNDING AND SPONSORSHIP

.....

CONFLICT OF INTEREST

We declare that there was no conflict of interest.

REFERENCES

American Diabetes Association (2018). 2. Classification and Diagnosis of Diabetes: Standards of Medical Care in Diabetes—2018. Diabetes Care. 41(1): S13–S27. doi:10.2337/dc18-S002.

Azmiardi A, Murti B, Febrinasari, Ratih P, Didik GT (2021). The effect of family involvement in diabetes self-management education on glycemic control in patients with type 2 diabetes

mellitus: a systematic review and meta-analysis. J Public Heal Dev. 19(3): 164–190. https://he-01.tci-thaijo.org/index.php/AIHD-MU/article/view/251881.

Baena-Díez JM, Peñafiel J, Subirana I, Ramos R, Elosua R, Marín-Ibañez A, Guembe MJ, et al. (2016). Risk of cause-specific death in individuals with diabetes: A competing risks analysis. Diabetes Care; 39(11): 1987–1995. doi:10.2337/dc16-0614.

Bekele BB, Negash S, Bogale B, Tesfaye M, Getachew D, Weldekidan F and Balcha B (2021). Effect of diabetes self-management education (DSME) on glycated hemoglobin (HbA1c) level among patients with T2DM: Systematic review and meta-analysis of randomized controlled trials. Diabetes Metab Syndr Clin Res Rev. 15(1): 177–185. doi:10.-1016/j.dsx.2020.12.030.

Boer IH de, Bangalore S, Benetos A, Davis AM, Michos ED, Muntner P, Rossing P, et al. (2017). Diabetes and Hypertension: A Position Statement by the American Diabetes Association. Diabetes Care. 40(9): 1273–1284. doi:10.-2337/DCI17-0026.

Brown S, Garcia A, Kouzekanani K, Hanis C (2002). Culturally Competent Diabetes Self. Diabetes Care. 25(2): 259–268.

Brown SA, Garcia AA, Kouzekanani K, Hanis CL (2002). Culturally competent diabetes self-management education for Mexican Americans: The Starr County border health initiative. Diabetes Care; 25(2): 259–268. doi:10.-2337/diacare.25.2.259.

Castejón AM, Calderón JL, Perez A, Millar C, McLaughlin-Middlekauf J, Sangasubana N, Alvarez G, et al. (2013). A community - Based pilot study of a diabetes pharmacist intervention in latinos: Impact on weight and hemoglobin A1c. J Health Care Poor Underserved; 24(4): 48–60. doi:10.1353/hpu.2014.0003.

Cho NH, Shaw JE, Karuranga S, Huang Y, da Rocha Fernandes JD, Ohlrogge AW and Malanda B (2018). IDF Diabetes Atlas: Global estimates of diabetes prevalence for 2017 and projections for 2045. Diabetes Res Clin Pract. 138: 271–281. doi:10.1016/j.diabres.2018.02.023.

Evert AB, Boucher JL, Cypress M, Dunbar SA, Franz MJ, Mayer-Davis EJ, Neumiller JJ, et al. (2013). Nutrition therapy recommendations for the management of adults with diabetes. Diabetes Care [Preprint]. doi:10.2337/-dc13-2042.

Fiallo-Scharer R, Palta M, Chewning BA, Rajamanickam V, Wysocki T, Wetterneck TB, Cox ED (2019). Impact of family-centered tailoring of pediatric diabetes self-management resources. Pediatr Diabetes. 20(7): 1016–1024. doi:10.1111/pedi.12-899.

Galicia-Garcia U, Benito-Vicente A, Jebari S, Larrea-Sebal A, Siddiqi H, Uribe KB, Ostolaza H, et al. (2020). Pathophysiology of Type 2 Diabetes Mellitus. Int J Mol

Sci. 21(17): 1–34. doi:10.3390/-IJMS21176275.

García AA, Brown SA, Horner SD, Zuñiga J and Arheart KL (2014). Home-based diabetes symptom self-management education for Mexican Americans with type 2 diabetes. Health Educ. Res. 30(3): 484–496. doi:10.1093/-her/cyv018.

Godavitarne C, Robertson A, Ricketts DM, Rogers BA (2018). Understanding and interpreting funnel plots for the clinician. Br J Hosp Med. 79(10): 578–583. doi:10.-12968/hmed.2018.79.10.578.

Gomes LC, Coelho ACM, Gomides D dos S, Foss-Freitas MC, Foss MC and Pace AE (2017). Contribution of family social support to the metabolic control of people with diabetes mellitus: A randomized controlled clinical trial. Appl Nurs Res. 36: 68–76. doi:-10.1016/j.apnr.2017.05.009.

Haas L, Maryniuk M, Beck J, Cox CE, Duker P, Edwards L, Fisher E, et al. (2014). National standards for diabetes self-management education and support. Diabetes Educ. 38: 5.

Higgins JPT (2003). Measuring inconsistency in meta-analyses. BMJ. 327(7414): 557–560. doi:10.113-6/bmj.327.7414.557.

Higgins JPT, Altman DG, Gotzsche PC, Juni P, Moher D, Oxman AD, Savovic J, et al. (2011). The Cochrane Collaboration's tool for assessing risk of bias in randomised trials. BMJ. 343(2): d59-28–d5928. doi:10.1136/bmj.d-5928.

Ing CT, Zhang G, Dillard A, Yoshimura SR, Hughes C, Palakiko D-MM, Kehauoha BP, et al. (2016). Social support groups in the maintenance of glycemic control after community-based intervention. J Diabetes Res. 1–8. doi:10.11-55/2016/7913258.

Jiménez PG, Martín-Carmona J, Hernández EL (2020). Diabetes mellitus. Med Programa Form Médica Contin Acreditado. 13 (16): 883–890. doi:10.1016/j.-med.2020.09.010.

Kang CM, Chang SC, Chen PL, Liu PF, Liu WC, Chang CC and Chang WY (2010). Comparison of family partnership intervention care vs. conventional care in adult patients with poorly controlled type 2 diabetes in a community hospital: A randomized controlled trial. Int J Nurs Stud. 47(11): 1363–1373. doi:10.1016/-j.ijnurstu.2010.03.009.

Lam AA, Lepe A, Wild SH and Jackson C (2021). Diabetes comorbidities in low- and middle-income countries: An umbrella review. J Glob Health. 11. doi:10.7189/-JOGH.11.04040.

Lewis S and Clarke M (2001). Forest plots: Trying to see the wood and the trees. Br Med J. 1479–1480. doi:10.1136/bmj.322.7300.1479.

Lin X, Xu Y, Pan X, Xu J, Ding Y, Sun X, Song X, et al. (2020). Global, regional, and national burden and trend of diabetes in 195 countries and territories: an analysis from 1990 to 2025. Sci. Reports 2020. 10(1): 1–11. doi:-10.1038/s41598-020-71908-9.

McElfish PA, Long CR, Kohler PO, Yeary KHK, Bursac Z, Narcisse

MR, Felix HC, et al. (2019). Comparative effectiveness and maintenance of diabetes self-management education interventions for Marshallese patients with type 2 diabetes: A randomized controlled trial. Diabetes Care; 42(5): 849–858. doi:-10.2337/dc18-1985.

Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, et al. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 372: n71. doi:10.1136/-bmj.n71.

Rangel ÉB, Rodrigues CO and de Sá JR (2019). Micro- and macrovascular complications in diabetes mellitus: Preclinical and clinical studies. J Diabetes Res. 1–5. doi:10.1155/2019/2161085.

Steinsbekk A, Rygg LØ, Lisulo M, By Rise M, Fretheim A (2015). Group based diabetes self-management education compared to routine treatment, waiting list control or no intervention for people with type 2 diabetes mellitus. Cochrane Database Syst. Rev. (12). doi:10.1002/146-51858.CD003417.pub3.

Withidpanyawong U, Lerkiatbundit S, Saengcharoen W (2019). Family-based intervention by pharmacists for type 2 diabetes: A randomised controlled trial. Patient Educ Couns. 102(1): 85–92. doi:10.1016/j.pec.2018.08.-015.

THE EFFECT OF BAJAKAH (*SPATHOLOBUS LITTORALIS HASSK*) STEM EXTRACT ON CALCULATION OF LEUKOCYTE IN MICE (*MUS MUSCULUS*)

Bela Novita Amaris Susanto, Nofri Zayani

Department of Nursing, School of Health YATSI , Tangerang, Banten, Indonesia

ABSTRACT

Background: Oxidative stress plays a role in the obesity mechanism, thus leads to premature aging. Bajakah tampala is a plant that has a great potential to be developed as a medicinal, flavonoids, and tannins. High antioxidant capacity in Bajakah stem may effectively lessen oxidative stress and reduce fat mass and body weight accordinfly. This study aimed to examine the effect of bajakah stem extract (*Spatholobus littoralis hassk*) on leukocyte level in mice (*Mus musculus*)
Subjects and Methods: This was a randomized controlled trial was conducted at YATSI school of health sciences laboratorium, from June to August 2021. A sample of 30 mice aged 8-12 weeks, weighted 20-30 grams, and exposed to *Salmonella typhimurium* was selected for this study randomly. Sampele was divided into 5 groups and received: (1) aquadest (control). (2) bajakah stem extract dose 25 mb/kgBW, (3) bajakah stem extract dose 50 mg/kgBW, (4) bajakah stem extract dose 100 mg/kgBW. And (5) 30 mg/kgBW modulator drugs. The dependent variable was Bajakah stem extract. The independent variable was leukocytes. The data were analyzed by ANOVA test.
Results: Bajakah stem extract dose 100 mg/kgBW reduced leukocytes in mice exposed to *Salmonella typhimurium* ($p<0.001$).
Conclusion: Bajakah stem extract dose 100 mg/kgBW reduced leukocytes in mice exposed to *Salmonella tyhimurium*.

Keywords: spatholobus littoralis hassk, leukocytes, immunity

Correspondence:
Bela Novita Amaris Susanto, Department of Nursing, School of Health YATSI, Tangerang, Banten, Indonesia. Jl. Aria Santika 40A, Banten 15114. Email: bnamaris@-gmail.com. Phone: +628578844440.

BACKGROUND

The immune system is a system of body defense mechanisms against a disease. The immune system protects the body from attacks by various organisms that can cause disease. In order to avoid the source of the disease, the immune system needs to be stabilized and improved. Good nutritional intake such as consuming foods rich in vitamins and minerals are ways to increase immunity.

Indonesia as one of the mega diversity countries has abundant and diverse natural wealth. Exploration of natural resources, especially plants that have the potential for medical ingredients, and continues to grow. The use of natural ingredients as herbal medicines tends to be more in demand by the public because it is safe or has low side effects. One of the natural resources that can be used for health, especially to increase immunity at this time is the tampala bajakah (Spatholobus littoralis). The potential of bajakah tampala is not widely known by the public. In Indonesia,

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.03

precisely in the Central Kalimantan region, bajakah is known as a traditional medicine by drinking boiled water from the stems.

The results of the phytochemical screening test showed that the main content of bajakah was saponins, flavonoids, and tannins (Saputera & Ayuchecaria, 2018). Saponin compounds trigger the immune system and antibodies work more efficiently, reduce the frequency of fever, flu, and antimicrobials (Faradisa, 2008; Noorlaili et al., 2019). Flavonoids induce an increase in interleukin-2 which plays a role in T cell proliferation and stimulates phagocytic cells (Nugroho, 2012). Tannins stimulate phagocytic cells, are antitumor, and antibacterial (Yusuf, 2019). Currently, research on the potential of piracy is still limited only as a cancer medication and wound healer.

Based on the exposure of some of the research results above, Bajakah stems contain chemical compounds that have effectiveness on immunity, so they have high potential to be developed as herbal medical ingredients to increase immunity. Consuming a drink derived from the trunk of Bajakah, which is rich in secondary metabolism such as saponins, flavonoids, and tannins, can increase immunity. Literature studies show this compound functions as an immunostimulant. Therefore, further studies are needed to prove the benefits of bajakah on the immune system seen in the percentage of leukocytes.

SUBJECTS AND METHOD

1. Study Design

The study used an experimental design with a randomized complete design (RCD), which consisted of 5 treatments (dose) and 8 replications. The research was carried out from February to July 2021 at the Pharmacology Laboratory of STIKes Yatsi Tangerang.

2. Population and sample: populasi

The target population in this study were male white mice. Samples were taken using simple random sampling method. The sample size was calculated using the Federer formula. The overall sample size used in this study was 30 mice. The mice used were males with healthy conditions, aged between 8-12 weeks, and weighing around 20-30 g.

3. Study Variables

The independent variable in this study was the provision of bajakah stem extract, the dependent variable was the number of leukocytes in male mice

4. Operational Definition of Variables

Giving the extract of bajakah stem obtained by maceration of powder with ethanol solvent. Administered orally via a gastric probe, the dose obtained is based on the usual human dose converted to mice. Mice were injected orally with the treatment in the form of extract of the root of the pirates dissolved in 100 ml of 2% Na-CMC according to the dose as determined. The extract was administered from the 1-30th day after the adaptation period (2 weeks) orally using a gastric probe every 08.00 WIB. The dose used was 0 or given aquadest (K1/control), 25 mg/kg (K2), 50

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.03

mg/kg (K3), and 100 mg/kg BW (K4) and 30 mg/kg immuno-modulator brand X (K5).

Determination of the number of leukocytes is the number of leukocytes as a result of blood examination of mice on the 34th day, the leukocyte count was observed. Counting leukocytes using a haemocytometer with the solution used is Turk. Calculations using a microscope magnification 10X.

Salmonella typhimurium infection was carried out in day 31, mice infected with *salmonella typhimurium* bacteria. *Salmonella typhimurium* infection was carried out by intraperitoneal injection of 0.5 ml of inoculum.

5. Study Intrument

The instruments used are observation sheets and haemocytometer.

6. Data analysis

Data was processed using ANOVA. The difference in ANOVA results was followed by DMNRT at 1% level.

7. Research Ethics

This research has passed the ethical test by the Research Ethics Committee of the Yatsi Tangerang School of Health with the number: 072/LPPM-STIKES YATSI/VI/2021 on June 2, 2021.

RESULTS

Data on the number of leukocytes are shown in table 1, the average number of leukocytes in K1 is 3,400 mm, K2 is 4,633.33 mm, K3 is 9,200 mm, K4 is 12,525 mm and K5 is 9516.67 mm (table 1).

Table 1. Leukocyte count

Mencit	Jumlah leukosit (mm)	Mean
K1		
M1	3700	
M2	3500	3400.00
M3	3000	
K2		
M1	5450	
M2	4550	4633.33
M3	3900	
K3		
M1	9075	
M2	8850	9200.00
M3	9675	
K4		
M1	13050	
M2	13350	12525.00
M3	11175	
K5		
M1	9300	
M2	9800	9516.67
M3	9450	

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.03

Tabel 2. Normality test

Parameter	Statistic	df	p
Leukosit	0.89	15	0.09

Table 2 shows that the leukocyte parameter data is normally distributed. It Shown by a significant value that is equal to 0.091 (p <0.010). Thus, the data analysis used on the leukocyte parameter is the ANOVA test and it could be stated that the results of the ANOVA test there are differences in treatment with the control group (P < 0.010), then the analysis will continue using the Duncan Multiple New Range Test (DMNRT).

Tabel 3. ANOVA Test Effect of Giving *Bajakah* Stem Extract on Leukocyte Count of Male Mice

Parameter	F count	p	α = 1 %
Leukosit	89.455	<0.001	0.1

Table 3 shows that the significant value of the leukocyte parameter obtained (<0.001) is smaller than the alpha value (α = 0.010). This shows that the administration of pirated extract and brand X immunomodulator to mice that have been infected with salmonella typhimurium bacteria has a significant effect on leukocytes of male mice compared to the control group. Therefore, the data on the number of leukost were further tested by DMNRT.

Table 4. DMNRT Test Effect of Giving *Bajakah* Stem Extract on Leukocyte Count of Male Mice

Dosis Perlakuan	Rata-rata Leukosit (mm)
K1	3,400.00 [a]
K2	4,633.33 [a]
K3	9,200.00 [b]
K4	12,525.00 [c]
K5	9,516.67 [b]

Note: K1 = 0 mg/kg. K2 = 25mg/kg, K3 = 50 mg/kg, K4 = 100 mg/kg, K5 = 30 mg/kg immunomodulator brand X. Notations (a, b and c) in the same column indicate significant differences in the 1% DMNRT test.

Based on the results of the DMNRT test (table 4) at = 0.01 it was found that the treatment given to K1 and K2 was not significantly different. also with the treatment of K3 and K5. However, the K4 treatment which was given the extract of the bajakah stem at a dose of 100 mg/kg was significantly different compared to the treatment K1 (control), K2, K3 and K5 at = 0.01. This indicates that the administration of the extract of the root of the bajakah in male mice infected with salmonella typhimurium was significantly different in the number of leukocytes between the control group and the K3, K4 and K5 treatments. The treatment dose that had the most significant effect was the treatment with a pirate extract dose of 100 mg/kg (K4)

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.03

DISCUSSION

The number of leukocytes was observed using a microscope. The normal number of leukocytes in mice is between 6x103–15x103/mm3. The number of leukocytes was measured on the 4th day after being injected with salmonella typhimurium bacteria. An increase in the number of leukocytes can be caused by an infection. Leukocytes (white blood cells) blood components that function for the immune system, Increased production of white blood cells indicates the body's resistance against harmful foreign agents.

Based on the results of the measurement of the number of leukocytes in male mice that had been given extract of the rods and immunomodulator brand X for 30 days, after that they were exposed to 0.5 ml of salmonella typhimurium bacteria which was given once in each treatment. The K1 and K2 groups did not have a significant increase in leukocytes, the K3 and K5 groups had an increase in leukocytes but more in K4. This indicates the existence of an infectious process and a process of resistance to infection. Salmonella typhimurium is thought to be able to activate the immune system in mice, resulting in an immune process. The provision of bajakah stem extract is proven to be able to help the process of resistance from infection.

Salmonella typhimurium is a serotype that can be isolated from both animals and humans. This bacterium can cause various diseases such as in humans. It can cause gastroenteritis and food poisoning, in animals it causes infectious enterocolitis and septicemia. Salmonella typhimurium is an intracellular facultative that is easily phagocytosed but cannot be destroyed so it is difficult to destroy. These bacteria live intracellularly which causes complement antibiotics and granulocyte cells cannot reach the bacteria. The way that can be done to destroy *salmonella typhimurium* bacteria is to stimulate the function of macrophages until they are activated to destroy and eliminate these bacteria (Gamasinta, 2015).

Herbal products as immunostimulants can be used as a complementary therapy of choice in accelerating the healing process against a bacterial infection. Giving additional intake in the form of extracts bajakah stems which function as anti-inflammatory can minimize infections caused by *salmonella typhimurium* bacteria. According research results (Yusuf, 2019), tampala pirates were positive for phenolic, flavonoid, tannin and saponin tests. Supporting previous research, phytochemical screening that has been carried out on the extract of Bajakah tampala stems showed a positive content of phenolic compounds, tannins and saponins (Ayuchecaria et al., 2020). Phenolic compounds are compounds that can have antioxidant activity (Onkar et al., 2012) .The flavonoids in the rods have anti-cancer and anti-inflammatory properties. It is evident from research (Risya, 2020), which states that there is a decrease in bell-2 which describes the occurrence of the apoptosis process, so it has the potential for cancer cell apoptosis.

Ginger also contains compounds such as those found in bajakah stems, namely saponins, alkaloids and

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.03

flavonoids which have anti-microbial and anti-fungal properties (Omoya & Akharaiyi, 2012). States that giving ethanol extract of rambai fruit peel can significantly affect the number of leukocytes, the content in the rind of rumbai fruit, namely alkaloids, saponins, flavonoids and phenolics. This means that the content in the trunk of the bajakah is the same as that in the rind of the rambai fruit (Meutia, 2020).

The content is also found in the leaves of the gods, the leaves of the gods contain alkaloids, saponins, flavonoids, essential oils and tannins (Rivai et al., 2012).Supported by research by (Marlinda et al., 2017), which states that leaves of the gods can restore the number of leukocytes in patients with leukemia. Therefore, the content of Bajakah stem extract with the highest dose (100 mg/kg) in this study was able to increase the number of leukocytes in mice, so that it could fight infection due to salmonella typhimurium bacteria.

ACKNOLEDGMENT

The author would like to thank LLDIKTI Region IV which has fully funded this research through the Research Grants of the Ministry of Education, Culture and Technology. In addition, the authors also thank STIKes YATSI Tangerang for facilitating and supporting the research.

REFERENCE

Ayuchecaria N, Alfiannor Saputera MM, Niah R (2020). Penetapan Kadar Fenolik Total Ekstrak Batang Bajakah Tampala (*Spatholobus Littoralis Hassk*.) Menggunakan Spektrofotometri Uv-Visible. Jurnal Insan Farmasi Indonesia, 3(1), 132–141. https://doi.org/10.36387/jifi.v3i1.478

Faradisa M (2008). Uji efektifitas anti-mikroba senyawa saponin dari batang belimbing wuluh (*Avverrhoa Bilimbi Linn*). Universitas Islam Negeri Malang.

Gamasinta S (2015). The effect of *Salmonella Typimurium* Infection with various dilution intraperitoneally the number of active macropage cells in mice (*Mus Musculus*). Universitas Airlangga.

Marlinda H, Widiastuti EL, Susanto GN, Sutyarso (2017). Pengaruh Pemberian Senyawa Taurin dan Ekstrak Daun Dewa *Gynura segetum (Lour) Merr* terhadap Eritrosit dan Leukosit Mencit (*Mus musculus*) yang Diinduksi Benzo[α]Piren. Jurnal Natur Indonesia, 17(1), 13. https://doi.org/10.31258/jnat.17.1.13-21.

Meutia S (2020). Gambaran Nilai Hematologi Mencit yang diberi Ektrak Etanol Kulit Buah Rumbai (*Baccaurea Motleyana Mull. Arg*). Universitas Islam Negeri An-Ranniry Darussalam, Banda Aceh.

Noorlaili, Mochammad MAS, Eka K (2019). Uji Aktivitas Antibakteri Ekstrak Batang Bajakah Tampala (*Spatholobus Littoralis Hassk*) Terhadap Pertumbuhan Bakteri *Staphylococcus Aureus*. Akademi Farmasi ISFI Banjarmasin.

Nugroho YA, Lestari R, Susanti, Indah R (2015). Efek Pemberian

Ekstrak Etanol Akar Kolesom (*Talinum triangulare Willd*) terhadap Spermatogenesis Tikus Putih. Center for Biomedical and Basic Technology of Health, National Institute of Health Research.

Omoya FO, Akharaiyi FC (2012). Mixture of honey and ginger extract for antibacterial assessment on some clinical isolates. International Research Journal of Pharmacy, 2(5), 127–132.

Onkar P, Bangar J, Karodi R (2012). Evaluation of antioxidant activity of traditional formulation giloy satva and hydroalcoholic extract of the *Curculigo orchioides gaertn*. Journal of Applied Pharmaceutical Science, 2(7), 209–213. https://doi.org/10.7324/JAPS.2012.2733.

Risya AU (2020). Potensi Ekstrak Kayu Bajakah (*Uncaria Nervosa Elmer*) terhadap Apoptosis Sel Kanker. Universitas Airlangga.

Rivai H, Bakhtiar A, Nurdin H, Suyani, H, Weltasari D (2012). Identifikasi Senyawa Antioksidan Dari Daun Dewa (*Gynura pseudochina (Lour.) DC*). Jurnal Sains Dan Teknologi Farmasi, 17(1), 84–91.

Saputera, M. M. A., & Ayuchecaria, N. (2018). Uji Efektivitas Ekstrak Etanolik Batang Bajakah (*Spatholobus littoralis Hassk*.) Terhadap Waktu Penyembuhan Luka. Journal of Chemical Information and Modeling, 53(9), 1689–1699.

Yusuf MI (2019). Peningkatan Imunitas Non Spesifik (Innate Immunity) Mencit Balb/C Yang Diberi Ekstrak Etanol Daun Tumbuhan Galing (*Cayratia Trifolia L. Domin*) Enhancement Of Non Specific Immunity (Innate Immunity) Mice Balb/C Given Ethanol Extract Of Galing Plant (Cayrat). Medical Sains : Jurnal Ilmiah Kefarmasian, 3(2), 83–92. https://doi.org/10.37874/ms.v3i2.55

META-ANALYSIS MORTALITY OF COVID-19 IN PATIENTS WITH CANCER COMORBIDITY

Muhammad Dudayev Caesar Putra

Masters Program in Public Health, Universitas Sebelas Maret

ABSTRACT

Background: Cancer can affect the immune system by spreading into the bone marrow. Therefore, people with a weak immune system have a higher risk of experiencing frequent infections and are more likely to get COVID-19. Studies show that COVID-19 increases complications and the overall risk of death in patients with compared to the general population. This study aimed explore mortality of COVID-19 in patients with cancer comorbidity.
Subjects and Method: A systematic review and meta analysis study was conducted by collecting articles from PubMed, Google Scholar, and Science Direct databases. Keywords used "Cancer" AND "Comorbidities" AND "COVID-19" AND "Mortality" OR "Death". The inclusion criteria were full text cohort studies, published from 2019 to 2021. The articles were assessed using RevMan 5.3 software.
Results: A meta-analysis involving 8 studies showed that mortality risk in COVID-19 patients with cancer comorbidity has higher risk 1.62 times than those without cancer comorbidity (aOR= 1.62; 95% CI= 1.18 to 2.21; p= 0.003).
Conclusion: Mortality risk in COVID-19 patients with cancer comorbidity has higher risk 1.62 times than those without cancer comorbidity.

Keywords: cancer, mortality, COVID-19

Correspondence:
Muhammad Dudayev Caesar Putra. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36, Surakarta 57126, Central Java. Email: muhammad-newdudayev@gmail.com. Mobile: +6285706450991.

BACKGROUND

Cancer is still a serious problem throughout the world, both in developed countries, and even more so in developing countries. Cancer is a group of diseases characterized by the uncontrolled growth of certain body cells which results in damage to other cells and tissues of the body, often ending in death. Because it is so "malignant" (grows uncontrollably and results in death), cancer is also referred to as a malignant disease, and cancer cells are also called malignant cells (Hendry, 2007).

Cancer is a large group of diseases that can appear in almost any tissue or organ of the body when abnormal cells grow uncontrollably. This process is known as metastasis. Neoplasm and malignant tumor are other common names for cancer (WHO, 2019).

Cancer is the second leading cause of death globally, accounting for about 9.6 million deaths, or one in six deaths in 2018. The most common types of cancer in men such as lung, stomach, prostate, colorectal and liver cancers are, while breast, colorectal, lung, cervical and thyroid cancers are

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.04

the most common types of cancer in women (WHO, 2019).

Coronaviruses are a large family of viruses that cause disease in humans and animals. A new type of coronavirus found in humans since an extraordinary event appeared in Wuhan, China, in December 2019, was later named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-COV2), and caused the disease Coronavirus Disease-2019 (COVID-19) (Ministry of Health Republic of Indonesia, 2020).

On March 11, 2020, the World Health Organization (WHO) has declared the novel coronavirus (COVID-19) outbreak a global pandemic (WHO, 2020b in Prati 2020). The current COVID-19 coronavirus (SARS-CoV-2) pandemic causes considerable psychological and physical stress and high rates of morbidity and mortality worldwide since its outbreak in December 2019 (Wang et al., 2020)

Cancer patients may be susceptible to infection during viral epidemics due to their compromised immune status. The mortality rate increases in samples aged over 70 years, in more than 50% of patients who have comorbidities (Kurniawan, 2021).

The purpose of this study was to explore the impact of COVID-19 patients with comorbid cancer on mortality. It is hoped that this study can inform the condition of COVID-19 patients with comorbid cancer so that later the death of COVID-19 patients with cancer comorbidities can be handled properly.

SUBJECTS AND METHOD

1. Study Design

This research is a meta-analytical study. This study uses data from the results of previous studies where researchers present articles that are in accordance with the questions formulated by the researchers. The articles used in this meta-analysis are available on electronic databases namely Pubmed, Google Scholar and Science Direct. The keywords used were “Cancer” AND “Comorbidities” AND “COVID-19” AND “Mortality” OR “Death”.

2. Population and Sample

Articles were searched by considering the eligibility criteria determined using the PICO model. The study population was COVID-19 patients who had cancer.

3. Inclusion Criteria

The inclusion criteria in this study were full text articles in English, the design used a cohort with multivariate analysis showing Adjusted Odds Ratio (aOR) results, and articles published in 2019-2021.

4. Exclusion Criteria

The exclusion criteria taken were articles published in this study were articles with randomized controlled trials, case controls, and quasi-experiments. Unpublished articles in English and Indonesian. Articles that did not perform multivariate analysis. The reported statistical results do not contain an aOR. The exclusion criteria in this study were duplicate articles and articles that had been meta-analyzed.

5. Study Variable

This study is a meta-analysis with the theme of the influence of cancer

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.04

comorbidities on the mortality of COVID-19 patients. The independent variable in this study was mortality in COVID-19 patients, while the dependent variable in this study was cancer comorbidity in COVID-19 patients. The research design used in the article included in the inclusion criteria was a cohort study design.

6. Operational Definition of Variable

COVID-19 is a disease caused by SARS-COV2 and belongs to the same large family of coronaviruses that caused SARS in 2003, only with a different type of virus. COVID-19 also has a wider and faster spread to several countries than SARS.

Cancer is a large group of diseases that can appear in almost any tissue or organ of the body when abnormal cells grow uncontrollably.

7. Instrument

The instrument used is derived from data in a health service. Reported according to the guidelines for Strengthening Reporting of Observational Studies in Epidemiology (STROBE), collected by study investigators via a research form in Research Electronic Data Capture software, using anonymized data from Mount Sinai Health System (MSHS), using the Ochsner Health System, data collected by review electronic medical record manual, using the EpicCare® Ambulatory 109 Electronic Health Record (EHR) system.

8. Data Analysis

Data analysis in this study was carried out using RevMan 5.3 and the results of the analysis included in this study used the Random Effect model.

RESULTS

The process of searching for articles by searching through article databases which include: Pubmed, Google Scholar and Science Direct. The keywords used were “Cancer” AND “Comorbidities” AND “COVID-19” AND “Mortality” OR “Death”.

The initial search process resulted in 197,861 articles, after the deletion process of published articles found 197,765 articles, 262 of which met the requirements for the next full-text review. The results of the eligible articles were reviewed and there were eight eligible articles.

Of the eight articles that fit the PICO model and the predetermined criteria, the research conducted came from several countries. Some of these countries are Ireland, the United States, South Korea and Spain. The description of the primary study can be seen in table 1.

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.04

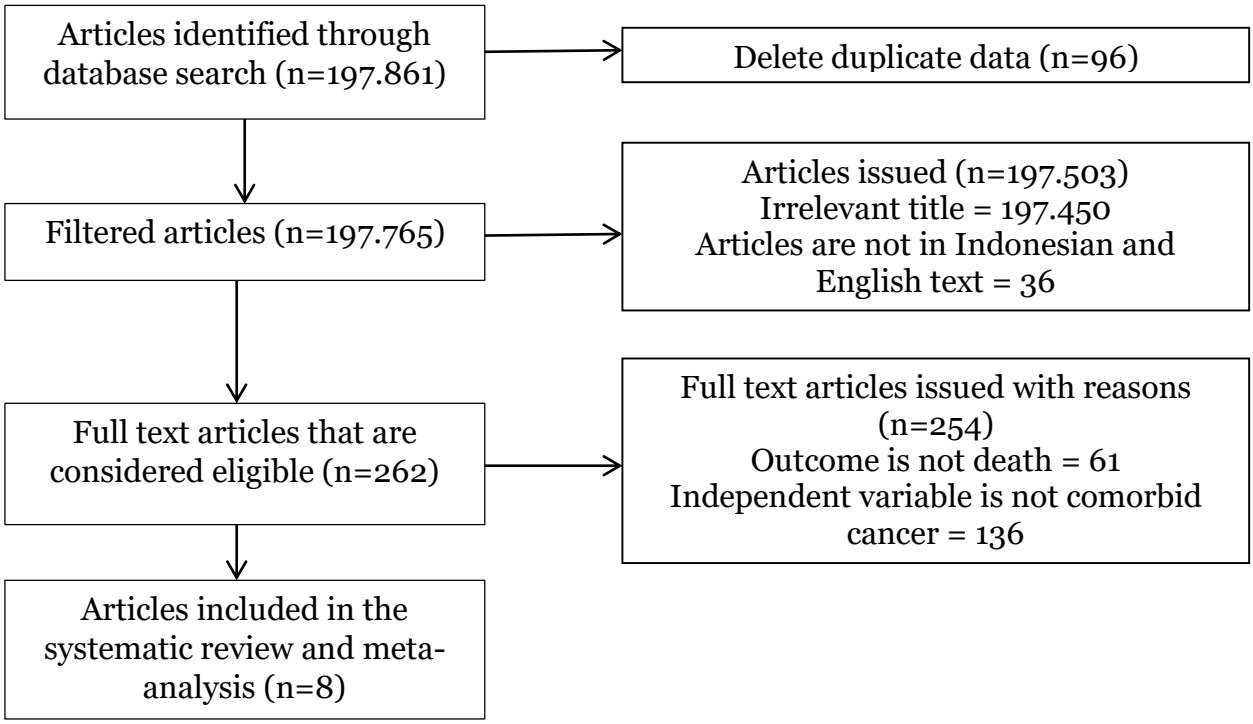


Figure 1. Prism Flowchart

Table 1. Summary of sources of mortality for COVID-19 patients with comorbid cancer

Author, Year	Country	Sample size, age	Population	Intervention (I), Comparison (C)	Results (Outcome)	Effect aOR (95% CI)
Bennett et al., 2021	Ireland	19789, divided into 5 age categories	COVID-19 patient	I: Cancer C:Not Cancer	Death	2.58 (2.13 – 3.13)
Alpert et al., 2020	United States of America	5556, Mean 63.8-69.2 years	COVID-19 patient	I: Cancer	Death	1.02 (0.81 - 1.29)
Gupta et al., 2020	United States of America	2215, Mean 60.5 years	COVID-19 patient	C:Not Cancer	Death	2.15 (1.35 - 3.43)
Cho et al., 2020	South Korea	7590, <9->80 years old	COVID-19 patient	I: Cancer	Death	1.88 (1.17 - 3.02)
Manohar et al.,2021	United States of America	11930, Mean 57.26 years	COVID-19 patient	C:Not Cancer	Death	1.51 (1.03 – 2.17)
Talavera et al., 2020	Spanish	576, Mean 67.18 years	COVID-19 patient	I: Cancer	Death	1.397 (0.764 - 2.557)
Lunski et al., 2020	United States of America	5145, over 64 years old	COVID-19 patient	C:Not Cancer	Death	2.03 (1.44 – 2.87)
Gerwen et al., 2020	United States of America	3703, Mean 56.8 years	COVID-19 patient	I: Cancer	Death	1.03 (0.75 – 1.40)

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.04

A. Forest plot

Based on Figure 2, the results of a meta-analysis of cohort studies show that cancer is a risk factor for the death of COVID-19 patients. The results obtained showed a high heterogeneity between trials (I^2= 86%) so that the random–effect (REM) model was used. Cancer can increase the risk of dying in COVID-19 patients 1.62 times, but it is not statistically significant (aOR= 1.62; 95% CI= 1.18 to 2.21; p= 0.003).

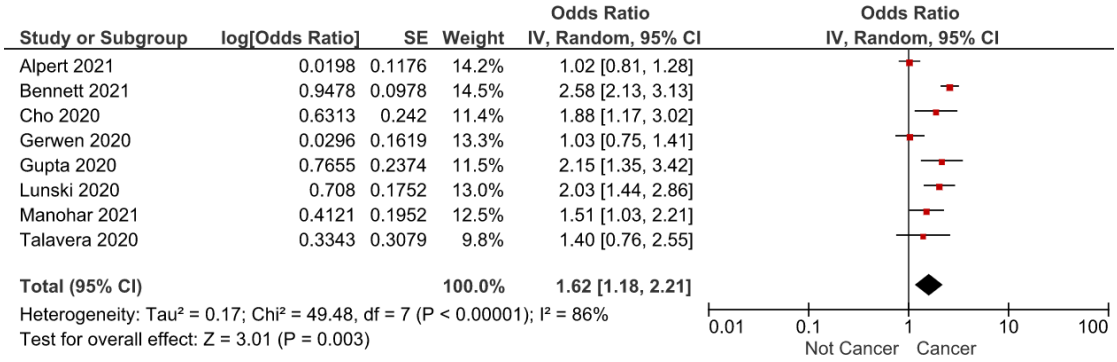


Figure 2. Forest plot of mortality of COVID-19 patients with comorbid cancer

B. Funnel plot

Based on Figure 3, the Funnel plots the correlation of cancer to death of COVID-19 patients, where the plots on the right and left sides are the same. The plot on the right is 4 and the plot on the left is 4, so it indicates that the funnel plots are symmetrical with each other. The distance between one plot to another plot is also close. So it can be concluded that there is no publication bias in this study.

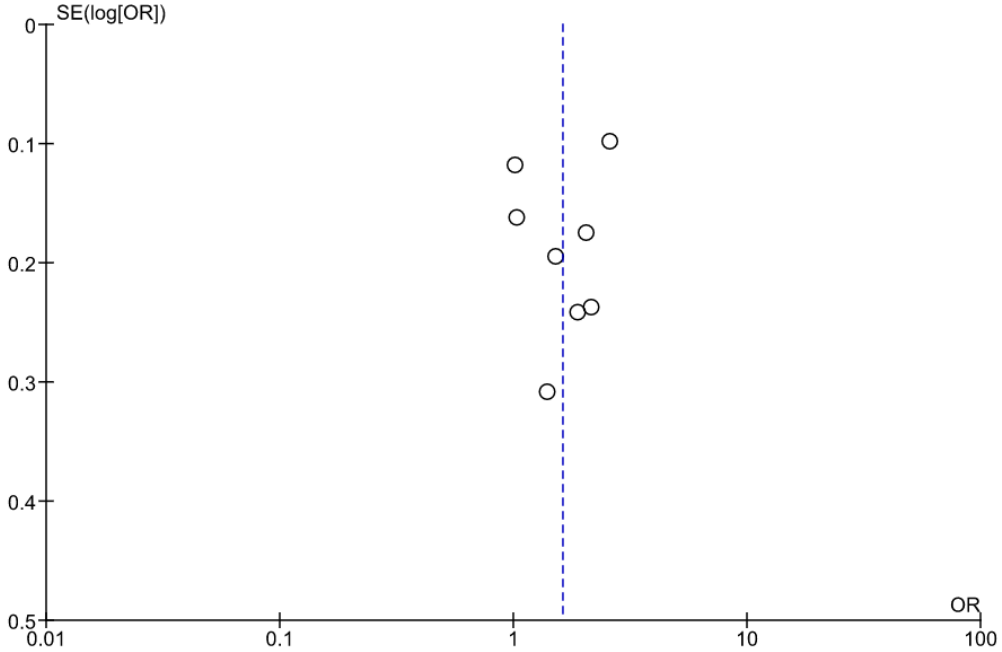


Figure 3. Funnel plot of mortality of COVID-19 patients with comorbid cancer

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.04

DISCUSSION

This study is a meta-analysis with the theme of mortality in COVID-19 patients who have comorbid cancer. The independent variable in this study was cancer in COVID-19 patients, while the dependent variable in this study was COVID-19 patients who did not have cancer comorbidities. The study design used in the article that falls into the inclusion criteria is a cohort study design. The instrument used is derived from data in a health service. Reported according to the guidelines for Strengthening Reporting of Observational Studies in Epidemiology (STROBE), collected by study investigators via a research form in Research Electronic Data Capture software, using anonymized data from Mount Sinai Health System (MSHS), using the Ochsner Health System, data collected by review electronic medical record manual, using the EpicCare® Ambulatory 109 Electronic Health Record (EHR) system.

The estimated effect on mortality of COVID-19 patients with comorbid cancer was processed using the RevMan 5.3 application with the generic inverse varianc method. This method is used to analyze data in the form of ordinal scale, rate, time-to-event, hazard ratio, adjusted estimation, average difference or average ratio.

Study results from this meta-analysis are presented in the form of forest plots and funnel plots. The forest plot aims to provide an overview of the information from each of the studies in this meta-analysis by estimating the overall results (Murti, 2018). A funnel plot is a diagram in a meta-analysis that is used to show the possibility of publication bias. The funnel plot shows the relationship between the effect size of the study and the sample size or standard error of the effect size of the various studies studied (Murti, 2018). The funnel plot shows visually the amount of variation (heterogeneity) (Akobeng, 2005 in Murti, 2018). The funnel plot shows the relationship between the study effect size and the sample size of the various studies studied, which can be measured in several different ways (Murti, 2018).

Based on the search for articles in the database, there are eight articles that are cohort studies as a source of meta-analysis of mortality for COVID-19 patients with cancer comorbidities. Cancer is a large group of diseases that can appear in almost any tissue or organ of the body when abnormal cells grow uncontrollably..

Many of the deaths from COVID-19 are due to multiple organ dysfunction syndromes rather than respiratory failure which may be due to the wide distribution of the functional angiotensin converting enzyme 2 receptor for SARSCoV-2 in many organs. Patients with cancer are more susceptible to infection than people without cancer because of their systemic immunosuppressive state caused by malignancy and anticancer treatments. Chemotherapy given by patients with malignancy has unpleasant side effects that cause metabolic stress. Under conditions of metabolic stress, the immune system response will decrease. Stress in cancer patients will have a negative effect on the immune system (American Cancer

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.04

Society, 2017). This can increase the risk of death of cancer patients against COVID-19.

The proportion of patients with a history of cancer was higher in the group with COVID-19 than in the non-COVID-19 population in China. Patients with cancer are more likely to develop COVID-19 disease (Xia et al., 2020). Based on a study at a hospital in Wuhan, it was found that cancer patients from the epicenter of the viral epidemic had a higher risk of being infected with SARS-CoV-2 (OR= 2.31, 95% CI= 1.89-3.02) when compared to patients without cancer (Yu et al., 2020).

Based on the results obtained from the forest plot article, it is known that the mortality of COVID-19 patients with cancer comorbidities is 1.94 times more risky than those without cancer comorbidities but this is not statistically significant (aOR = 1.94; 95% CI = 0.79 to 4.74; p= 0.15). This is supported by a multicenter study in China showing that people with cancer infected with SARS-CoV-2 tend to have a more severe outcome when compared to patients without cancer. Although COVID-19 is reported to have a relatively low mortality rate of 2% to 3%, patients with cancer and COVID-19 have a nearly 3-fold increase in mortality compared to COVID-19 patients without cancer, also tend to have significantly higher disease severity. higher (Dai et al., 2020).

This is also supported by a study in New York City reporting that age-adjusted CFRs in patients with cancer compared with non-cancer patients experienced a significant increase in case mortality for COVID-19 patients with cancer comorbidities (Mehta et al., 2020). Then a study conducted in Brazil that COVID-19 patients with cancer had a very high rate of complications and COVID-19-specific mortality (De Melo et al., 2020)

Italy as one of the European countries with the worst impact from the COVID-19 pandemic with a case fatality rate of 11.5%, Fratino et al., focusing on discussing COVID-19 in elderly patients with cancer, found a median age of 63 years with an incidence COVID by 20% in all types of cancer. In this study, it was concluded that the mortality rate increased in the sample aged over 70 years (Fratino et al., 2020).

The limitation of this study is the publication bias, because the researcher only uses 3 indexing databases (PubMed, Google Scholar and Science Direct) in searching for the main study article for meta-analysis so that other search sources are ignored.

The conclusion from the results of this meta-analysis is that the mortality of COVID-19 patients with cancer comorbidities is more at risk than those without cancer comorbidities, but it is not statistically significant.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This study is self-funded.

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.04

ACKNOWLEDGEMENT

Researchers express gratitude and appreciation to electronic databases such as PubMed, Google Scholar and Science Direct.

REFERENCES

American Cancer Society (2017). Facts and Statistics of Cancer. https://www.cancer.org/content/dam/%0Acancer-org/research-/cancer-facts-and-statistics/annual-cancer-facts-and%0Afigures/2017/cancer-facts-and-figures-2017.pdf.

Dai M, Liu D, Liu M, Zhou F, Li G, Chen Z, Zhang Z, et al (2020). Patients with cancer appear more vulnerable to SARS-CoV-2: A multicenter study during the COVID-19 outbreak. Cancer Discovery, 10(6), 783. https://-doi.org/10.1158/2159-8290.CD-20-0422.

De Melo AC, Thuler LCS, Da Silva JL, De Albuquerque LZ, Pecego AC, Rodrigues LDOR, Da Conceição MS, et al. (2020). Cancer inpatients with COVID-19: A report from the Brazilian National Cancer Institute. PLoS ONE, 15(10), 1–15. https://doi.org/-10.1371/journal.pone.0241261.

Fratino L, Procopio G, Di Maio M, Cinieri S, Leo S, Beretta G (2020). Coronavirus: Older Persons With Cancer in Italy in the COVID-19 Pandemic. Frontiers in Oncology, 10(April), 1–5. https://doi.org/10.3389/fonc.2020.00648.

Kementerian Kesehatan Republik Indonesia (2020). Pertanyaan dan Jawaban Terkait Coronavirus Disease 2019 (COVID-19) (Questions and Answers Regarding Coronavirus Disease 2019 (COVID-19)). World Health Organization, 2019, 1–13. https://www.who.int/indonesia/news/novel-coronavirus-/qa-for-public.

Kurniawan D (2021). Ko-Insidensi COVID-19 pada Pasien Kanker di RSUP H Adam Malik dan RS USU Medan (Co-incidence of COVID-19 in Cancer Patients at H Adam Malik Hospital and USU Hospital Medan). http://-repositori.usu.ac.id/handle/123456789/38899.

Mehta V, Goel S, Kabarriti R, Cole D, Goldfinger M, Acuna-Villaorduna A, Pradhan K, et al. (2020). Case fatality rate of cancer patients with COVID-19 in a New York Hospital system. Cancer Discovery, 10(7), 935–941. https://doi.org/10.1158/2-159-8290.CD-20-0516.

Murti B (2018). Prinsip dan Metode Riset Epidemiologi (Epidemiological Research Principles and Methods). Edisi ke 5 (Prinsip dan Metode Penelitian Epidemiologi. Edisi ke-5). Surakarta: Program Studi Ilmu Kesehatan Masaraka.

Prati G (2020). Mental health and its psy- chosocial predictors during national quarantine in Italy against the coro- navirus disease 2019 (COVID-19). Anxiety Stress Coping. 34: 145-156. doi: 10.1080/10615806.2020.1861253.

WHO (2019). Cancer. https://www.-who.int/health-topics/cancer#-

tab=tab_1

Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, Ho RC (2020). Immediate psy- chological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general popula- tion in China. Int J Environ Res Pu- blic Health. 17: 1-25. doi: 10.3390/ij- erph1705-1729.

Xia Y, Jin R, Zhao J, Li W, Shen H (2020). Risk of COVID-19 for patients with cancer. The Lancet Oncology, 21(4), e180. https://-doi.org/10.1016/S1470-2045(-20)30150-9.

Yu J, Ouyang W, Chua MLK, Xie C (2020). SARS-CoV-2 Transmission in Patients with Cancer at a Tertiary Care Hospital in Wuhan, China. JAMA Oncology, 6(7), 1108–1110. https://doi.-org/10.1001/jamaoncol.2020.0980

THE EFFECTIVENESS OF STRESS BALL THERAPY TO REDUCE ANXIETY LEVEL IN COVID-19 PATIENTS IN PATI, CENTRAL JAVA

Sukesih, Tri Suwarto, Pratiwi Susilosari

Study Program of Nursing, Faculty of Nursing,
Universitas Muhammadiyah Kudus, Central Java

ABSTRACT

Background: COVID-19 has become a pandemic in all countries, including Indonesia. COVID-19 cases are increasing concern for the public because of the possibility of exposure and the anxiety experienced by confirmed COVID-19 patients undergoing self-isolation. This study aimed to analyze the effectiveness of stress ball therapy on reducing anxiety levels among COVID-19 patients in a self-isolation room.
Subjects and Method: This was a randomized controlled trial (RCT) conducted at Self-Isolation Room, RAA Soewondo General Hospital, Pati, Central Java, in June 2021. A total of 56 COVID-19 patients was selected and divided into 2 groups: (1) Experimental group consisting of 28 patients receiving stress ball therapy; (2) Control group consisting of 28 patients not receiving stress ball therapy. The dependent variable was anxiety level. The independent variable was stress ball therapy. The anxiety level was measured by Hamilton Anxiety Rating Scale (HARS). The Mann-Whitney test analyzed the data.
Results: Anxiety level after stress ball therapy intervention was lower in the experimental group (Mean= 14.17; SD= 4.36) than the control group (Mean= 19.93; SD=0.62), and it was statistically significant ($p<0.001$).
Conclusion: Stress ball therapy effectively lowers anxiety levels in COVID-19 patients.

Keywords: stress ball therapy, anxiety level, COVID-19

Correspondence:
Sukesih. Study Program of Nursing, Faculty of Nursing, Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No. 1 Purwosari, Kudus, Central Java. Email: sukesih-@umkudus.ac.id. Mobile: +6282136858256

BACKGROUND

This COVID-19 became a world health problem in early 2020. This case began with information from the World Health Organization (WHO) on December 31, 2019, with a cluster case of pneumonia with an unclear etiology. In Wuhan, Hubei Province, China, these cases increased with deaths and imports outside China (Li et al., 2020).

The cases of COVID-19 around the world are getting more expansive, and the growth is accelerating. On March 2, 2020, Indonesia reported two confirmed cases of Covid-19. WHO has declared this COVID-19 incident as a pandemic, which is a global crisis that not only threatens public health physically but over all aspects of people's lives in the world; on January 30, 2020, WHO has designated this COVID-19 case as a Public Health Emergency of International Concern (PHEIC) (Roy et al., 2020).

The number of cases of COVID-19 in the world as of December 2020 has reached more than 65,651,683 confirmed cases of COVID-19, including 1,519,193 cases of death. In Southeast Asia, the growth of COVID-19 cases has also drastically increased,

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

with 11,071,129 confirmed cases of COVID-19 and 168,458 cases of death. Indonesia ranks top in Southeast Asia for the incidence of COVID-19 until December 2020, where confirmed cases of COVID-19 were more than 569,707 cases (WHO, 2020).

Pati Regency, one of the regencies in Central Java, also has a relatively large number of COVID-19 cases. The latest data for March 2021 has touched the range of 706 suspect cases and 6,236 confirmed cases of COVID-19, where confirmed cases are essential. gal as many as 330 cases. (Ministry of Health, 2020).

The growth of COVID-19 cases, which is increasing day by day, certainly makes most people worry and anxious because, of course, people are afraid of the high possibility of being exposed to the COVID-19 virus. Anxiety is felt by the general public and confirmed COVID-19 patients who are currently in self-isolation (Sukesih et al., 2020). Independent isolation room at RAA Soewondo Pati Hospital Based on data obtained from the Pati City Health Office, the total number of patients being treated or undergoing self-isolation in March 2021 is 125 people. This figure will undoubtedly continue to increase rapidly.

On average, preliminary studies in the field and reports from officers at the Independent Isolation of RAA Soewondo Pati Hospital, patients treated experience varying stress and anxiety. Starting from refusing to be treated, not believing that the diagnosis will be confirmed, and anxiety for various reasons.

Based on a field survey, 55% of patients felt anxious and restless in the first week of self-isolation. Then in the second week and the next, the patient felt less anxious, but boredom began to arise in isolation. These various patient problems will cause anxiety to stress, which will also disrupt the physical and mental health of COVID-19 patients. Ria (2019) explained that there is a significant spirit on the level of anxiety of pre-school aged children (3-6 years) (Sari and Afriani, 2019).

Anxiety is a feeling of fear of something happening caused by the anticipation of danger and is a signal that helps individuals prepare to take action in the face of threats. Demands, competition, and disasters in life can impact physical and psychological health. One of the psychological impacts is anxiety (Sutejo, 2018).

The impact caused by anxiety varies depending on the type of anxiety experienced by the individual. Given the seriousness of the effects of uncontrollable anxiety, we should be able to control or divert this anxiety in various ways, both pharmacologically and non-pharmacologically, so that the impact is not more severe (Sukesih et al., 2021). One of the non-pharmacological measures to deal with anxiety is to do exercise using stress ball.

The purpose of this study was to determine the effectiveness of Stress Ball therapy on the anxiety level of COVID-19 patients.

SUBJECTS AND METHOD

1. Study Design

This is a randomized controlled trial (RCT) conducted in the isolation room

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

of the RAA Soewondo Hospital, Pati, Central Java, in June 2021.

2. Population and Sample

The population in this study were COVID-19 patients. 56 COVID-19 patients were divided into 2 groups: (1) 28 patients received the Stress Ball Therapy and (2) 28 patients did not receive the Stress Ball Therapy; subjects were randomly selected.

3. Study Variables

The dependent variable is the level of anxiety. The independent variable is stress ball therapy

4. Operational Definition of Variables

Anxiety Level is a response range that divides the individual into whether it includes mild, moderate, severe, or even panic anxiety

Stress Ball Therapy is a therapy used to treat anxiety in COVID-19 patients using therapeutic tools for helping people manage stress through the physical act of squeezing, rolling, or tossing a ball.

5. Instruments

The measuring instrument used is the Pregnant-ton Anxiety Rating Scale to measure the level of anxiety before and after being given stress ball therapy.

6. Data Analysis

Mann-Whitney test was used to examine the effect of stress ball therapy on anxiety levels in COVID-19 patients.

RESULTS

1. Sample Characteristics

Table 1 shows that the intervention group was dominated by males (60.7%), and the average age of the subjects was 37-48 years (50%), with the most occupations as laborers/ private sector (46.4%).

Table 1. The characteristics of the intervention group (dichotomous data) are based on gender, age, and occupation.

Variable	Total (n)	Percentage (%)
Gender		
Male	17	60.7
Female	11	39.3
Age		
12-25 years	7	25
25-36 years	7	25
37-48 years	14	50
Job		
Farmer	2	7.1
Labor/private	13	46.4
Trader	3	10.7
Government Employee/Police/Military	4	14.3
Others	6	21.4

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

Table 2. Characteristics of the control group sample (dichotomous data) based on gender, age, and occupation.

Variable	Total (n)	Percentage (%)
Gender		
Male	15	53.6
Female	13	46.4
Age		
12-25 years	5	17.9
25-36 years	11	39.3
37-48 years	12	42.9
Job		
Farmer	2	7.1
Labor/private	11	39.3
Trader	6	21.4
Government Employee/Police/Military	4	14.3
Others	5	17.9

Table 2 shows that in the control group, more patients were males (53.6%), and most of the subjects were 37-48 years old (42.9%), with the most work in the labor/private sector (39.3%)

Table 3. Frequency distribution of anxiety levels in the intervention group (stress ball therapy)

Variable	Pre		Post	
	n	%	n	%
Anxiety Level				
No Anxiety	0	0	19	67.9
Mild Anxiety	1	3.6	9	32.1
Moderate Anxiety	26	92.9	0	0
Severe Anxiety	1	3.6	0	0

Table 3 shows that most of the subjects had moderate levels of anxiety before being given the stress ball therapy intervention, namely as many as 26 subjects (92.9%), and after being given the stress ball therapy intervention, on average, they had no anxiety, as many as 19 subjects (67.9%).

Table 4. Frequency distribution of anxiety levels in the control group

Variable	Pre		Post	
	n	%	n	%
Anxiety Level				
No Anxiety	0	0	0	0
Mild Anxiety	0	0	0	0
Moderate Anxiety	27	96.4	28	100
Severe Anxiety	1	3.6	0	0

Table 4 shows that most of the subjects in the pre-control group had moderate anxiety levels, as many as 27 subjects (96.4%). All subjects had moderate anxiety levels (100%).

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

2. Bivariate Analysis

The difference in stress levels in the intervention group (Mean= 14.17; SD= 4.36) and the control group (Mean= 19.93; SD= 0.62) and this is statistically significant (Table 5).

Table 5. Mean difference of stress level between control and treatment group

Variable	n	Mean	SD	p
Experiment	28	14.17	4.36	<0.001
Control	28	19.93	0.62	

DISCUSSION

The results showed the level of anxiety in the treatment group before being given Stress Ball Therapy, data obtained from research subjects with mild anxiety as many as 1 person (3.6%), moderate anxiety as many as 26 people. (92.9%) and severe anxiety (3.6%).

Based on the results found in the data, it was obtained that the majority of respondents experienced moderate levels of anxiety with a percentage of 92.9%. At the beginning of data collection, it was clear that most respondents looked very anxious and still had many complaints regarding their condition when they experienced self-isolation. Respondents admitted that they were worried about the decision that required them to undergo self-isolation. In addition, the respondents panicked and felt stressed with the amount of information with unclear sources related to COVID-19.

The results of Aula's research (2020) showed if someone continues to be under pressure, that person will increase their anxiety. One thing that can be done when anxiety arises in someone is to create a more conducive atmosphere, where there is education and guidance for that person to provide broader insight and is expected to reduce the anxiety rate of that person (Aula, 2020).

Based on table data 8 levels of anxiety in the post-stress ball therapy treatment group, data was found from 28 respondents; 19 respondents (67.9%) did not experience anxiety, and 9 respondents with mild anxiety (32.1%).

Based on the data above, it is clear that there was a decrease in anxiety in respondents compared to before being given the stress ball therapy intervention, where most respondents did not experience anxiety with a percentage of 67.9%. The intervention in stress ball therapy was given as a distraction technique to overcome respondents' anxiety.

The results of Salman's research (2020) show that distraction techniques can be interpreted by providing a pleasant stimulus to release endorphins naturally, which can reduce anxiety in a person due to anxious impulses being transferred to the brain. Only a little. One of the distraction techniques that can be done to reduce anxiety is to provide play therapy, such as stress ball therapy. Whatever media play treatment is, it effectively diverts the patient's anxiety (Salman et al., 2020).

Based on the table of anxiety levels in the pre-control group, data

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

obtained from 28 subjects showed 27 subjects with moderate levels of anxiety (96.4%) and 1 subject experiencing severe anxiety (3.6%).

From the data above, it can be seen that the majority experience moderate anxiety levels (96.4%). Budi (2016) state that a moderate level of anxiety is a condition in which the individual focuses only on the thoughts that are his concern. The individual's perception field becomes narrower and requires the direction of others in doing an activity.

Respondents with moderate anxiety can be seen from several characteristics that appear, such as the emergence of anxiety, dependent or dependent behavior, and expressing worry and fear of something (Jeffrey 2013 in Anissa, 2016).

Based on table 10 data on anxiety levels in the post-control group, data obtained from 28 respondents, the majority of all respondents experienced moderate anxiety levels, namely 28 people (100%).

Based on the research results above, it is evident that the majority of all respondents still experience moderate levels of anxiety while undergoing self-isolation. Many factors can influence a person to experience anxiety. As explained by Iyus in Saifudin & Kholidin (2015) many factors influence anxiety in a person, including age and developmental stages, environment, knowledge and experience factors, and support or family roles.

Based on the result of this study, it can be concluded that the administration of Stress Ball Therapy has proven to be quite effective in reducing the level of anxiety in respondents. Giving stress ball therapy is one of the non-pharmacological actions in traction techniques in overcoming anxiety. Kusumayanti (2018) explained that the distraction technique is a method to eliminate anxiety by diverting attention to certain things so that patients will forget the anxiety they are experiencing. As a result of a pleasant sensory stimulus will cause the release of endorphins, which can inhibit the anxious stimulation in transmitting the anxious stimulus to the brain to be less.

Stress ball therapy is a modification of distraction therapy in overcoming anxiety. The goal is, of course, to divert respondents' attention to reduce the level of respondents' anxiety. The method of giving stress ball therapy in this study was by providing a rubber ball squeezing game to COVID-19 patients undergoing self-isolation. The intervention of providing stress ball therapy to COVID-19 patients has proven to be quite effective in reducing patient anxiety.

This is reinforced by Nasution's (2020) opinion, which explains that there is a good influence in providing stress ball therapy in reducing anxiety levels in pre sectio caesarea patients. Because anxiety in the face of surgery will be diverted, the patient's anxiety will also be reduced. Another study from Arianna, 2018 also confirmed that giving stress ball therapy can significantly reduce a little anxiety level in patients with preoperative excision of the neck and head skin cancer.

Based on the study results above, it was explained that the control group

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

was not given an intervention, so there was no difference between pre and post-control. Many factors can cause anxiety in respondents in this control group. According to Ifdil 2016, several factors can influence anxiety in subjects, including the level of knowledge possessed in responding to a threatening situation and knowing how to control oneself in dealing with this anxiety.

In addition, the anxiety level arises due to past bad experiences and irrational thoughts in individuals so that excessive anxiety can occur. Anxiety is a feeling of extreme worry that a person feels, like panic and helplessness (Stuart, 2016).

Ghufron and Risanawita (2014) in Fadli (2020) explain that panic and fear are considered part of the emotional aspect. At the same time, the components that come from mental or cognitive aspects include disturbances in thinking, worry, irregularity in thought, and feelings of confusion.

The study results also explain the effectiveness of giving stress ball therapy to COVID-19 patients on the anxiety level of COVID-19 patients. With the emergence of the COVID-19 disease, many people are starting to worry about the news that appears in the community. Symptoms that begin to appear in Covid-19 patients include cough, fever, difficulty breathing, sore throat, and anosmia (Chen et al., 2020; Huang et al., 2020).

Of course, these complaints also impact the emotional and mental aspects of the patient, so various levels of anxiety arise. The results of Dewi and Fauziah's research (2018) explain that anxiety is a natural feeling for someone; when people feel anxious, they will realize and remember things that are dangerous or make them anxious. However, if this normal anxiety is excessive and uncontrollable, it will interfere with daily activities. The cause of anxiety itself is usually due to obtaining extreme or harmful information.

Anissa et al. (2018) stated that each individual has a different level of anxiety, which is influenced by how the individual adjusts and copes with situations that trigger anxiety. When faced with unpleasant situations, this anxiety also often appears in individuals (Suraatmaja and Wulandari, 2020).

The benefits of playing ball therapy, especially stress ball therapy, include reducing panic levels, stimulating the nerves in the hands to divert attention, and improving feelings. Based on applying this stress ball therapy intervention in the field, the researchers also found similarities with the existing theory. After being given this stress ball therapy game, respondents became more enthusiastic and looked calm and cheerful than before being given this intervention.

AUTHOR CONTRIBUTION

Sukesih, the lead researcher, related to research permits at the Soewondo Pati Hospital, providing intervention actions to patients. Tri Suwarto, a research member, helped the lead researcher take action on the patient. Pratiwi Susilosari, a research member, allows the lead researcher to take action on the patient.

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

CONFLICT OF INTEREST

There is no conflict of interest in compiling this article.

FUNDING AND SPONSORSHIP

This research is self-funded.

ACKNOWLEDGMENT

The researchers thanked the Director of the Soewondo Pati Hospital, the isolation room nurse at the Soewondo Pati Hospital, the COVID-19 patient who became a patient in the isolation room.

REFERENCES

Dinas Kesehatan Jawa Tengah (2020). COVID-19 patient data 2020.

Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, Ren R, et al. (2020). Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia. New Engl J Med. 382(13): 1199–1207. DOI: 10.1056/nejmoa-2001316.

Aula N (2020). The Role of Religious Leaders in Breaking the Covid-19 Pandemic Chain in Indonesian Online Media. Living Islam: Int J Islam Stud Humanit. 3(1): 125. DOI: 10.14421/lijid.v3i1.2224.

Sari RS, Afriani F (2019). Clay Play Therapy Against Anxiety Levels in Preschool Age Childrenh (3-6 Tahun), Jurnal Kesehatan, 8(1): 51–63. DOI: 10.37048/kesehatan.v8i1.151.

Roy D (2020). Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID- 19. The COVID-19 resource centre is hosted on Elsevier Connect, the companys public news and information.

Salman M, Mustafa ZU, Asif N, Zaidi HA, Hussain K, Shehzadi N, Khan TM, Saleem Z (2020). Knowledge, attitude and preventive practices related to COVID-19: a cross-sectional study in two Pakistani university populations. Drugs & therapy perspectives: for rational drug selection and use, 1–7. Advance online publication. https://doi.org/10.1007-/s40267-020-00737-7.

Sukesih, Maiza L, Sopyan A (2021). Education and Knowledge Levels with Behavior of COVID-19 Prevention Efforts in the Community, Muhammadiyah Health Sciences Klaten. 1–7.

THE EFFECTIVENESS OF STRESS BALL THERAPY TO REDUCE ANXIETY LEVEL IN COVID-19 PATIENTS IN PATI, CENTRAL JAVA

Sukesih, Tri Suwarto, Pratiwi Susilosari

Study Program of Nursing, Faculty of Nursing,
Universitas Muhammadiyah Kudus, Central Java

ABSTRACT

Background: COVID-19 has become a pandemic in all countries, including Indonesia. COVID-19 cases are increasing concern for the public because of the possibility of exposure and the anxiety experienced by confirmed COVID-19 patients undergoing self-isolation. This study aimed to analyze the effectiveness of stress ball therapy on reducing anxiety levels among COVID-19 patients in a self-isolation room.
Subjects and Method: This was a randomized controlled trial (RCT) conducted at Self-Isolation Room, RAA Soewondo General Hospital, Pati, Central Java, in June 2021. A total of 56 COVID-19 patients was selected and divided into 2 groups: (1) Experimental group consisting of 28 patients receiving stress ball therapy; (2) Control group consisting of 28 patients not receiving stress ball therapy. The dependent variable was anxiety level. The independent variable was stress ball therapy. The anxiety level was measured by Hamilton Anxiety Rating Scale (HARS). The Mann-Whitney test analyzed the data.
Results: Anxiety level after stress ball therapy intervention was lower in the experimental group (Mean= 14.17; SD= 4.36) than the control group (Mean= 19.93; SD=0.62), and it was statistically significant ($p<0.001$).
Conclusion: Stress ball therapy effectively lowers anxiety levels in COVID-19 patients.

Keywords: stress ball therapy, anxiety level, COVID-19

Correspondence:
Sukesih. Study Program of Nursing, Faculty of Nursing, Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No. 1 Purwosari, Kudus, Central Java. Email: sukesih-@umkudus.ac.id. Mobile: +6282136858256

BACKGROUND

This COVID-19 became a world health problem in early 2020. This case began with information from the World Health Organization (WHO) on December 31, 2019, with a cluster case of pneumonia with an unclear etiology. In Wuhan, Hubei Province, China, these cases increased with deaths and imports outside China (Li et al., 2020).

The cases of COVID-19 around the world are getting more expansive, and the growth is accelerating. On March 2, 2020, Indonesia reported two confirmed cases of Covid-19. WHO has declared this COVID-19 incident as a pandemic, which is a global crisis that not only threatens public health physically but over all aspects of people's lives in the world; on January 30, 2020, WHO has designated this COVID-19 case as a Public Health Emergency of International Concern (PHEIC) (Roy et al., 2020).

The number of cases of COVID-19 in the world as of December 2020 has reached more than 65,651,683 confirmed cases of COVID-19, including 1,519,193 cases of death. In Southeast Asia, the growth of COVID-19 cases has also drastically increased,

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

with 11,071,129 confirmed cases of COVID-19 and 168,458 cases of death. Indonesia ranks top in Southeast Asia for the incidence of COVID-19 until December 2020, where confirmed cases of COVID-19 were more than 569,707 cases (WHO, 2020).

Pati Regency, one of the regencies in Central Java, also has a relatively large number of COVID-19 cases. The latest data for March 2021 has touched the range of 706 suspect cases and 6,236 confirmed cases of COVID-19, where confirmed cases are essential. gal as many as 330 cases. (Ministry of Health, 2020).

The growth of COVID-19 cases, which is increasing day by day, certainly makes most people worry and anxious because, of course, people are afraid of the high possibility of being exposed to the COVID-19 virus. Anxiety is felt by the general public and confirmed COVID-19 patients who are currently in self-isolation (Sukesih et al., 2020). Independent isolation room at RAA Soewondo Pati Hospital Based on data obtained from the Pati City Health Office, the total number of patients being treated or undergoing self-isolation in March 2021 is 125 people. This figure will undoubtedly continue to increase rapidly.

On average, preliminary studies in the field and reports from officers at the Independent Isolation of RAA Soewondo Pati Hospital, patients treated experience varying stress and anxiety. Starting from refusing to be treated, not believing that the diagnosis will be confirmed, and anxiety for various reasons.

Based on a field survey, 55% of patients felt anxious and restless in the first week of self-isolation. Then in the second week and the next, the patient felt less anxious, but boredom began to arise in isolation. These various patient problems will cause anxiety to stress, which will also disrupt the physical and mental health of COVID-19 patients. Ria (2019) explained that there is a significant spirit on the level of anxiety of pre-school aged children (3-6 years) (Sari and Afriani, 2019).

Anxiety is a feeling of fear of something happening caused by the anticipation of danger and is a signal that helps individuals prepare to take action in the face of threats. Demands, competition, and disasters in life can impact physical and psychological health. One of the psychological impacts is anxiety (Sutejo, 2018).

The impact caused by anxiety varies depending on the type of anxiety experienced by the individual. Given the seriousness of the effects of uncontrollable anxiety, we should be able to control or divert this anxiety in various ways, both pharmacologically and non-pharmacologically, so that the impact is not more severe (Sukesih et al., 2021). One of the non-pharmacological measures to deal with anxiety is to do exercise using stress ball.

The purpose of this study was to determine the effectiveness of Stress Ball therapy on the anxiety level of COVID-19 patients.

SUBJECTS AND METHOD

1. Study Design

This is a randomized controlled trial (RCT) conducted in the isolation room

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

of the RAA Soewondo Hospital, Pati, Central Java, in June 2021.

2. Population and Sample

The population in this study were COVID-19 patients. 56 COVID-19 patients were divided into 2 groups: (1) 28 patients received the Stress Ball Therapy and (2) 28 patients did not receive the Stress Ball Therapy; subjects were randomly selected.

3. Study Variables

The dependent variable is the level of anxiety. The independent variable is stress ball therapy

4. Operational Definition of Variables

Anxiety Level is a response range that divides the individual into whether it includes mild, moderate, severe, or even panic anxiety

Stress Ball Therapy is a therapy used to treat anxiety in COVID-19 patients using therapeutic tools for helping people manage stress through the physical act of squeezing, rolling, or tossing a ball.

5. Instruments

The measuring instrument used is the Pregnant-ton Anxiety Rating Scale to measure the level of anxiety before and after being given stress ball therapy.

6. Data Analysis

Mann-Whitney test was used to examine the effect of stress ball therapy on anxiety levels in COVID-19 patients.

RESULTS

1. Sample Characteristics

Table 1 shows that the intervention group was dominated by males (60.7%), and the average age of the subjects was 37-48 years (50%), with the most occupations as laborers/ private sector (46.4%).

Table 1. The characteristics of the intervention group (dichotomous data) are based on gender, age, and occupation.

Variable	Total (n)	Percentage (%)
Gender		
Male	17	60.7
Female	11	39.3
Age		
12-25 years	7	25
25-36 years	7	25
37-48 years	14	50
Job		
Farmer	2	7.1
Labor/private	13	46.4
Trader	3	10.7
Government Employee/Police/Military	4	14.3
Others	6	21.4

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

Table 2. Characteristics of the control group sample (dichotomous data) based on gender, age, and occupation.

Variable	Total (n)	Percentage (%)
Gender		
Male	15	53.6
Female	13	46.4
Age		
12-25 years	5	17.9
25-36 years	11	39.3
37-48 years	12	42.9
Job		
Farmer	2	7.1
Labor/private	11	39.3
Trader	6	21.4
Government Employee/Police/Military	4	14.3
Others	5	17.9

Table 2 shows that in the control group, more patients were males (53.6%), and most of the subjects were 37-48 years old (42.9%), with the most work in the labor/private sector (39.3%)

Table 3. Frequency distribution of anxiety levels in the intervention group (stress ball therapy)

Variable	Pre		Post	
	n	%	n	%
Anxiety Level				
No Anxiety	0	0	19	67.9
Mild Anxiety	1	3.6	9	32.1
Moderate Anxiety	26	92.9	0	0
Severe Anxiety	1	3.6	0	0

Table 3 shows that most of the subjects had moderate levels of anxiety before being given the stress ball therapy intervention, namely as many as 26 subjects (92.9%), and after being given the stress ball therapy intervention, on average, they had no anxiety, as many as 19 subjects (67.9%).

Table 4. Frequency distribution of anxiety levels in the control group

Variable	Pre		Post	
	n	%	n	%
Anxiety Level				
No Anxiety	0	0	0	0
Mild Anxiety	0	0	0	0
Moderate Anxiety	27	96.4	28	100
Severe Anxiety	1	3.6	0	0

Table 4 shows that most of the subjects in the pre-control group had moderate anxiety levels, as many as 27 subjects (96.4%). All subjects had moderate anxiety levels (100%).

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

2. Bivariate Analysis

The difference in stress levels in the intervention group (Mean= 14.17; SD= 4.36) and the control group (Mean= 19.93; SD= 0.62) and this is statistically significant (Table 5).

Table 5. Mean difference of stress level between control and treatment group

Variable	n	Mean	SD	p
Experiment	28	14.17	4.36	<0.001
Control	28	19.93	0.62	

DISCUSSION

The results showed the level of anxiety in the treatment group before being given Stress Ball Therapy, data obtained from research subjects with mild anxiety as many as 1 person (3.6%), moderate anxiety as many as 26 people. (92.9%) and severe anxiety (3.6%).

Based on the results found in the data, it was obtained that the majority of respondents experienced moderate levels of anxiety with a percentage of 92.9%. At the beginning of data collection, it was clear that most respondents looked very anxious and still had many complaints regarding their condition when they experienced self-isolation. Respondents admitted that they were worried about the decision that required them to undergo self-isolation. In addition, the respondents panicked and felt stressed with the amount of information with unclear sources related to COVID-19.

The results of Aula's research (2020) showed if someone continues to be under pressure, that person will increase their anxiety. One thing that can be done when anxiety arises in someone is to create a more conducive atmosphere, where there is education and guidance for that person to provide broader insight and is expected to reduce the anxiety rate of that person (Aula, 2020).

Based on table data 8 levels of anxiety in the post-stress ball therapy treatment group, data was found from 28 respondents; 19 respondents (67.9%) did not experience anxiety, and 9 respondents with mild anxiety (32.1%).

Based on the data above, it is clear that there was a decrease in anxiety in respondents compared to before being given the stress ball therapy intervention, where most respondents did not experience anxiety with a percentage of 67.9%. The intervention in stress ball therapy was given as a distraction technique to overcome respondents' anxiety.

The results of Salman's research (2020) show that distraction techniques can be interpreted by providing a pleasant stimulus to release endorphins naturally, which can reduce anxiety in a person due to anxious impulses being transferred to the brain. Only a little. One of the distraction techniques that can be done to reduce anxiety is to provide play therapy, such as stress ball therapy. Whatever media play treatment is, it effectively diverts the patient's anxiety (Salman et al., 2020).

Based on the table of anxiety levels in the pre-control group, data

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

obtained from 28 subjects showed 27 subjects with moderate levels of anxiety (96.4%) and 1 subject experiencing severe anxiety (3.6%).

From the data above, it can be seen that the majority experience moderate anxiety levels (96.4%). Budi (2016) state that a moderate level of anxiety is a condition in which the individual focuses only on the thoughts that are his concern. The individual's perception field becomes narrower and requires the direction of others in doing an activity.

Respondents with moderate anxiety can be seen from several characteristics that appear, such as the emergence of anxiety, dependent or dependent behavior, and expressing worry and fear of something (Jeffrey 2013 in Anissa, 2016).

Based on table 10 data on anxiety levels in the post-control group, data obtained from 28 respondents, the majority of all respondents experienced moderate anxiety levels, namely 28 people (100%).

Based on the research results above, it is evident that the majority of all respondents still experience moderate levels of anxiety while undergoing self-isolation. Many factors can influence a person to experience anxiety. As explained by Iyus in Saifudin & Kholidin (2015) many factors influence anxiety in a person, including age and developmental stages, environment, knowledge and experience factors, and support or family roles.

Based on the result of this study, it can be concluded that the administration of Stress Ball Therapy has proven to be quite effective in reducing the level of anxiety in respondents. Giving stress ball therapy is one of the non-pharmacological actions in traction techniques in overcoming anxiety. Kusumayanti (2018) explained that the distraction technique is a method to eliminate anxiety by diverting attention to certain things so that patients will forget the anxiety they are experiencing. As a result of a pleasant sensory stimulus will cause the release of endorphins, which can inhibit the anxious stimulation in transmitting the anxious stimulus to the brain to be less.

Stress ball therapy is a modification of distraction therapy in overcoming anxiety. The goal is, of course, to divert respondents' attention to reduce the level of respondents' anxiety. The method of giving stress ball therapy in this study was by providing a rubber ball squeezing game to COVID-19 patients undergoing self-isolation. The intervention of providing stress ball therapy to COVID-19 patients has proven to be quite effective in reducing patient anxiety.

This is reinforced by Nasution's (2020) opinion, which explains that there is a good influence in providing stress ball therapy in reducing anxiety levels in pre sectio caesarea patients. Because anxiety in the face of surgery will be diverted, the patient's anxiety will also be reduced. Another study from Arianna, 2018 also confirmed that giving stress ball therapy can significantly reduce a little anxiety level in patients with preoperative excision of the neck and head skin cancer.

Based on the study results above, it was explained that the control group

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

was not given an intervention, so there was no difference between pre and post-control. Many factors can cause anxiety in respondents in this control group. According to Ifdil 2016, several factors can influence anxiety in subjects, including the level of knowledge possessed in responding to a threatening situation and knowing how to control oneself in dealing with this anxiety.

In addition, the anxiety level arises due to past bad experiences and irrational thoughts in individuals so that excessive anxiety can occur. Anxiety is a feeling of extreme worry that a person feels, like panic and helplessness (Stuart, 2016).

Ghufron and Risanawita (2014) in Fadli (2020) explain that panic and fear are considered part of the emotional aspect. At the same time, the components that come from mental or cognitive aspects include disturbances in thinking, worry, irregularity in thought, and feelings of confusion.

The study results also explain the effectiveness of giving stress ball therapy to COVID-19 patients on the anxiety level of COVID-19 patients. With the emergence of the COVID-19 disease, many people are starting to worry about the news that appears in the community. Symptoms that begin to appear in Covid-19 patients include cough, fever, difficulty breathing, sore throat, and anosmia (Chen et al., 2020; Huang et al., 2020).

Of course, these complaints also impact the emotional and mental aspects of the patient, so various levels of anxiety arise. The results of Dewi and Fauziah's research (2018) explain that anxiety is a natural feeling for someone; when people feel anxious, they will realize and remember things that are dangerous or make them anxious. However, if this normal anxiety is excessive and uncontrollable, it will interfere with daily activities. The cause of anxiety itself is usually due to obtaining extreme or harmful information.

Anissa et al. (2018) stated that each individual has a different level of anxiety, which is influenced by how the individual adjusts and copes with situations that trigger anxiety. When faced with unpleasant situations, this anxiety also often appears in individuals (Suraatmaja and Wulandari, 2020).

The benefits of playing ball therapy, especially stress ball therapy, include reducing panic levels, stimulating the nerves in the hands to divert attention, and improving feelings. Based on applying this stress ball therapy intervention in the field, the researchers also found similarities with the existing theory. After being given this stress ball therapy game, respondents became more enthusiastic and looked calm and cheerful than before being given this intervention.

AUTHOR CONTRIBUTION

Sukesih, the lead researcher, related to research permits at the Soewondo Pati Hospital, providing intervention actions to patients. Tri Suwarto, a research member, helped the lead researcher take action on the patient. Pratiwi Susilosari, a research member, allows the lead researcher to take action on the patient.

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.05

CONFLICT OF INTEREST

There is no conflict of interest in compiling this article.

FUNDING AND SPONSORSHIP

This research is self-funded.

ACKNOWLEDGMENT

The researchers thanked the Director of the Soewondo Pati Hospital, the isolation room nurse at the Soewondo Pati Hospital, the COVID-19 patient who became a patient in the isolation room.

REFERENCES

Dinas Kesehatan Jawa Tengah (2020). COVID-19 patient data 2020.

Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, Ren R, et al. (2020). Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia. New Engl J Med. 382(13): 1199–1207. DOI: 10.1056/nejmoa-2001316.

Aula N (2020). The Role of Religious Leaders in Breaking the Covid-19 Pandemic Chain in Indonesian Online Media. Living Islam: Int J Islam Stud Humanit. 3(1): 125. DOI: 10.14421/lijid.v3i1.2224.

Sari RS, Afriani F (2019). Clay Play Therapy Against Anxiety Levels in Preschool Age Childrenh (3-6 Tahun), Jurnal Kesehatan, 8(1): 51–63. DOI: 10.37048/kesehatan.v8i1.151.

Roy D (2020). Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID- 19. The COVID-19 resource centre is hosted on Elsevier Connect, the companys public news and information.

Salman M, Mustafa ZU, Asif N, Zaidi HA, Hussain K, Shehzadi N, Khan TM, Saleem Z (2020). Knowledge, attitude and preventive practices related to COVID-19: a cross-sectional study in two Pakistani university populations. Drugs & therapy perspectives: for rational drug selection and use, 1–7. Advance online publication. https://doi.org/10.1007-/s40267-020-00737-7.

Sukesih, Maiza L, Sopyan A (2021). Education and Knowledge Levels with Behavior of COVID-19 Prevention Efforts in the Community, Muhammadiyah Health Sciences Klaten. 1–7.

POTENTIAL OF *PLETEKAN* LEAF EXTRACT AS A NATURAL ANTISEPTIC FOR BURN HEALING

Yayuk Mundriyastutik, Indah Puspitasari, Muhammad Purnomo, Iffana Dani Maulida

Universitas Muhammadiyah Kudus, Central Java

ABSTRACT

Background: Pletekan leaf (*Ruellia tuberosa* L.) is a wild plant rich in flavonoids, steroids, triterpenoids, and alkaloids. These bioactive compounds function as bactericidal agents, which can inhibit bacterial growth and have great potential for wound healing. This study aimed to determine the natural antiseptic effect of pletekan leaf extract on burn healing.
Subjects and Method: This study was a randomized controlled trial conducted at the Biology Laboratory, Universitas Negeri Semarang, Central Java. A sample of 30 male white rats (*Rattus norvegicus* strain Wistar) was selected for this study, and divided into two groups: (1) The control group consisting of 15 white rats, which did not receive ethanol extract of pletekan leaf; and (2) The experimental group consisting of 15 white rats, which received ethanol extract of pletekan leaf. The dependent variable was burn healing. The independent variable was ethanol extract of pletekan leaf with 25% concentration.
Results: The mean healing area in white rats receiving ethanol extract of pletekan leaf was larger than those not receiving ethanol extract, and it was statistically significant ($p<0.050$).
Conclusion: The ethanol extract of pletekan leaf is effective for burn healing in white rats.

Keywords: ethanol extract, pletekan leaves, burn healing, white rat

Correspondence:
Yayuk Mundriyastutik. Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No. 1, Purwosari, Kudus 59316, Central Java. Email: yayukmundriyastutik@umkudus.ac.id. Mobile: +62 85641436631.

BACKGROUND

COVID-19 is a global pandemic, and it is not reassuring for the community. Transmission of this disease can be prevented by maintaining cleanliness, which can use antiseptics. Antiseptics are substances that can inhibit the growth and development of microorganisms without having to kill these microorganisms in living tissue. Antiseptic is a chemical substance that can destroy microorganisms or inhibit their work to prevent the occurrence of an infection. Antiseptics are used on living things, while disinfectants are used on inanimate objects. Antiseptics have a more general performance, while antibiotics are specific in their performance on certain microorganisms (Annisa and Chandra, 2019).

Pletekan leaf is a plant that contains flavonoids, steroids, triterpenoids and alkaloids. Vitalia et al. (2016); Susana et al. (2016); Rahmi et al. (2014) stated that *pletekan* leaves contain flavonoid compounds, sapo-

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.06

nins, and alkaloids. Based on the phytochemical screening of *pletekan* leaves (Ruellia tuberosa L.) conducted by Rahmi et al. (2014), *pletekan* leaf water extract contains flavonoids, alkaloids, polyphenols, tannins, quinones, monoterpenoids, sesquiterpenoids. In addition, *pletekan* leaves contain hexadecanamide compounds, anti-inflammatory, anti-nociceptive, neuroprotective, anticonvulsant, and antifungal properties (Ida et al., 2016).

Flavonoids are active compounds in *pletekan* leaves as antibacterial (Suteja et al., 2016). Antibacterial compounds are active compounds that inhibit or kill a microorganism (Pambudi et al., 2014). Saponins can be used for the wound healing process because saponins function as antioxidants, anti-inflammatory, antibacterial and antifungal substances (Novitasari, 2014). Tannins are substances that play a role in vasoconstriction. Vasoconstriction is important in hemostasis. Tannins also function as astringents that can cause shrinkage of skin pores, harden the skin, stop exudate from closing wounds and prevent bleeding that usually occurs in wounds (Yenti et al., 2011).

Ethanol 96% in this study was used as a solvent because it is a polar solvent that is expected to extract alkaloids, phenolic compounds, and flavonoids, has a low boiling point and tends to be safe (Munawarah and Handayani, 2010).

A break in the continuity of the tissue or a breakdown in the integrity of the skin is called a wound. Burns are a type of damage to the skin that occurs when different layers of skin cells are damaged by hot liquids (boiling), hot solids (contact burns), or flames (fire burns). Burns can damage the skin, which protects from dirt and infection. Burned body surface areas can be life-threatening due to blood vessel damage, electrolyte imbalance and body temperature, respiratory and nerve function disorders (Azizah, 2017). Based on this background, this study aims to determine the natural antiseptic effect of *pletekan* leaf extract on healing burns.

SUBJECTS AND METHOD

1. Study Design

This was a Randomized controlled trial conducted at the Biology Laboratory Universitas Negeri Semarang, Central Java.

2. Population and Sample

A sample of 30 male white rats (Rattus norvegicus strain Wistar) was selected for this study, and divided into two groups: (1) The control group consisting of 15 white rats, which did not receive ethanol extract of pletekan leaf; and (2) The experimental group consisting of 15 white rats, which received ethanol extract of pletekan leaf.

3. Study Variables

The dependent variable was burn healing. The independent variable was ethanol extract of pletekan leaf with 25% concentration.

4. Operational Definition of Variables

a. Burn healing

Definition: evaluation of observations made within 21 days to assess wound diameter reduction

Measurement scale: Ratio

b. Pletekan leaf ethanol extract

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.06

Definition: ethanol extract of pletekan leaves were diluted to obtain extract concentrations of 15%, 20%, and 25%
Measurement scale: ratio

5. Study Instruments

The ingredients used in the study were *pletekan* leaf extract, 96% ethanol, aquadest, magnesium (Mg), concentrated hydrochloric acid (HCl), ointment containing neomycin, sulfuric and biosulfate acid (bioplacenton), ether and male white rat (Rattus norvegicus strain wistar).

The tools used in the research were Bunsen, water bath, measuring cup, horn spoon, 40 mesh sieve, filter paper, syringe, dropper, iron measuring 1.5 x 1.5cm^2.

6. Data Analysis

The data from the test results of the concentration of pletekan leaf extract on (area of the burn) were then tested for normality and homogeneity. If the data is normally distributed and homogeneous, then it is tested with one-way ANOVA. If the data are not normally distributed and homogeneous. The bivariate data were analyzed by Mann-Whitney.

RESULTS

Observations of differences in healing rates began to appear when the characteristics of the wound proliferative phase, namely day 7, were then carried out at intervals of 3 days to determine the physical changes that occurred in each group. Table 1 shows that the percentage of burn healing rate in the 15% concentration group experienced an average healing rate of 83.16%, the 20% concentration group experienced an average healing rate of 82.48%, the 25% concentration group experienced an average healing rate of 84.71 %, positive controls experienced an average cure rate of 79%.

Meanwhile, the negative control group experienced an average healing rate of 70%, which was indicated by no more redness in the wound and shrinking of the wound.

The number of research subjects were 15 control groups and 15 intervention groups.

Table 1. Number of samples of mice in two groups

Subjects	Intervention		Control	
	N	%	N	%
White rats	15	50	15	50

Table 2. The use of pletekan leaf extract with a concentration of 15%, a concentration of 20%, and a concentration of 25% on the diameter of burn healing before intervention

Ethanol Extract of Pletekan Leaf	Mean	SD	p
15% concentration	0.38	0.03	0.001
20% concentration	0.39	0.05	0.001
25% concentration	0.36	0.12	0.001

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.06

Table 3. The use of pletekan leaf extract with a concentration of 15%, a concentration of 20%, and a concentration of 25% on the healing of burns after the intervention

Ethanol Extract of Pletekan Leaf	Mean	SD	p
15% concentration	0.25	0.01	0.001
20% concentration	0.20	0.02	0.001
25% concentration	0.23	0.05	0.001

Table 4. Average percentage of burn healing rate

Rats	Positive Control	Negative Control	15% concentration	20% concentration	25% concentration
1	80.00%	64.00%	83.46%	84.44%	76.71%
2	80.00%	64.00%	84.17%	84.44%	82.57%
3	70.00%	72.26%	84.44%	78.84%	88.00%
4	84.17%	70.84%	81.86%	81.86%	88.53%
5	82.84%	77.00%	81.86%	82.84%	87.73%
Average	79.00%	70.00%	83.16%	82.48%	84.71%

DISCUSSION

Pletekan leaf extraction was carried out using the maceration method, a cold extraction method that aims to avoid damage to the thermolabile compounds in pletekan leaves. Stirring during maceration puts the surface of the simplicia powder in maximum contact with the solvent so that the active substance can be dissolved maximally. Ethanol has a high level of polarity in dissolving the antiseptic compounds present in the pletekan leaf powder. The yield of maceration of pletekan leaves using 96% ethanol solvent was 8.46%, with a thick extract of 84.57 grams.

At the phytochemical screening stage, qualitative tests were carried out for the presence of flavonoids, tannins, and saponins because these compounds functioned as antiseptics and affected wound healing. The test results for the ethanol extract of pletekan leaves (*Ruellia Tuberosa L.*) were positive for flavonoid compounds, saponins, and tannins. The identification of flavonoid compounds formed a reddish color that indicated a positive presence of flavonoids. Concentrated magnesium and HCl reduce the benzopyran core in the flavonoid structure so that red color is formed. The results of the saponin test were that large foam was formed, and after the addition of HCl, the foam remained stable, the identification of saponin compounds showed positive results. Saponins are easily soluble in water and have the characteristic of foaming when shaken. Saponins have a group.

Polar and non-polar are active on the surface to reduce surface tension like soap so that when shaken with water, saponins can form micelles. In the micelle structure, the polar groups face outward while the non-polar groups face inward. This state is what looks like foam. The qualitative test results for tannins showed a black color, and a precipitate occurred, indicating that the ethanol extract of the pletekan leaves was positive for tannins.

To determine the activity of ethanol extract of pletekan leaves on healing

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.06

burns and the effect of the concentration of ethanolic extract of pletekan leaves on the healing of burns, a test was conducted on test animals, namely white rats of the Wistar strain. The rats were anesthetized first using ether so that when the burns were made, the rats did not feel excessive pain that caused stress or even death. Ether belongs to the standard class of inhalation anesthetics, which is good and can affect some living nerves but does not poison the test animal's body if it is not used excessively and is volatile (Heny et al., 2018). Burns that had been made were then treated according to the treatment group, namely the positive control group with bioplacenton ointment, the negative control group with 0.9% NaCl, and the 15%, 20%, and 25% concentrations. This study uses the ointment

bioplacenton as a positive control because the ointment contains 10% placenta extract, which functions to trigger the formation of new tissue so that it can be used for wound healing, and contains 0.5% neomycin sulfate, which functions to prevent or treat infection with gram-negative bacteria in the wound area. The treatment group was dropped evenly three times a day for 21 days. The results showed that the ethanol extract of pletekan leaves affected healing burns in rats. This burn healing effect is due to antiseptic compounds in the ethanol extract of pletekan leaves, namely flavonoid compounds, saponins, and tannins (Ida et al., 2016).

Flavonoids are polyphenolic compounds with various effects, including antioxidant, antitumor, anti-inflammatory, antibacterial, and antiviral effects. Tannins are astringent which can affect wound healing by several cellular mechanisms, one of which is increasing the re-formation of the dermis tissue in the wound tissue. Saponins help increase the number of macrophages migrating to the wound area, thereby increasing the production of Growth Factors that can increase new blood vessels.

On days 1-3 after the wound formation, the first stage of wound healing occurs, namely the inflammatory phase. The inflammatory phase aims to prevent colonization and infection by removing dead tissue and hemostasis (Kartika, 2019). Inflammation is characterized by the presence of rubor (redness), tumor (swelling), calor (heat), and dolor (taste) pain/pain) (Ghofroh, 2017).

Mice in all test groups experienced the inflammatory phase on day 1. The faster the inflammatory process occurs, the faster the subsequent wound healing process. The next stage of wound healing is the proliferative phase. The formation of a scab indicates that the wound healing process has entered an early proliferative phase. The proliferative phase occurs from day 3 to day 21. In the proliferative phase, the wound is filled with inflammatory cells, fibroblasts, collagen fibers, forming a reddish tissue with an uneven surface called granulation tissue (Ghofroh, 2017). Observations were made from the first day, and the wound diameter was measured after entering the proliferation phase, and there was a change in wound size. The negative control group recovered at day 24, with the first day appearing pale red, on day 14 scabs or crusts that dry on the wound are very little removed, and on day 24, the wound healed with no skin tissue

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.06

marked colored Red. The positive control group on day seven has been seen.

The scab came off because the wound area after the measurement was reduced, and on day 21, there were no wounds. The concentration group was 15%, from day 7, the scabs had started to come off, and on day 18, there were no wounds with no wounds and scabs. The wounds healed markedly by no red skin tissue. The 20% concentration group was different from the 15% concentration group. From day 7, the scabs had started to come off, and on day 18, there were no wounds, no wounds, and scabs. The wounds healed with no red skin tissue. The 25% concentration group from the 7th day had many scabs coming off, and on the 17th day, the wound healed with no wounds and scabs, the wound healed markedly by the absence of red skin tissue. The 25% concentration group healed faster than the positive control so that the 25% extract concentration had a more significant and good effect on wound healing, followed by the 15% and 20% groups.

The data from the measurement of the diameter of the burn wound was converted in the form of a percentage to see the significance of the effect of the ethanol extract of pletekan leaves on the healing of burns. Based on table 1, the results of the average percentage of burn healing showed that the 25% concentration group showed a higher percentage of wound healing than the . group others, namely 84.71%. The positive control group showed 79% results, the 15% concentration group was 83.16%, and the 20% concentration group was 82.48%.

Based on the research that has been done, it can be concluded that the ethanol extract of pletekan leaves (Ruellia Tuberosa L.) has acted as a burn wound healing in white rats (Wistar). The ethanol extract of pletekan leaves contains antiseptic compounds that play an essential role in wound healing.

AUTHOR CONTRIBUTION

Yayuk Mundriyastutik as the lead researcher determined the formulation in the preparation of the extract concentration, Indah puspitasari helped make wounds on white rats. Muhammad Purnomo helped in smearing the extract and contributed to the drug as a control. Iffana Dani Maulida did the evaluation.

ACKNOWLEDGEMENT

Thank you to the Universitas Muhammadiyah Kudus, Central Java which has funded this research as well as students and laboratory assistants who have helped during the activities for the treatment of mice.

FUNDINGS AND SPONSORSHIP

This research was funded by the Chancellor of the University of Muhammadiyah Kudus.

CONFLICT OF INTEREST

There was no conflict of interest.

REFERENCES

Annisa LL, Chandra H (2020). Majalah Farmasetika (Pharmacy Magazine). 5 (3): 137-145.

Azizah F (2017). Pengaruh perasan daun belimbing wuluh (*averhoa bilimbi*) terhadap pertumbuhan

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.06

bakteri escherichia coli pathogen (The effect of wuluh star fruit juice (Averhoa bilimbi) on the growth of pathogenic Escherichia coli bacteria). The Journal of Muhammadiyah Medical Laboratory Technologist. 2 (1).

Ghofroh AA (2017). Uji Aktivitas ekstrak etanol 70% daun kitolod (isotoma logiflora) terhadap percepatan penyembuhan luka bakar (combustio) derajat ii pada mencit (*mus musculus*) (Activity test of 70% ethanol extract of kitolod leaves (isotoma logiflora) on accelerated healing of burn wounds (combustio) degree ii in mice (mus musculus)). Skripsi. Universitas Islam Negeri Maulana Malik Ibrahim Malang.

Ida AN, Ni PAA, Ngurah IW (2016). Identifikasi senyawa aktif daun pletekan (*Ruellia Tuberosa L.*) dengan Menggunakan GC-MS (Identification of the active compound of pletekan leaf (Ruellia Tuberosa L.) using GC-MS). Jurnal Simbiosis IV Jurusan Biologi FMIPA Universitas Udayana. (2): 55-57.

Kartika (2014). Jurnal Farmasi Universitas Jendral Achmad Yani (Journal of Pharmacy Universitas Jendral Achmad Yani). 2(2): 50-53.

Munawarah S, Handayani PA (2010). Ekstraksi Minyak Daun Jeruk Purut (*Cytrus hydtrik D.C*) dengan Pelarut Etanol dan N-Heksan (Extraction of Kaffir lime (*Cytrus hydtrik D.C*) Leaf Oil with Ethanol and N-Hexane Solvents). Jurnal Kompetensi Teknik Universitas Negeri Semarang.

Novitasari A (2016). Isolasi dan Identifikasi Saponin Pada Ekstrak Daun Mahkota Dewa dengan Ekstraksi Maserasi (Isolation and Identification of Saponins in Mahkota Dewa Leaf Extract by Maceration Extraction). Jurnal Sains. 6(12).

Pambudi A, Syaefudin, Noriko N, Azhari R, Azura PR (2014). Identifikasi Bioaktif Golongan Flavonoid Tanaman Anting-Anting (*Acalypha indica L.*) (Identification of Bioactive Flavonoid Group of Earring Plant (Acalypha indica L.)). Jurnal AL-Azhar Indonesia Seri Sains dan Teknologi. 2(3): 178-187.

Rahmi AN, Sutjiatmo AB, Vikasari SN (2014). Efek Hipoglikemia Ekstrak Air Daun Kencana Ungu (*Ruellia Tuberosa L.*) pada Tikus Wistar Jantan (Hypoglycemia of Purple Kencana Leaf (Ruellia Tuberosa L.) Water Extract in Male Wistar Rats).

Susana R, Agustina R, Wahid A (2016). Pengaruh Lumatan Daun Pletekan (*Ruellia Tuberosa L*) terhadap Lama Penutupan Luka Pada Tikus Putih (*Rattus Norvegicus*) (The Effect of Crushed Leaves Pletekan (Ruellia Tuberosa L) on the Length of Wound Closure in White Rats (Rattus Norvegicus)). Jurnal Dunia Keperawatan Universitas Lambung Mangkurat. 4(2): 104-109.

Suteja IKP, Wiwik SR, I Wayan, GG (2016). Identifikasi dan Uji Aktivitas Senyawa Flavonoid dari Ekstrak Daun Trembesi (*Albizia Saman (Jacq) Merr*) sebagai Antibakteri Escherichia Coli (Identification and Activity Test

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.06

of Flavonoid Compounds from Trembesi (*Albizia Saman (Jacq) Merr*) Leaf Extract as Antibacterial Escherichia Coli). Journal of Chemistry Universitas Udayana. 10(1).

Vitalia N, Najib A, Ahmad RA (2016). Uji Toksisitas Ekstrak Daun Pletekan (*Ruellia Tuberosa L.*) dengan Menggunakan Metode Brine Shrimp Lethality Test (BSLT) (Toxicity Test of Pletekan Leaf Extract (*Ruellia Tuberosa L.*) Using the Brine Shrimp Lethality Test (BSLT) Method). Jurnal Fitofarmaka Indonesia Universitas Muslim Indonesia. 3(1).

Yenti R, Ria A, Linda A (2011). Formulasi Krim Ekstrak Etanol Daun Kirinyuh (*Euphatorium odoratum L.*) untuk Penyembuhan Luka (*Kirinyuh (Euphatorium odoratum L.*) Leaf Ethanol Extract Cream Formulation for Wound Healing). Pharmamedika Health Magazine Universitas Yarsi. 3(1).

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.06

THE EFFECT OF RED SPINACH (*Amaranthus tricolor* L.) LEAF ETHANOL EXTRACT CONCENTRATION ON THE PHYSICAL QUALITY OF FACE SERUM AND ANTIOXIDANT ACTIVITY USING 2,2-DIPHENYL-1-PICRYL-HYDRAZYL-HYDRATE (DPPH) METHOD

Kharisma Aprilita Rosyidah, Riana Putri Rahmawati, Muhammad Nurul Fadel, Hasriyani

Study Program of Pharmacy, Universitas Muhammadiyah Kudus, Central Java

ABSTRACT

Background: Damage to the skin due to free radicals will interfere with the appearance so that the skin needs to be protected. Red spinach contains flavonoids which can be used as a source of antioxidants to inhibit free radicals. Antioxidant effect for facial skin care would be better formulated in a topical form. One form of cosmetic dosage form that has developed at this time is serum. Serum is a preparation with a high concentration of active ingredients and low viscosity, which delivers a thin film of the active ingredient on the skin surface. This study aimed to determine the effect of the concentration of ethanolic extract of red spinach leaves (*Amaranthus tricolor L.*) on the physical quality of facial serum and antioxidant potential using the DPPH method.
Subjects and Method: This study was a laboratory experiment with variations in the concentration of ethanolic extract of red spinach leaves by 0%, 0.5%, 1%, and 1.5%. Physical quality tests carried out were organoleptic tests, homogeneity, pH, adhesion, dispersibility, viscosity, and stability of serum preparations for 14 days. Antioxidant potential test was assessed using 2,2-diphenyl-1-picryl-hydrazyl-hydrate (DPPH) method with analysis using UV-VIS spectrophotometer.
Results: Serum preparation with 0.5% red spinach leaf ethanol extract concentration (Formula 1) had the most optimal physical quality because the resulting serum gave a clearer color and lower viscosity. Serum preparation with a concentration of 1.5% red spinach leaf ethanol extract (Formula 3) has the most optimal antioxidant potential with an IC50 value of 81.08 ppm which is a very strong antioxidant.
Conclusion: Formula 1 has the most optimal physical quality. Formula 3 has the most optimal antioxidant potential.

Keywords: red spinach, flavonoids, antioxidants.

Correspondence:
Kharisma Aprilita Rosyidah. Study Program of Pharmacy, Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No. 1, Purwosari, Kudus 59316, Central Java. Email: kharismaaprilita@umkudus.ac.id. Mobile: +6281393979092.

BACKGROUND

Indonesia is a tropical country that has various types of plants that can be used as medicine. Indonesia has the second largest biodiversity in the world after the Amazon forest. One of the medicinal plants that live in Indonesia is red spinach. Red spinach or also called *Amaranthus tricolor L* can be found in agricultural land, river plains, roadsides and desert areas (Venskutonis and Kraujalis, 2013), such as in Indonesia. Red spinach is a type of vegetable with dark leaves, reddish leaf bones or completely purple. Red spinach is very nutritious, rich in minerals such as iron and calcium, protein, vitamin

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

C and beta-carotene as antioxidants (Khandaker et al., 2008).

Human skin is often exposed to air, solar radiation and pollution which can trigger the formation of free radicals and Reactive Oxygen Species (ROS) in the body's metabolism (Poljšak and Dahmane, 2012). UV rays will trigger the formation of ROS in the skin and increase oxidative stress, when the formation of ROS exceeds the ability of antioxidant defenses (Katiyar and Mukhtar, 2001). There are endogenous and exogenous antioxidants that can repair and protect the skin from damage caused by ROS. Because the ability of the endogenous antioxidant system in the body will decrease due to aging, antioxidant supplementation from outside the body is needed to avoid damage to the skin.

One of the pharmaceutical dosage forms that can be used to prevent skin damage is antioxidant serum. Based on previous research, the use of a combined serum containing vitamins C, E and ferulic acid topically has good potential to overcome photoaging (Kim et al., 2020). Serum is a cosmetic preparation that has a high concentration of active ingredients with low viscosity to increase effectiveness (Priani et al., 2019). The physical quality of serum preparations is influenced by the composition of the ingredients contained in the formula. So this study aims to determine the effect of the concentration of ethanolic extract of red spinach (*Amaranthus tricolor L*) on the physical quality of facial serum. Second, this study also aims to determine the optimum antioxidant activity in red spinach face serum.

SUBJECTS AND METHOD

1. Study Design

This was a randomized control trial conducted at the Pharmacy Technology Laboratory, Faculty of Pharmacy, Sahid University, and Laboratory of Setia Budi University, Surakarta.

2. Population and Sample

The red spinach (*Amaranthus tricolor L*) used in this study was taken from a private plantation in Gumulan Village, Kemiri Village, Mojosongo District, Boyolali, Central Java. The red spinach was then determined at the Laboratory of the Setia Budi University. 2.5 kg of red spinach leaves were taken to make ethanol extract. Red spinach leaves that were still fresh and aged 25-30 days after planting were selected by random sampling.

3. Study Variable

The independent variables were the results of organoleptic tests, spreadability, adhesion, viscosity, homogeneity, pH, stability of preparations and antioxidant activity. The independent variable was the concentration of the ethanolic extract of red spinach (*Amaranthus tricolor L*) leaves in the serum formulation. Control variables are serum formulation method, serum testing, antioxidant testing, equipment used, room temperature and sample solvent.

4. Instrument

The instruments used for the extraction and formulation of serum include glassware (Pyrex, Japan), analytical balance (OHAUS Indonesia), mortar and stamper, porcelain glass, water

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

bath (Maspion S-302 Indonesia), oven (German Memmert), moisture balance, rod stirrer, filter paper, cuvette, rotary evaporator, UV VIS (Thermo Scientific) spectrophotometry.

5. Research Procedure

Simplicity making:

Red spinach leaves as much as 2.5 kg were sorted wet then washed using running water and aerated. After that, it was dried in an oven at 50oC for 3 days. After drying, dry sorting is carried out and mashed with a blender until it becomes a powder. The red spinach leaf powder was then sieved using a sieve with a mesh size of 20. The powder was then checked for moisture content using a moisture analyzer until the moisture content was below 10%.

Making ethanol extract of red spinach leaves:

Red spinach leaf extract was made by maceration method. Red spinach leaf powder was weighed as much as 250 grams then added 1250 mL of 96% ethanol solvent (1:5 w/v) and allowed to stand for 3 days in a tightly closed container while stirring occasionally. The maceration results were then filtered using Whatman 42 filter paper, then remaceration was performed with the addition of 750 ml of 96% ethanol solvent (1:3 w/v) and allowed to stand for 2 days while stirring occasionally. All the macerates were collected and evaporated with a rotary evaporator at 40oC to obtain a thick extract.

Qualitative test of flavonoid ethanol extract of red spinach leaves:

Qualitative test of flavonoid compounds ethanol extract of red spinach leaves was carried out by Thin Layer Chromatography (TLC) method with n-butanol as mobile phase: acetic acid: aquades = 4 : 1: 5. The TLC plate used was made of silica gel GF254 which was activated first with in an oven at a temperature of 100oC for 1 hour to remove the water content contained in the TLC plate. The TLC plate that had the extract sample stained with it was then eluted to the specified distance. After that, the dried TLC plate was examined for stains formed under UV light with wavelengths of 254 nm and 366 nm using quercetin standard. Then a comparison of the results of the Rf value between the sample and standard solutions is carried out.

Serum formulation:

In this study, four different formulas were made with the composition as shown in the following table (Table 1).

Table 1. Serum formulation

Ingredient	Formula and Composition (% b/v)			
	F0	F1	F2	F3
Red spinach leaf ethanol extract	-	0.5	1	1.5
Carbopol 940	0.5	0.5	0.5	0.5
HPMC	0.5	0.5	0.5	0.5
Propylene glycol	10	10	10	10
Triethanolamine (TEA)	1	1	1	1
Methyl paraben	0.005	0.005	0.005	0.005
Aquades	to 100 ml	to 100 ml	to 100 ml	to 100 ml

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

The first time that was done in the manufacture of serum in this study was that carbopol was dispersed in distilled water until it was homogeneous. After the foam disappeared, Triethanolamine (TEA) was added to form a gel. Hydroxypropyl methyl cellulose (HPMC) was then dispersed with distilled water until it swelled, then added to the carbopol dispersion and stirred until homogeneous. Next, the methyl paraben is dissolved in hot water and after it is dissolved it is put into the gel mass and stirred until homogeneous. The ethanol extract of red spinach leaves and propylene glycol were then added to the gel mass and stirred until homogeneous while the remaining distilled water was added.

Stability test for serum physical quality:

Tests for the stability of the physical quality of serum were carried out on all formulas on days 0, 7 and 14 after manufacture. The test was replicated 3 times for each formula. The tests carried out are:

a. Organoleptic test

This is done directly by observing changes in the shape, color and odor of serum preparations

b. Homogeneity test

The serum sample is placed on one slide then covered with another slide and placed evenly. Then the sample is observed using a microscope.

c. pH test

The serum sample was weighed as much as 1.0 gram and diluted with 10 ml of distilled water. Then measure the pH using a pH-meter with a pH specification of 4.5-6.5.

d. Adhesion test

A total of 0.25 grams of the serum sample was placed between two slides on the adhesion test apparatus. Then pressed with a load of 1 kg for 5 minutes. Furthermore, the load is lifted and 80 gr is given to the tool and the time of the slide is recorded.

e. Spreadability test

A total of 0.5 grams of serum sample was placed in the middle of a glass plate and allowed to stand for 1 minute. After that, the load was added every 1 minute in a row, namely 50 g, 100 g and 100 g. Then the diameter is measured to see the effect of the load on changes in the diameter of the spread.

f. Viscosity test

The sample of the preparation was weighed as much as 100 grams and then placed on the VT-04F viscometer and then the rotor was installed until it was submerged in the test preparation. The viscometer is then turned on until the viscometer needle points in a stable direction.

Serum antioxidant test:

Testing of antioxidant activity in this study using the UV-Visv spectrophotometer instrument DPPH method. As a standard solution used kusercetin with a concentration range of 2, 4, 6, 8 and 10 ppm as much as 10 ml. Meanwhile, to determine the operating time at the maximum wavelength, a solution of DPPH in methanol was used and then determined at a wavelength of 515-517 nm. Testing the antioxidant potential of serum preparations of red spinach leaf ethanol extract was carried out with each formula dissolved in 10 ml of methanol p.a. Then 1.0 ml of DPPH

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

stock solution was added to the sample solution and incubated for 30 minutes at room temperature in a dark container. Next, the absorbance measurement was carried out using a UV-VIS spectrophotometer and the % inhibition was calculated using the following formula:

$$\% \text{ inhibition} = \frac{(abs\ kuersetin - abs\ sampel)}{abs\ kuersetin}\ x\ 100\%$$

6. Data Analysis

The data from the adhesion test, dispersibility test, viscosity test, pH test and antioxidant activity test of DPPH serum preparations that have been obtained were analyzed using SPSS. The data were tested for normality and homogeneity using the Shapiro Wilk and Levene's test methods. To see the relationship between the results of the dispersion test, viscosity stickiness and pH, a two-way ANOVA analysis was performed. Meanwhile, the relationship between the concentration of red spinach leaf ethanol extract and antioxidant data was analyzed using one way ANOVA with the condition that the data were normally distributed (p 0.05) and homogeneous (p 0.05). If the data is not normally distributed, then Kruskal Wallis analysis is performed. If the ANOVA test experienced a significant difference, then continued with the Post Hoc test, which used the Tukey HSD test (Pertiwi et al., 2012).

RESULTS

In this study, extracts were made with the aim of separating one active ingredient from a mixture of other ingredients with the help of a solvent (Utomo, 2016). The manufacture of ethanolic extract of red spinach leaves in this study used the maceration method. The principle of the maceration method is a process in which the liquid filter will penetrate the cell wall of the material causing the active substance to be dissolved due to the difference in concentration between the solution of the active substance inside the cell and outside the cell, so that a solution with a high concentration will be pushed out of the cell along with its release. the active substance. The reason for making red spinach leaf ethanol extract using the maceration method is because it does not require complicated equipment, the cost is low because it requires less solvent, and the extraction process is carried out without heating so that it does not damage the flavonoid compounds. Flavonoid compounds are polar so a polar solvent is needed. This is because the effectiveness of the extraction of a compound by a solvent is highly dependent on the solubility of the compound in the solvent, in accordance with the principle of like dissolves like, that is, a compound will dissolve in a solvent with the same properties. In the extraction process of this flavonoid compound, 96% ethanol as solvent was used. Water solvents are not recommended even though they are polar because water has a high boiling point of 100°C and is easily overgrown with fungi (Riansari, 2008).

a. Organoleptic test results

The results of organoleptic testing of the ethanolic extract of red spinach leaves can be seen in the following table 2.

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

Table 2. Organoleptic Results of Ethanol Extract of Red Spinach Leaves

Parameter	Results
Color	Deep green
Smell	Aromatic
Consistence	Thick

b. Flavonoid Qualitative Test Results with TLC

The principle of thin layer chromatography is based on the difference in polarity between the sample and the solvent used. This method uses silica gel GF254 as a stationary phase. In the stationary phase there is a thin aluminum plate whose function is to place the adsorbent so that the migration process of the analyte by the solvent can run. The polarity of the mobile phase will determine the rate of migration of the solute which in turn will determine the Rf value. The mobile phase which has a low polarity will minimize the absorption of the components to the solvent mixture so that up to Rf will increase significantly (Kurnia et al., 2019). The results of the Rf value of the ethanolic extract of red spinach leaves based on the qualitative test of flavonoids using the TLC method can be seen in the following table (Table 3).

Table 3. Results of Flavonoid Qualitative Test with TLC

Solvent	Solvent distance	Stain distance	Nilai Rf
Quercetin standard	8	6.8	0.85
Extract sample	8	6.8	0.85

From the results of the Rf value, it can be seen that after being eluted with the mobile phase, the stains in the sample solution have the same distance as the standard solution. So from the Rf value, it can be concluded that the sample solution of red spinach leaf ethanol extract is identical to the standard solution of quercetin which is a flavonoid group. However, the results of this test need to be continued with quantitative tests to ensure that the ethanolic extract of red spinach leaves contains flavonoids and their concentration values. Based on observations under UV light, obtained stains on red spinach extract that glow red-orange with a distance of 1.2 cm. On UV light observation, faint red orange or red to blue spots indicate Anthocyanins. So it can be seen that red spinach leaves have other flavonoids in the form of anthocyanins (Adam, 2015).

c. Serum Physical Quality Test Results

Serum preparations of red spinach leaf ethanol extract were made in 4 formulations with different concentrations of red spinach leaf ethanol extract as the active substance used. In formula 0 (F0) no ethanol extract of red spinach leaves was added because it acted as a base or negative control. Meanwhile, formulas 1, 2, and 3 used spinach leaf ethanol extract concentrations of 0.5%, 1%, and 1.5%. The choice of concentration was based on previous research which stated that the optimum concentra-

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

tion of red spinach leaf ethanol extract cream was at a concentration of 0.5% because it had met the test parameters requirements. And red spinach leaf ethanol extract cream has a very strong antioxidant activity potential <50 ppm which has a value of 2.82 ppm (Moilati et al., 2020).

The gel bases used in this serum are Carbopol and HPMC. The combination of carbopol and HPMC was used to cover the deficiency of carbopol. Carbopol is a gel base whose viscosity depends on pH where the higher the concentration of carbopol used, the more acidic the base gel will be. Therefore, HPMC was added to increase the viscosity but still maintain the pH so that it was not too acidic.

Organoleptic test of serum preparation is intended to determine the physical changes of serum on days – 0.7, and 14. Organoleptic test includes observations of color, odor, and consistency. The results of the organoleptic test can be seen in the following table (Table 4).

Table 4. Results of Flavonoid Qualitative Test with TLC

Formula	Parameter	Organoleptic Stability TestUji Stabilitas Organoleptis		
		Day 0	Day 7	Day 14
F0 (basis)	Color	-	-	-
	Smell	No smell	No smell	No smell
	Consistency	Thick	Thick	Thick
F1 (EBM 0.5%)	Color	Light green	Light green	Light green
	Smell	Typical	Typical	Typical
	Consistency	Thick	Thick	Thick
F2 (EBM 1%)	Color	Dark green	Dark green	Dark green
	Smell	Typical	Typical	Typical
	Consistency	Very thick	Very thick	Very thick
F3 (EBM 1.5%)	Color	Dark green	Dark green	Dark green
	Smell	Typical	Typical	Typical
	Consistency	Very thick	Very thick	Very thick

Homogeneity test is intended to determine changes in particle size uniformity that may occur during storage on days – 0.7 and 14. Homogeneity test is carried out by observing using a microscope. The results of the homogeneity test of serum preparations can be seen in Table 5.

Table 5. Results of Homogeneity of Serum Preparations

Formula	Replication	Homogeneity Stability Test			Note
		Day 0	Day 7	Day 14	
F0 (Basis)	1	Homogen	Homogen	Homogen	Meet Specifications
	2	Homogen	Homogen	Homogen	
	3	Homogen	Homogen	Homogen	
F1 (EBM 0.5%)	1	Homogen	Homogen	Homogen	
	2	Homogen	Homogen	Homogen	
	3	Homogen	Homogen	Homogen	
F3 (EBM 1%)	1	Homogen	Homogen	Homogen	
	2	Homogen	Homogen	Homogen	
	3	Homogen	Homogen	Homogen	
F3	1	Homogen	Homogen	Homogen	

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

(EBM 1.5%)	2	Homogen	Homogen	Homogen
	3	Homogen	Homogen	Homogen

The pH test aims to determine the pH value of serum preparations on days – 0.7, and 14 and to determine the suitability of the pH of serum preparations with skin pH. The graph of the pH test results for serum preparations on days 0.7 and 14 can be seen in the following figure (Figure 1).

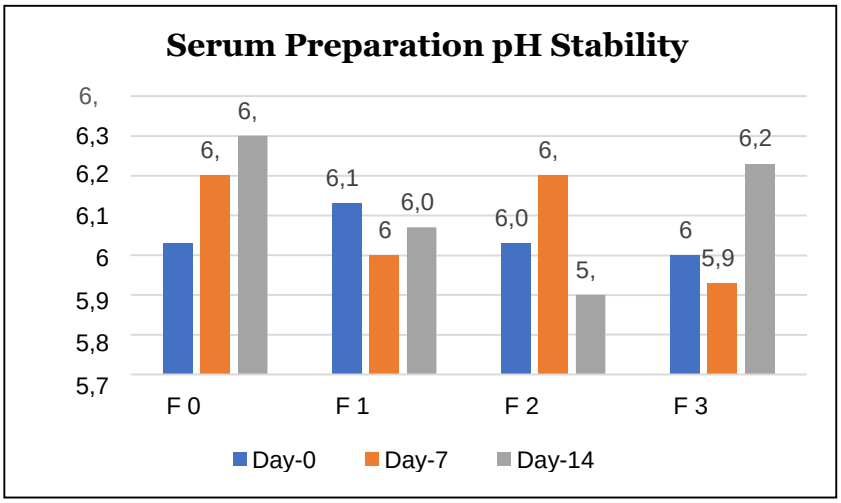


Figure 1. PH Test Serum Preparation

Adhesiveness test is intended to determine the ability of the preparation to adhere to the skin and to determine the stability of the adhesion on days 0.7, and 14. The graph of the results of the test results of serum adhesion on days 0.7 and 14 can be seen in the following figure (Figure 2).

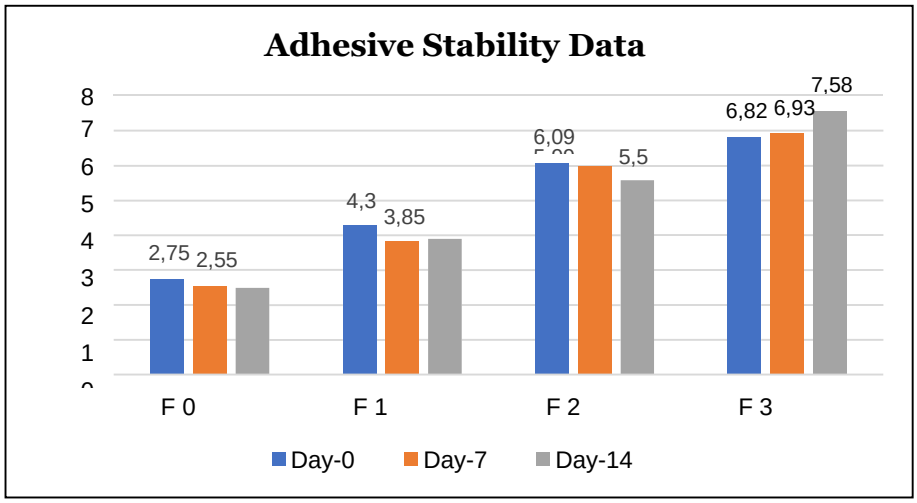


Figure 2. Test of Adhesive Stability Data

The dispersive power test is intended to determine the ability to spread serum on the skin surface and to determine the stability of dispersion

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

on days 0.7, and 14. The graph of the results of the dispersion test for serum preparations on days 0.7 and 14 can be seen in the following figure (Figure 3).

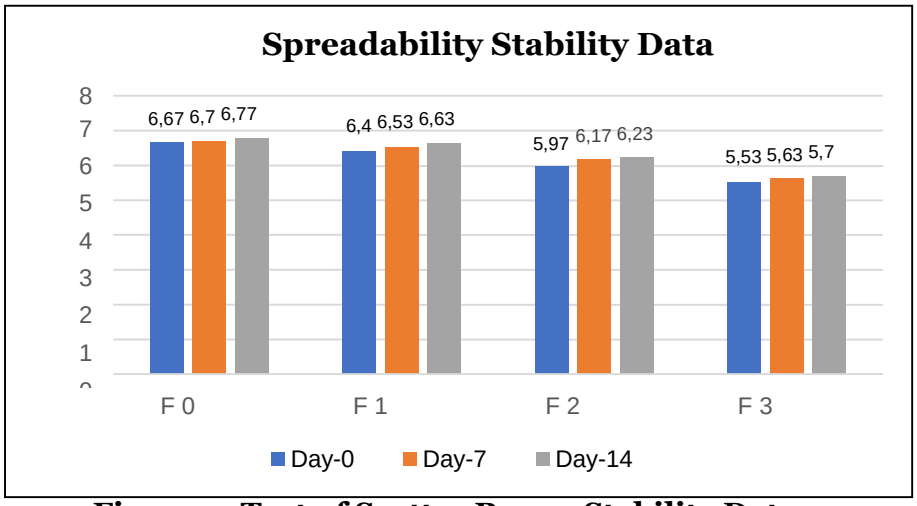


Figure 3. Test of Scatter Power Stability Data

Viscosity test is intended to determine the viscosity value with differences in the concentration of extracts in serum preparations and the stability of the viscosity of the preparations on days 0.7, and 14. The graph of the results of the viscosity test for serum preparations on days 0.7 and 14 can be seen in the following figure (Figure 4).

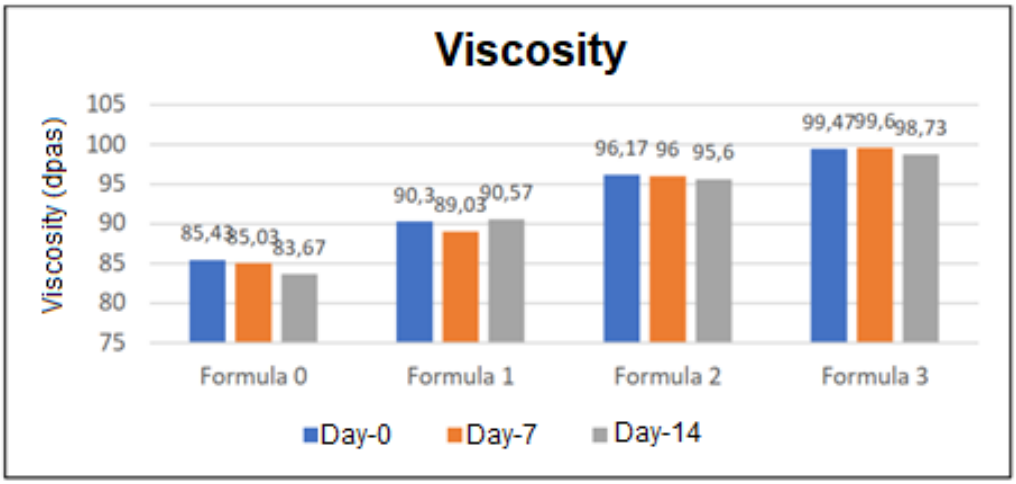


Figure 4. Graph of viscosity test results for serum preparations on days – 0, 7, and 14

d. Antioxidant Test Results

Determination of the wavelength in the antioxidant test is carried out with the aim of knowing the wavelength that has the highest absorbance value while the operating time is intended to determine the optimal time for a stable reaction between DPPH and Quercetin solutions. The results of the wavelength and operating time can be seen in the following table (Table 6).

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

Table 6. Results of Determination of Wavelength and Operating Time of DPPH and Quercetin Solutions using UV-Vis Spectrophotometry

Wavelength (nm)	Time (Minutes)	Absorbance	Note
515	0	0.076	Meet the specification
	5	0.076	
	10	0.083	
	15	0.083	
	20	0.083	
	25	0.084	
	30	0.086	

As for the antioxidant activity test, it was seen from the results of the percentage of inhibition using DPPH solution. The percentage of inhibition is the amount of inhibition of DPPH radical uptake. The following table shows the results of the percentage of inhibition carried out in this study (Table 7).

Table 7. Results of Inhibitory Power Percentage

Sample	Replication	Concentration (ppm)	Absorbance	% inhibition
Quercetin	1	2	0.299	48.63
		4	0.287	50.69
		6	0.268	53.95
		8	0.185	68.21
		10	0.139	76.12
	2	2	0.329	43.47
		4	0.273	53.09
		6	0.266	54.30
		8	0.178	69.42
		10	0.156	73.20
	3	2	0.335	42.44
		4	0.308	47.08
		6	0.237	59.28
		8	0.169	70.96
		10	0.126	78.35
Red Spinach Extract	1	10	0.335	42.44
		20	0.319	45.19
		30	0.311	46.56
		40	0.296	49.14
		50	0.285	51.03
	2	10	0.398	31.62
		20	0.366	37.11
		30	0.342	41.24
		40	0.319	45.19
		50	0.274	52.92
	3	10	0.402	30.93
		20	0.379	34.88
		30	0.34	41.58
		40	0.303	47.94
		50	0.288	50.52
	1	40	0.616	0.324
		50	0.612	0.971
		60	0.608	1.618
		70	0.605	2.104
		80	0.603	2.427
	2	40	0.616	0.324

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

F0 (Basis)	2	50	0.613	0.809
		60	0.61	1.294
		70	0.606	1.942
		80	0,603	2.427
	3	40	0.617	0.162
		50	0.615	0.485
		60	0.608	1.618
		70	0.607	1.890
		80	0.605	2.104
F1 (EBM 0.5%)	1	40	0.428	33.44
		50	0.409	36.39
		60	0.388	39.66
		70	0.365	43.23
		80	0.344	46.50
	2	40	0.431	32,97
		50	0.382	40.59
		60	0.369	42.61
		70	0.362	43.70
		80	0.35	45.57
	3	40	0.435	32.35
		50	0.426	33.75
		60	0.384	40.28
		70	0.372	42.15
		80	0.356	44.63
F2 (EBM 1%)	1	40	0.435	32.35
		50	0.413	35.77
		60	0.375	41.68
		70	0.358	44.32
		80	0.339	47.28
	2	40	0.447	30.48
		50	0.425	33.90
		60	0.402	37.48
		70	0.366	43,08
		80	0.342	46.81
	3	40	0.397	38.26
		50	0.386	39.97
		60	0.366	43.08
		70	0.362	43,70
		80	0.324	49.61
F3 (EBM 1.5%)	1	40	0.413	35.77
		50	0.38	40.90
		60	0.366	43.08
		70	0.345	46.35
		80	0.317	50.70
	2	40	0.423	34.21
		50	0.41	36.24
		60	0.378	41.21
		70	0.342	46.81
		80	0.325	49.46
	3	40	0.397	38.26
		50	0.382	40.59
		60	0.364	43.39
		70	0.335	47.90
		80	0.329	48.83

After calculating the results of the percentage of inhibition, the regression value and the average IC50 value were calculated. The IC50 value is the

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

concentration of an antioxidant compound that can reduce free radicals by as much as 50%. IC50 results can be determined using linear regression y = bx + a, where y is the percent inhibition (value of 50) and x is the value of IC50. The regression results and the average IC50 value can be seen in the following table (Table 8).

Table 8. Regression results and average IC50

Sample	Replication	Regression Equation (Y= bx+a)	Score of R^2	Score of IC_{50} (ppm)	Mean of IC_{50} ± SD	Note
Quercetin	1	Y= 3.625x+37.766	0.908	3.7	3.69 ± 0.31[b]	Meet Specifications with a very strong IC50 value (IC50 < 50)
	2	Y= 3.789x+35.962	0.945	3.7		
	3	Y= 4.785x+30.911	0.983	3.99		
Red Spinach Extract	1	Y= 0.211x+40.533	0.992	45.095	46.16 ± 1.02[ab]	Meet Specifications with a very strong IC50 value (IC50 < 50)
	2	Y= 0.507x+26.409	0.984	46.25		
	3	Y= 0.522x+25.498	0.982	47.12		
Formula 0	1	Y= 0.053x-1.715	0.983	975.75	977.87 ± 1.97[a]	Meet Specifications Formula 0 has no antioxidant ability (IC50 >500)
	2	Y= 0.053x-1.845	0.997	978.21		
	3	Y= 0.053x-1.921	0.919	979.64		
Formula 1	1	Y= 0.330x+20.062	0.999	90.72	92.52	Meet Specifications with IC50 value is quite strong (IC50 < 100)
	2	Y= 0.283x+24.106	0.840	92.46	1.84[ab]	
	3	Y= 0.330x+18.849	0.950	94.39		
Formula 2	1	Y= 0.384x+17.232	0.980	86.24	87.32 ± 1.007[ab]	Meet Specifications with IC50 value is quite strong (IC50 < 100)
	2	Y= 0.418x+13.250	0.992	87.5		
	3	Y= 0.264x+27.061	0.922	88.23		
Formula 3	1	Y= 0.353x+22.177	0.985	79.49	81.08 ± 1.87[ab]	Meet Specifications with IC50 value is quite strong (IC50 < 100)
	2	Y= 0.411x+16.952	0.978	80.61		
	3	Y= 0.285x+26.719	0.972	83.14		

Note:
a: significantly different from the positive control (quersetin)
b: significantly different from the negative control (formula 0)

The expected specifications for the antioxidant test results on quercetin, extract, formulas 1, 2, and 3 are to have an IC50 value of less than 100 (strong). Meanwhile, the expected specification for formula 0 is that it does not have antioxidant capacity.

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

DISCUSSION

A. Making ethanol extract of red spinach leaves (*Amaranthus tricolor L*)

Extracts are made with the aim of separating one active ingredient from a mixture of other ingredients with the help of a solvent (Utomo, 2016). In the manufacture of ethanolic extract of red spinach leaves, the active compounds to be taken are flavonoids. These flavonoid compounds will be extracted using the maceration method. The principle of the maceration method is a process in which the liquid filter will penetrate the cell wall of the material causing the active substance to be dissolved due to the difference in concentration between the solution of the active substance inside the cell and outside the cell, so that a solution with a high concentration will be pushed out of the cell along with its release. the active substance (Salamah et al., 2017).

The reason for making red spinach leaf ethanol extract using the maceration method is because it does not require complicated equipment, the cost is low because it requires less solvent, and the extraction process is carried out without heating so that it does not damage the flavonoid compounds. Flavonoid compounds are polar so a polar solvent is needed. This is because the effectiveness of the extraction of a compound by a solvent is highly dependent on the solubility of the compound in the solvent, in accordance with the principle of like dissolves like, that is, a compound will dissolve in a solvent with the same properties. In the extraction process of this flavonoid compound, 96% ethanol as solvent was used. Water solvents are not recommended even though they are polar because water has a high boiling point of 100°C and is easily overgrown with fungi (Riansari, 2008).

B. Identification of flavonoid content of ethanol extract of red spinach leaves (*Amaranthus tricolor L.*)

Identification of the flavonoid content in the ethanolic extract of red spinach leaves was carried out using the Thin Layer Chromatography (TLC) method, which is a physicochemical separation method. The principle of thin layer chromatography is based on the difference in polarity between the sample and the solvent used. This method uses silica gel GF254 as a stationary phase. In the stationary phase there is a thin aluminum plate whose function is to place the adsorbent so that the migration process of the analyte by the solvent can run. While the mobile phase used in this test is the mobile phase BAA (Butanol-glacial acetic acid-water). The composition of the mobile phase used in this study is slightly different from previous studies which used a mixture of ethanol: n-butanol: water with a composition of 4: 5: 5 and a mixture of isobutanol: ethanol: water with a composition of 3: 2: 4 (Novitasari et al., 2018).

The mobile phase which has a low polarity will minimize the absorption of the components to the solvent mixture so that the Rf will increase significantly (Kurnia, Lisniawati and Dinata, 2019). Based on observations under UV light, obtained stains on red spinach extract that glow red-orange in color with a distance of 1.2 cm. On UV light observation, faint red orange or red to blue spots indicate anthocyanins. So it can be seen that red spinach leaves have other flavonoids in the form of antho-

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

cyanins. This is in accordance with previous studies that the total anthocyanin in the ethanolic extract of red spinach without added acid was 76.98 mg/L (Adam, 2015).

C. Preparation of facial serum ethanol extract of red spinach leaves (*Amaranthus tricolor L.*)

Serum preparations of red spinach leaf ethanol extract were made in 4 formulations with different concentrations of red spinach leaf ethanol extract as the active substance used. In formula 0 (F0) no ethanol extract of red spinach leaves was added because it acted as a base or negative control. Meanwhile, formulas 1, 2, and 3 used spinach leaf ethanol extract concentrations of 0.5%, 1%, and 1.5%. The choice of concentration was based on previous research which stated that the optimum concentration of red spinach leaf ethanol extract cream was at a concentration of 0.5% because it had met the test parameters requirements. And red spinach leaf ethanol extract cream has a very strong antioxidant activity potential <50 ppm which has a value of 2.82 ppm (Moilati et al., 2020).

D. Antioxidant potential of extracts and preparations of facial serum ethanol extract of red spinach leaves (*Amaranthus tricolor L.*)

Determination of the value of antioxidant activity in this study using the DPPH method. The antioxidant activity test method with DPPH (2.2-diphenyl-1-picrylhydrazyl) was chosen because this method is a simple, easy, fast and sensitive method and only requires a small sample to evaluate the antioxidant activity of natural compounds, so it is widely used to test the ability of compounds that contain natural compounds. acts as an electron donor (Molyneux, 2004).

The antioxidant test in this study used quercetin as a comparison substance or as a positive control on the grounds that quercetin is one of the flavonols of the group of polyphenolic flavonoid compounds found in almost every type of plant and standard quercetin is a natural antioxidant that has very strong antioxidant activity (Jusuf, 2010). In addition, it was also mentioned in previous studies that red spinach contains flavonoid compounds, one of which is quercetin so that in this study we can compare the antioxidant potential of standard quercetin with quercetin derived from ethanol extract of red spinach.

Based on the literature, it is stated that the ethanolic extract of spinach leaves has a very strong antioxidant potential of 4.32 ppm. And the preparation of red spinach leaf ethanol extract cream has an average antioxidant potential of 2.82 ppm. The results of the literature are different from the results of this study, one of which is caused by the difference in the amount of antioxidants contained in the extract. This can be influenced by several factors such as differences in the origin of raw materials, varieties of raw materials, drying methods used, growing places, climate, environmental conditions, and different cultivation methods so that the standards of raw materials used are also different.

As mentioned in the literature, factors that affect antioxidant levels in a plant include the type/variety of the plant, where it grows, the part of the leaf taken, and the treatment given (Liu et al., 2016). In addition, the difference in antioxidant potential can be caused by differences in the concentration of

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

the sample used in the absorbance, where the higher the sample concentration, the more particles of antioxidant compounds contained, so the greater the antioxidant activity (Jakobek et al., 2007).

In this study, it can be concluded that variations in the concentration of ethanolic extract of red spinach (*Amaranthus tricolor L.*) leaves affect the organoleptic, viscosity, dispersion, and adhesion of serum preparations. Serum preparation with a concentration of 0.5% red spinach leaf ethanol extract (Formula 1) has the most optimal physical quality because the resulting serum gives a clearer color and lower viscosity according to the definition of serum. Variations in the concentration of ethanolic extract of red spinach (*Amaranthus tricolor L.*) leaves affect the antioxidant potential of serum preparations where the higher the extract concentration, the higher the antioxidant potential. Serum preparation with a concentration of 1.5% red spinach leaf ethanol extract (Formula 3) has the most optimal antioxidant potential with an IC50 value of 81.08 ppm which is included in the category of strong antioxidant.

REFERENCES

Adam DH (2015). Analisis total antosianin dari daun bayam merah (*Alternanthera amoena Voss.*) berdasarkan pengaruh penambahan jenis asam (Analysis of total anthocyanins from red spinach (Alternanthera amoena Voss.) leaves based on the effect of adding acid). Jurnal Eduscience. 2(2): 9–12. doi: 10.36-987/jes.v2i2.1006.

Jakobek L, Seruga M, Medvidovic-Kosanovic M, Novak I (2007). Anthocyanin content and antioxidant activity of various red fruit juices. Deutsche Lebensmittel-Rundschau: Zeitschrift für Lebensmittelkunde und Lebensmittelrecht. 103: 58–64.

Jusuf E (2010). Kandungan kuersetin dan pola proteomik varietas jambu batu (*Psidium guajava L.*) tumbuh liar di kawasan Cibinong, Bogor (Quercetin content and proteomic pattern of guava variety (*Psidium guajava L.*) growing wild in Cibinong area, Bogor). Berita Biologi: 10(3). Retrieved from: http://l-ipi.go.id/publikasi/Kandungan-kuersetin-dan-pola-proteomik-varietas-jambu-batu-Psidium-guajava-L-tumbuh-liar-di-kawasan-Cibinong-Bogor/6251 (Accessed: 23 March 2022).

Katiyar SK, Mukhtar H (2001). Green tea polyphenol (-)-epigallocatechin-3-gallate treatment to mouse skin prevents UVB-induced infiltration of leukocytes, depletion of antigen-presenting cells, and oxidative stress. J Leukoc Biol. 69(5): 719-26.

Khandaker L, Ali B, Oba S (2008). Total polyphenol and antioxidant activity of red amaranth (*Amaranthus tricolor L.*) as affected by different sunlight level. J-STAGE. 77(4): 395–401. doi: 10.2503/jjshs1.77.395.

Kim J, Kim J, Lee YI, Almurayshid A, Jung JY, Lee JH (2020). Effect of a topical antioxidant serum containing vitamin C, vitamin E, and ferulic acid after Q-switched 1064-nm Nd: YAG laser for

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.07

treatment of environment-induced skin pigmentation. J Cosmet Dermatol. 19(10): 2576-2582. doi: 10.1111/jocd.13323.

Kurnia D, Lisniawati NA, Dinata DI (2019). Uji pengikatan kolesterol oleh ekstrak metanol bekatul beras ketan hitam secara in vitro. Jurnal Kimia Riset (Cholesterol binding test by in vitro methanol extract of black glutinous rice bran). 4(1): 74–80. doi: 10.20473/jkr.v4i1.13198.

Liu W, Yin D, Li N, Hou X, Wang D, Li D, Liu J (2016). Influence of Environmental Factors on the Active Substance Production and Antioxidant Activity in *Potentilla fruticosa L.* and Its Quality Assessment. Sci Rep. 6: 28591. doi: 10.1038/srep28591.

Moilati VO, Yamlean PVY, Rundengan G (2020). Formulasi sediaan krim ekstrak etanol daun bayam merah (*Amaranthus tricolor L.*) dan uji aktivitas antioksidan menggunakan metode DPPH (1.1-Diphenyl-2-Picrylhydrazyl) (Formulation of cream preparation of ethanol extract of red spinach (*Amaranthus tricolor L.*) leaves and antioxidant activity test using DPPH (1.1-Diphenyl-2-Picrylhydrazyl) method). Pharmacon. 9(3): 372–380. doi: 10.35799/pha.9.2020.30021.

Molyneux P (2004). The use of the stable free radical diphenylpicrylhydrazyl (DPPH) for estimating antioxidant activity. Songklanakarin J Sci Technol. 2(26): 11–219.

Novitasari D, Sauriasari R, Kurniadi M (2018). Analysis of synthetic red dyes in red Spinach samples (*Amaranthus tricolor L.*). Int J Appl Pharm. 10(1): 15. doi: 10.-22159/ijap.2018.v10s1.04.

Pertiwi RD, Yari CE, Putra NE (2012). Aktivitas ekstrak etanolik bayam merah (*Amaranthus tricolor L.*) terstandar sebagai upaya preventif steatosis: studi in vivo (Standardized activity of red spinach (*Amaranthus tricolor L.*) ethanolic extract as an effort to prevent steatosis: an in vivo study). Jurnal Sains Farmasi & Klinis. 3(2): 120–127.

Poljšak B, Dahmane R (2012). Free radicals and extrinsic skin aging. Dermatol Res Prac. 3(2): 135-206. doi: 10.1155/2012/135206.

Riansari A (2008). Pengaruh pemberian ekstrak daun salam (*Eugenia polyantha*) terhadap kadar kolesterol total serum tikus jantan galur wistar hiperlipidemia (Effect of bay leaf extract (Eugenia polyantha) on total serum cholesterol levels of hyperlipidemic male Wistar rats.). 1(2). Retrieved from: http://eprints.undip.ac.id/24176/1/Anugerah_R.pdf (Accessed: 29 December 2021).

Salamah N, Rozak M, Abror MA (2017). Pengaruh metode penyarian terhadap kadar alkaloid total daun jembirit (*Tabernaemontana sphaerocarpa (The effect of the extraction method on the total alkaloid content of the leaves of jembirit (Tabernaemontana sphaerocarpa). BL*) dengan metode spektrofotometri visible. Pharmaciana. 7(1):

113–122. doi: 10.12928/pharmaciana.v7i1.6330.

Priani SE, Aprilia S, Aryani R, Purwanti L (2019). Antioxidant and tyrosinase inhibitory activity of face serum containing cocoa pod husk phytosome (*Theobroma cacao L.*). J Appl Pharm Sci. 9(10): 110–115. doi: 10.7324/-JAPS.2019.91015.

Utomo S (2016). Pengaruh konsentrasi pelarut (N-Heksana) terhadap rendemen hasil ekstraksi minyak biji alpukat untuk pembuatan krim pelembab kulit (Effect of solvent concentration (N-Hexane) on the yield of avocado seed oil extraction for making skin moisturizing cream). Jurnal Konversi. 5(1): 39. doi: 10.24853/konversi.5.1-.39-47.

Venskutonis PR, Kraujalis P (2013). Nutritional components of amaranth seeds and vegetables: a review on composition, properties, and uses: nutritional components of amaranth seeds and vegetables. Comprehensive Reviews in Food Science and Food Safety. 12(4): 381–412. doi: 10.1111/1541-4337.12021.

FREQUENCY DISTRIBUTION OF BASALIOMA SKIN CANCER AT DR. MOEWARDI HOSPITAL, SURAKARTA, CENTRAL JAVA

Prasetyadi Mawardi, Irfany Arafisetyanto Prihadi, Muhammad Eko Irawanto

Faculty of Medicine, Universitas Sebelas Maret/
Dr. Moewardi Hospital, Surakarta, Central java

ABSTRACT

Background: Basalioma is a nonmelanoma skin cancer that grows from the basal epidermal cells. It commonly occurs in the head and neck area exposed to ultraviolet light (UV). Data in Dr. Moewardi hospital 2013-2015 showed that basalioma was the most common type of skin cancer. This study aimed to describe the basalioma skin cancer in Dr. Moewardi hospital, Surakarta.
Subjects and Method: This cross-sectional study was conducted at Dr. Moewardi Hospital, Surakarta, Central Java, from 2016 to 2019. A sample of 70 patients diagnosed with basalioma skin cancer was selected for this study. The study variables were gender, age, occupation, tumor location, tumor size, and clinical tumor type. The data were collected from the medical record. The data were described in percent.
Results: As many as 64.3% of basalioma patients were female, 30% were farmers, 90.02% aged ≥50 years, 72% had tumors located in the midface region, 70% had a tumor in the H-zone, 72.8% had tumor size <2 cm, and 58.5% had a nodular tumor.
Conclusion: The frequency distribution of basalioma in Dr. Moewardi Hospital has been described by gender, age, tumor location, tumor size, and histopathological type.

Keywords: age, gender, midface, nodular, basalioma

Correspondence:
Prasetyadi Mawardi. Department of Dermatology dan Venereology, Faculty of Medicine, Universitas Sebelas Maret /RSUD Dr. Moewardi Surakarta. Jl. Ir. Sutami No.36, Surakarta, Central Java, Indonesia. Email: prasetyadi_m@staff.uns.ac.id. Mobile: +6281229750211.

BACKGROUND

In the last decade, there has been an increase in skin cancer throughout the world, the increase in patients and mortality of skin cancer is increasing—nearly 5 million people with skin cancer. (Guy et al., 2015). Skin cancer is divided into 2 groups: melanoma skin cancer and nonmelanoma skin cancer (Narayanan et al., 2010). Another classification places 3 types of skin cancer: Basalioma or Basalioma, Squamous Cell Carcinoma (SCC), and Malignant Melanoma (MM) (Kawasumi & Nghiem, 2012). The prevalence and incidence of Basalioma in all parts of the world vary from one another, but Basalioma is the first rank of all skin cancers. In Germany, it was reported that 80% of skin cancers found were Basalioma, while 20% were non-Basaliomas (Lomas, 2012).

Basal cell carcinoma, in general, is a skin cancer that often attacks the white population with an increasing incidence rate worldwide (Lomas et al., 2012). It is difficult to estimate the incidence of basaliomas because non-melanoma skin cancers are usually not included in the cancer register. In

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.08

addition, there are clear geographic differences in the incidence of non-melanoma skin cancer. (Trakatelli et al., 2014). Often it is difficult to know the exact prevalence of Basalioma because registration of this type of skin cancer is often not reported. Based on data from the Polyclinic of the Department of Dermatology and Venereology Dr. Hospital. Cipto Mangunkusumo (RSCM) in 2000-2009 that Basalioma was ranked first with 261 cases, then 69 cases of SCC, and 22 cases were found in MM patients. Then, data from RSUP Dr. M. Djamil Padang Basalioma is in the first position, SCC is in second place, and MM is in third place (Tan and Sunjaya, 2016). At Dr. Moewardi Hospital also reported that Basalioma also ranked first (Mawardi et al., 2016).

Basalioma is a common, slow-growing cancer that rarely metastasizes. It tends to occur in areas of the body exposed to chronic sun exposure and in light-pigmented individuals (Kumar et al., 2018). Nonmelanoma grows from the basal cells of the epidermis and skin follicles (especially parts that are often exposed to sunlight) (Kumar et al., 2014). Basalioma risk factors are associated with exposure to ultraviolet (UV) B; most Basalioma cases are in areas that are often exposed to sunlight (Miryana et al., 2013). Men generally risk getting Basalioma up to two times higher than women (Demirseren et al., 2014).

Several studies have shown a significant difference between the number of Basalioma about gender. Men are affected more often than women (with a ratio of 1.5-2:1), and the highest number of Basalioma cases is between the ages of 60 to 70 years. Still, several recent studies have shown an increasing number of young women patients under 40 years. (Darjania & Galdava, 2019). The purpose of this study was to determine the prevalence of Basalioma in RSUD Dr. Moewardi Surakarta-Indonesia, period 1 January 2016-31 December 2019, based on demographic data of gender, age, occupation and clinical data, Basalioma type, predilection.

SUBJECTS AND METHOD

1. Study Design

This was a descriptive study with retrospective design with. The data were obtained from medical records at Dr. Hospital. Moewardi Surakarta, Central Java, Indonesia.

2. Population and Sample

All patients diagnosed with Basalioma in RSUD Dr. Moewardi Surakarta by meeting the criteria will be used as samples, namely as follows: a. Inclusion criteria were all patients who had been diagnosed with primary Basalioma in the medical records of RSUD Dr. Moewardi Surakarta in the 2016-2019 period based on the results of histopathological examination. At the same time, the exclusion criteria were patients with a history of recurrent Basaloma, metastases, and multiple lesions. Then, incomplete medical records, not Basalioma on the histopathological examination results.

3. Study Variables

Basalioma is a non-melanoma skin cancer that grows from basal epidermal cells, which is most common and occurs in areas of the head and neck exposed to ultraviolet (UV) light.

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.08

4. Operational Definition of Variables

The dependent variable is basalioma skin cancer. The independent variables were gender, age, occupation, tumor location, tumor size, and clinical tumor type.

5. Instruments

Basalioma was diagnosed using histopathological examination of the specimen/biopsy.

6. Data Analysis

The characteristics of the sample in the form of categorical data are displayed in the form of a percentage.

7. Research Ethics

This research has obtained approval from the Health Research Ethics Commission of Dr. Moewardi Hospital/ Faculty of Medicine, Sebelas Maret University, Surakarta-Indonesia (762/ VIII/HREC/2021).

RESULTS

Based on the data collection results, 70 patients met the research requirements from 99 samples obtained, then grouped by sex (gender), age, occupation, location of Basalioma and size, and disease duration. Of the 29 patients excluded, including incomplete medical record data (no Basalioma location, Basalioma size, treatment history), non-primary Basaloma, duplication of data, patients had more than one medical record.

Table 1. Basalioma demographic data

Variable	Characteristics	Total	Percentage (%)
Gender	Male	25	35.71
	Female	45	64.29
Age (year)	< 20	- 1	-
	21-30	1	1.42
	31-40	5	1.42
	41-50	22	7.14
	51-60	41	31.42
	>60 year		58.60
Job	Farmer	21	30.00
	Housewife	20	28.57
	Government Employess	6	8.57
	Private	16	22.87
	Collage Student	1	1.42
	Others	6	8.57

There were more female patients than men with 45 female patients and 25 male patients (64.3% compared to 35.7%), most of the patients had Basaloma more than two years, most of the patient's education was primary education (elementary and junior high school), the patient's occupation mostly farmers (30%), followed by housewives (28.57%), the age range of the patients was 22-90 years. According to clinical data from patients, the most common Basalioma found was that most (72.9%) Basalioma were found in the midface area, then in the upper and lower face areas. Apart from the location.

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.08

In 3 patients (4.3%), the face was found in the chest, neck, and groin or inguinal areas. The most common tumor size was < 2 cm (72.8%). Basalioma types based on the most common subtypes were nodular (37.1%), then noduloulcerative (21.4%), and sclerotic (20%). According to the nature of aggressiveness, more were non-aggressive (52.9%).

Based on clinical research data, it was found that the most common Basalioma found was found mostly in the midface location (72.9%). Basalioma was found in the midface area, then in the upper and lower face areas. In addition to the facial location, 3 (4.3%) were found in the chest, neck, and groin or inguinal areas (Table 2). The most common tumor size was < 2 cm (72.8%). Baxter and Pranand divided another area known as the H-zone, including the temporal, auricular, orbital, nasal, and upper mandibular areas (Baxter et al., 2012). In this division, 70% of patients had Basalioma in the H-zone area. In addition, the most common subtypes were nodular (37.1%), then noduloulcerative (21.4%), and sclerotic (20%). According to the nature of aggressiveness, more were non-aggressive (52.9%).

Table 2. Basalioma clinical data

Variable		Total	Percentage (%)
Tumor Location	Upper face	10	14.30
	Midface	51	72.90
	Lower face	6	8.60
	Other	3	4.30
Tumor Size	<2 cm	51	72.80
	>2 cm	19	27.20
Risk-*zone*	H-zone	49	70.00
	NonH-zone	21	30.00
Clinic Type (Subtype)	Nodular	26	37.10
	Noduloulseratif	15	21.40
	Mikronodular	4	5.70
	Sklerotik	14	20.00
	Superficial	8	11.50
	Mixed	3	4.30
Aggressiveness	Agresif	33	47.10
	Nonagresif	37	52.90

DISCUSSION

Basalioma patients were found more in women than men (9:5). This is by research conducted by (Mawardi et al., 2016) that Basalioma is more commonly found in women than men. Various studies mention the incidence of Basalioma, which is more common in men than women (Apalla et al., 2017). This is because many male patients work and are easily exposed to ultraviolet light than women. The increasing prevalence of women may be more susceptible to Basaliomas because many women also work; it is also possible because of changes in women's lifestyles. The number of women who work outdoors increases the risk of exposure to ultraviolet rays,

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.08

especially if women do not use protection against UV exposure. Sunburn is a short-term effect of overexposure to UV rays. Research conducted by Wu et al. states that women are more affected by Basalioma than men (Wu et al., 2013). However, in another study conducted by Asgari et al. (2015), Basalioma patients were more common in men than women.

In this study, most of the Basaliomas were found at over 50 years, as much as 90.02%. Only 2.42% of Basalioma patients are under the age of 40. It can be understood that old age causes a person's immunity to decrease. Several studies suggest that the increasing incidence of skin cancer worldwide over the past two decades has reached "epidemic" proportions due to lifelong sun exposure in an increasingly aging population (Donaldson and Coldiron, 2011). More than 90% of patients with Basalioma are aged 60 years and over, although recently, there has been an increasing incidence in patients aged under 40 years. Individuals over 75 years have a five-fold risk of developing Basaliomas. It is estimated that 53% of deaths due to skin cancer occur in individuals over 65 years (Nakayama et al., 2011).

Occupation has a high correlation with the incidence of skin cancer. In this study, farmers were ranked first (30%). More than 70% of patients in this study were employed, only less than 30% were housewifes. This study is also by previous research conducted by Mawardi that farmers are at risk for Basalioma (Mawardi, 2017). UV exposure is still a contributor to skin cancer. Chronic and intermittent sun exposure is a significant risk factor for the three main types of skin cancer: Basalioma, SCC, and melanoma. Sun exposure can also increase the likelihood of developing new melanomas in people with a history of both melanoma and non-melanoma skin cancer (Tabatabaie et al., 2020). On the other hand, the study results found that Basalioma tumors' location was primarily found in the midface (72%), upper face, and lower face regions. This division is based on the anatomy of the facial area proposed by Baker et al., who divides the location of the face into 3 parts, namely upper face, midface, and lower face.

Mawardi (2017) stated that most Basalioma locations are found in the midface region compared to the other areas. The midface region is a line that starts from the glabellar to the bottom of the nose above the philtrum (Baker, 2007). The midface region includes the orbit, auricle, nose, cheek, and zygomatic parts. In the study Mawardi (2016), Basaliomas found in the midface region could be considered more aggressive than in the other areas, upper face and lower face. In another regional division of Basalioma, Baxter et al. divided another area known as the H-zone, including the temporal, auricular, orbital, nasal, and upper mandibular areas (Baxter et al., 2012). In this subdivision, 70% of patients had Basalioma in the H-zone area than in the non-H-zone area (30%).

Judging from the size of the Basalioma tumor in this study, it was found that most of the Basalioma had a length of < 2 cm (72.8%), while those measuring >2 cm were 27.2%. Basaliomas that have a size greater than 2 cm can be considered to have a higher

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.08

recurrence tendency than those less than 2 cm. In addition, a size greater than 2 cm will cause difficulties in carrying out the management of Basalioma therapy. Nodular and nodulo-ulcerative subtypes (58.5%) were the most common, followed by sclerotic type (20%). This is not much different from the research conducted by Gandhi and Kampp that the nodular type, as well as nodular with ulceration, is the most common clinical form of Basalioma, followed by superficial and sclerotic types (Gandhi & Kampp, 2015).

For 4 years, Basalioma was more common in women than men, with age more than 50 years, and most locations were found in the midface area. Gender changes in basaliomas require joint attention because of the significant increase in cases. This is a single-center study, so it cannot represent the existing population. However, this study found a tendency to increase Basalioma incidence and a shift in the population susceptible to Basalioma incidence in women.

ACKNOWLEDGMENT

Prasetyadi Mawardi and Irfany Arafiasetyanto Prihadi did the study concept, method, and data analysis. Muhammad Eko Irawanto did the data collection and finding references.

AUTHORS CONTRIBUTION

This study was self-funded.

FUNDING AND SPONSORSHIP

There was no conflict of interest in this study.

CONFLICT OF INTEREST

The researcher expresses his gratitude to the Director of RSUD, Dr. Moewardi, and the staff of the Medical Record Installation and the Education and Training Division (Diklit) for the assistance and facilities provided in collecting the data for this research.

REFERENCES

Apalla Z, Lallas A, Sotiriou E, Lazaridou E, Ioannides D (2017). Epidemiological trends in skin cancer. Dermatology Practical & Conceptual. 7(2): 1–6. doi: 10.-5826/dpc.0702a01

Asgari MM, Moffet HH, Ray GT, Quesenberry CP (2015). Trends in basal cell carcinoma incidence and identification of high-risk subgroups, 1998-2012. JAMA Dermatology. 151(9);976. doi: 10.1001/jamadermatol.2015.11-88.

Baker SR (2007). Reconstruction of The Nose. Baker Locals Flap in Facial Reconstruction. 2nd ed. British: Mosby Elsevier. 415–474.

Baxter JM, Patel AN, Varma S (2012). Facial basal cell carcinoma. BMJ, 345;5342–e5342. doi: 10.1136/-bmj.e5342

Darjania T, Galdava G, Kituashvili T (2019). Basal cell carcinoma: a review of risk factors. Translational and Clinical Medicine - Georgian Medical Journal. 4(1); 15–19. http://dx.doi.org/10.29-088/TCM-GMJ.2019-15.

Demirseren DD, Ceran C, Aksam B, Demirseren ME, Metin A (2014). Basal Cell Carcinoma of the Head

and Neck Region: A Retrospective Analysis of Completely Excised 331 Cases. Journal of Skin Cancer. 1–6. doi: 10.1155/-2014/858636.

Donaldson MR, Coldiron BM (2011). No End in Sight: The Skin Cancer Epidemic Continues. Seminars in Cutaneous Medicine and Surgery. 30(1): 3–5. doi: 10.1016-/j.sder.2011.01.002

Gandhi SA, Kampp J (2015). Skin Cancer Epidemiology, Detection. and Management. Medical Clinics of North America. 99(6), pp.1323–1335.doi: 10.1016/j.mcna.2015.06.002.

Guy GP, Machlin SR, Ekwueme DU, Yabroff KR (2015). Prevalence and Costs of Skin Cancer Treatment in the U.S., 2002–2006 and 2007–2011. American Journal of Preventive Medicine. 48(2): 183.187. doi: 101016/-j.amepre.2014.08.036.

Kawasumi M, Nghiem P (2012). Ultraviolet radiation carcinogenesis. In: Wolff K, Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffel DJ, editor. Fitzpatrick's dermatology in general medicine. 8th ed. New York: Mcgraw- Hill. 1251–1260.

Kumar S, Mahajan BB, Kaur S, Yadav A, Singh N, Singh A (2014). A Study of Basal Cell Carcinoma in South Asians for Risk Factor and Clinicopathological.Characterization: A Hospital-Based Study. Journal of Skin Cancer. 1–9. doi: 10.1155/2014/173582.

Kumar V, Abbas AK, Aster JC, Perkins, JA (2018). Robbins Basic Pathology. 10th ed. Philadelphia, Pennsylvania: Elsevier.

Lomas A, Leonardi-Bee J, Bath-Hextall F (2012). A systematic review of the worldwide incidence of nonmelanoma skin cancer. British Journal of Dermatology, 166(5): 1069–1080. doi: 10.1111/j.13652133.2012.10-830.x

Mawardi P (2017). Karsinoma Sel Basal. 1st ed. Surakarta: UNS Press.

Mawardi P (2017). Peran Protein Amiloid P53 Terhadap Perubahan Interleukin (IL)-6, Myeloid Cell Leukemia (MCL)-1, Basic Fibroblast Growth Factor (bFGF) Pada Agresivitas Karsinoma Sel Basal. Ringkasan Disertasi. Program Studi Doktor Ilmu Kedokteran FK UB. 22–23.

Mawardi P, Kalim H, Kalim KH, Fitri LE, Mintarjo K, Mudigdo A. et al. (2016). Mid-face location of primary basal cell carcinoma related to cancer aggressivity. Asian Pac J Trop. 6(8); 650-653.

Miryana W, Rizky N, Sarwono I, Cholis M (2013). Gambaran Histopatologi Karsinoma Sel Basal. Media Dermato Venerelogica Indonesiana. 40(3): 138–144.

Nakayama M, Tabuchi K, Nakamura Y, Hara A (2011). Basal Cell Carcinoma of the Head and Neck. Journal of Skin Cancer. 1–9. doi: 10.1155/2011/496910.

Narayanan D, Saladi RN, Fox JL (2010). Review: Ultraviolet radiation and skin cancer. International Journal of Dermatology. 49(9): 978–986. doi:10.11-11/j.13654632.2010.04474.x.

Tabatabaie S, Litt JS, Crane LA (2020). The experience of outdoor physical activity for skin cancer survivors: understanding the importance of the built and natural environments. Journal of Cancer Survivorship: research and practice 14(5);739–756. doi: 10.1007/s11764-020-00889-5.

Tan ST, Sunjaya AP (2016). Penggunaan Uji Imunohistokimia BerEP4 sebagai Gold Standard Deteksi Karsinoma Sel Basal. Indonesian Journal of Cancer. 10(3). doi: 10.33371/ijoc.v10i3.435.

Trakatelli M, Morton C, Nagore, Ulrich C, Marmol DV, Peris K, Basset-Seguin N (2014). Update of the European guidelines for basal cell carcinoma management. European Journal of Dermatology. 24(3): 312–329. doi: 10.1684/ejd.2014.2271.

Wu S, Han J, Li WQ, Li T, Qureshi, AA (2013). Basal-cell carcinoma incidence and associated risk factors in US women and men. American Journal of Epidemiology. 178(6);890–897. doi: 10.1093/aje/kwt073.

ANTIOXIDANT EFFECT IN RED GINGER (*ZINGIBER OFFICINALE VAR. RUBRUM*) EXTRACT DURING THE COVID-19 PANDEMIC

Anisa Sholikhati, Lailatul Farikhah, Muhammad Ridwanto

Universitas Muhammadiyah Kudus, Central Java

ABSTRACT

Background: Ginger *(Zingiber officinale (L.) Rosc)* has been used as spice for over 2000 years. Its roots and the obtained extracts contain polyphenol compounds (6-gingerol and its derivatives), which have a high antioxidant activity. Methods for the characterization of antioxidants are presented and illustrated by their application to commercial ginger preparations, since it has been widely speculated that ginger might be beneficial to human health because it exerts antioxidant activity. This study aimed to investigate antioxidant effect of in red ginger *(zingiber officinale var. rubrum)* extract during the COVID-19 pandemic.
Subjects and Method: This was an experimental study. A sample of red ginger extract involved five drink instant products. These products were assessed to measure the antioxidant level. Antioxidant activity was examined by soaking in radical free of 1,1-difenil-2-pikrilhidrazil using UV-Vis Spectrophotometry.
Results: The study showed that instant ginger sample A was included in the category of moderate antioxidant activity, while the other four instant ginger samples B, C, D, and E were included in the category of weak antioxidant activity. Furthermore, for the positive control, vitamin C is included in the category of very strong antioxidant activity.
Conclusion: The instant red ginger product from the research results showed that four of the five samples belonged to the category of weak antioxidant activity.

Keywords: red ginger, antioxidant, COVID-19.

Correspondence:
Anisa Sholikhati. Universitas Muhammadiyah Kudus. Jl. Ganesha Raya No.1, Purwosari. Kudus, Central Java. Email: anisasholikhati@umkudus.ac.id. Mobile: +62085641101741.

BACKGROUND

At the end of December 2019, in Wuhan, China was surprised by the discovery of a mysterious outbreak of pneumonia characterized by fever, dry cough, fatigue, and occasional gastro-intestinal symptoms. In January 2019 it was reported that thousands of Chinese citizens were stricken with this outbreak (Wu, et al., 2020). The outbreak is called coronavirus-19 (COVID-19) which causes severe acute respiratory Ssyndrome-Coronavirus-2 (SARS-Cov-2).

This epidemic has become a global pandemic because its spread is so massive that almost all countries have reported finding cases of COVID-19, not least in Indonesia, where the first case occurred in early March 2020. This disease can become more dangerous if it affects the elderly and those who are sick. have a congenital disease (comorbid). Several inherited diseases that can increase the risk factors for COVID-19 include Hypertension, Diabetes, Heart, Asthma, Cancer, and Kidney Failure (COVID-19 Task Force, 2020; WHO, 2020).

Red ginger (*Zingiber officinale var. Rubrum*) was first cultivated in Asia (Indonesia and Malaysia) but is

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.09

now also cultivated in other tropical countries (Africa, India). The rhizome of red ginger can be used as a spice, food flavoring, and also as a traditional medicine (Supu, et al., 2018).

Red ginger is well known in Asia for its medicinal uses. Ginger extract has been determined to have antioxidant, anticancer, antibacterial, and treat joint inflammation properties. Ginger extract contains oleoresin and essential oil which has a yellow, oily and sharp aroma. Oleoresin contains phenolic compounds that play a role in antioxidant activity, such as gingerol, shogaol, and zingerone. Gingerol, where 6-gingerol is the main constituent of oleoresin which is susceptible to heat, light and oxygen. Gingerol and shogaol are the sources of the spicy and tangy taste in ginger (Febriani et al., 2018; Mao et al., 2019; Mulia et al., 2019).

In big cities the level of pollution is high, so antioxidants are needed to protect the body from the effects of free radicals. Free radicals can be obtained naturally from inside and outside the body. Produced naturally by the digestion of food. While from the outside can be caused by cigarette smoke, pollution, and radiation. Free radicals that cannot be handled by the body can trigger chronic diseases, such as cancer, autoimmune disorders, aging, cataracts, joint inflamemation, and heart disease. The body naturally cannot produce antioxidants as needed, so we need to consume foods with high antioxidant content. (Huy et al., 2008; Widayat et al., 2018).

Red ginger is one of the herbal plants that have high antioxidant activity. The results of the research by Widayat et al. (2018) showed that the ratio of 1:3 red ginger extract and water provided higher antioxidants. The highest antioxidant was obtained from the use of mixed sugar, which was 88.56%. This value did not decrease compared to pure ginger extract antioxidants, namely 91.46%. According to research by Yuliani, et al. (2016) resulted that the ethyl acetate fraction of red ginger rhizome ethanol extract has very strong antioxidant power with an IC50 value of 41.27 ppm.

During the COVID-19 pandemic, red ginger is an herbal plant that is relied on to increase the body's immunity. Therefore, instant red ginger drink products are sought after by consumers in the market. Especially in the online market, which during the current COVID-19 pandemic is needed to reduce crowds and citizens' mobility. Ordering instant red ginger products can be easily ordered on the marketplace available on our gadgets.

Therefore, the aimed of the study was to determine the antioxidant activity of instant red ginger on the market during the COVID-19 pandemic.

SUBJECTS AND METHOD

1. Study Design

This was an experimental study. A sample of red ginger extract involved five drink instant product, this research was conducted in August to September 2021.

2. Population and Sample

The population in this study were instant red ginger extract products in the Indonesian market. The samples in this study were five instant red ginger extract products with various brands (test solution), while vitamin C was

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.09

used for control (positive control solution). The research was conducted at the Pharmacy Laboratory of the University of Muhammadiyah Kudus, Central Java.

3. Study Variables

The dependent variable is antioxidant activity. The Independent variables were the concentration of red ginger extract solution (test solution) and the concentration of vitamin C solution (positive control solution).

4. Operational Definition of Variables

Antioxidant activity is a test for antioxidants in their activity to inhibit free radicals, one of which uses the DPPH method.

Red ginger extract solution is a solution obtained from the extraction of red ginger which here is obtained from instant red ginger products.

Vitamin C solution is a solution obtained from vitamin C where vitamin C is a high antioxidant vitamin group.

5. Instruments

The main tool used in this research is the UV-Vis Spectrophotometry instrument. While the materials used in this study were samples of five instant red ginger extract products with various brands, vitamin C, DPPH (1,1-phenyl-2picrylhydrazil), methanol, and aquadest.

6. Data Analysis

Determination of antioxidant activity will be carried out by determining the maximum absorption wavelength of DPPH, and then the antioxidant activity will be determined.

RESULTS

Determination of the maximum absorption wavelength of DPPH (1,1-diphenyl-2-picrylhydrazyl) was used by the UV-Vis Spectrophotometry instrument in the wavelength range of 400-600 nm and the results showed that the maximum wavelength was read at 516.2 nm. Then, the IC50 measurement results from instant red ginger extract can be seen in table 1, and The IC50 measurement results of the vitamin C positive control solution can be seen in table 3.

Table 1. Instant red ginger antioxidant activity test results

Red Ginger Extract Solution	IC_{50}
A	136,301 ppm
B	901,603 ppm
C	785,782 ppm
D	695,848 ppm
E	967,049 ppm

Table 2. The results of the antioxidant activity of vitamin C

Concentrate (ppm)	Attenuation (%)	IC_{50}
4	47.20	4,106 ppm
6	64.80	
8	94.24	
10	96.64	

DISCUSSION

Instant red ginger (Zingiber officinale var. Rubrum) used as samples are five kinds of MSME products found in the online market. Shopping for products online, especially during the current

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.09

Covid-19 pandemic, is very helpful because it can reduce mobility and crowds in public places. According to Taufik et al. (2020) during the Covid-19 pandemic, the needs of the community and government for the availability of medicines and health products encourage increased production and demand so that innovative MSMEs can adapt to this.

Determination of antioxidant activity in instant red ginger samples was carried out quantitatively using the DPPH (1,1-diphenyl-2-picrylhydrazil) method. The DPPH method is a method that can be used to measure antioxidant activity in a fast, simple, and inexpensive way. DPPH is a test to determine antioxidant activity with the ability to ward off free radicals (Prasetyo et al., 2021). A compound can be said to have antioxidant activity if the compound is able to donate its hydrogen atom to bind to DPPH to form reduced DPPH which is characterized by the loss of purple color. Determination of antioxidant activity is expressed in IC50 (μg/mL or ppm) as antioxidant capacity (Wiendarlina et al., 2019).

The result of determining the maximum wavelength that will be used to measure the absorbance of the sample and positive control is 516.2 nm. This wavelength was obtained from the measurement of the maximum wavelength of 0.5 mM DPPH solution with a UV-Vis Spectrophotometer instrument in the wavewlength range of 400-600 nm (Hasibuan et al., 2020; Souhoka et al., 2021).

The antioxidant activity of the instant red ginger test solution was expressed in terms of the percentage of attenuation against DPPH free radicals. The difference in absorption between DPPH absorbance and the measured test absorbance is a way to get the percent reduction of instant red ginger. The amount of antioxidant activity is indicated by the IC50 value, namely the concentration of sample solution needed to inhibit 50% of DPPH free radicals (Widayat et al., 2018; Yuliani et al., 2016)

The results of the antioxidant activity test of instant red ginger showed that product A with an IC50 value of 136.301 ppm was included in the category of moderate antioxidant activity. Meanwhile, products B, C, D, and E are included in weak antioxidant activity with IC50 values of 901,603 ppm each; 785,782 ppm; 695,848 ppm; and 967,049 ppm. As for the positive control, vitamin C with an IC50 value of 4.106 ppm was included in the category of very strong antioxidant activity. From the results of this study, it can be seen that four of the five instant red ginger products belong to the category of weak antioxidant activity.

According to research by Widayat et al. (2018), it showed that red ginger extract with a water ratio of 1:3 gave the highest antioxidant yield, and the addition of sugar obtained the highest antioxidant in the use of mixed sugar, namely 88.56%. This value did not experience a significant decrease compared to pure ginger extract antioxidants, namely 91.46%. Another study by Ghasemzadeh et al. (2010) showed that the type of solvent in the extract affected the antioxidant activity of ginger extract. Methanol showed the greatest ability to extract antioxidants

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.09

and inhibit free radicals by DPPH among the three solvents (methanol acetone and chloroform).

Another study by Purnomo et al (2010) showed that the type of heating process, both roasting and boiling, affectted the antioxidant quality of ginger rhizome extract (*Zingiber officinale Ross*). It was found that roasting or boiling for 6 minutes gave the best effect on antioxidant activity. Based on the results of this study, it can be seen that several factors caused four of the five samples of instant red ginger to be included in the weak intensity for antioxidant activity. These factors are the extraction method, the time and duration of the roasting and boiling process.

The results of this study can be concluded that the instant red ginger had weak antioxidant activity.

AUTHOR CONTRIBUTION

Anisa Sholikhati as the person in charge of preparing research proposals and conducting research as well as compiling research journals. Lailatul Farikhah assists in conducting research and compiling research journals. Muhammad Ridwanto takes care of licensing the use of the laboratory and preparing tools and materials.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This research was funded by Institution of Research and Community Services, Universitas Muhammadiyah Kudus, Central Java.

ACKNOWLEDGMENT

Our gratitude to the Institution of Research and Community Services, Universitas Muhammadiyah Kudus, Central Java, was funded this research, and Laboratory Assistants of the Pharmacy Study Program, University of Muhammadiyah Kudus who have assisted in this research.

REFERENCES

Febriani Y, Riasari H, Winingsih W, Aulifa DL, Permatasari A (2018). The potential use of red ginger (*Zingiber officinale Roscoe*) dregs as analgesic. IJPST, 1(1): 57-64. DOI: 10.24198/ijpst.v1i1.-16126.

Ghasemzadeh A, Jaafar HZE, Rahmat A (2011). Effects of solvent type on phenolics and flavoloids content and antioxidant activities in two varieties of young ginger (*Zingiber officinale Roscoe*) extracts. J Med Plant Res. 5(7): 1147-1154.

Hasibuan FE, Syahfitri W, Ilyas S, Hutahaean S (2020). Phytochemical screening, antioxidant activity and thin-layer chromatography test of methanol extract and simplicia leaves of loquat (Eriobotrya japonica Lindl). IOP Conf Ser Mater Sci Eng. 725: 012069. DOI: 10.1088/175789-9X/725/1/012069.

Huy LAP, He H, Huy CP (2008). Free radicals, antioxidants in disease and health. Int J Biomed Sci., 4(2): 89-96.

Mao QQ, Xu XY, Cao SY, Gan RY, Corke H, Beta T, Li HB (2019). Bioactive Compounds and Bioactivities of Ginger (Zingiber

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.09

officinale Roscoe). Foods (Basel, Switzerland), 8(6), 185. DOI: 10.3390/foods8060185

Mulia K, Risqi UY, Pane IF, Krisanti EA (2019). Formulation, characterization, and release property of antioxidant supplement capsule with red ginger oleoresin extract-loaded chitosan microparticles. J. Phys. Conf. Ser. 1198, 062008. DOI: 10.1088/1742-6596/1198/6-/062008.

Prasetyo E, Kharomah NZW, Rahayu TP (2021). Uji aktivitas antioksidan menggunakan metode DPPH (2,2-difenil-2-pikrilhidrazil) terhadap ekstrak etanol kulit buah durian (*Durio zibethinnus L.*) dari Desa Alasmalang Kabupaten Banyumas. J Pharmascience. 8(1): 75-82.

Purnomo H, Jaya F, Widjanarko SB (2010). The effects of type and time of thermal processing on ginger (*Zingiber officinale Roscoe*) rhizoma antioxidant compounds and its quality. Int Food Res J. 17: 335-347.

Satuan Tugas Penanganan Covid-19 (2021). Pengendalian Covid-19 dengan 3M, 3T, vaksinasi, disiplin, kompak, dan konsisten. Buku 2. Jakarta: Satgas Covid-19.

Souhoka FA, Kapelle IBD, Sihasale E (2021). Phytochemical and antioxidant test of binahong (*Anredera cordifolia Tenore, Steenis*) leaves ethanol extract. Fullerene Journ. Of Chem. 6(1): 28-33. DOI: 10.37033/fjc.v6i1.-248.

Supu RD, Diantini A, Levita J (2018). Red ginger (Zingiber officinale var. rubrum): Ist chemical constituents, pharmacological activities and safety. Fitofarmak Jurnal Ilmiah Farmasi. 8(1): 25-31. DOI: 10.33751/jf.v8i1.1168.

Taufik, Ayuningtyas EA (2020). The impact of COVID-19 pandemic on business and online platform existance. J Pengemb Wiraswasta. 22(1): 21-32.

Widayat, Cahyono B, Satriadi H, Munfarida S (2018). Antioxidant activity and total phenolic content in red ginger (Zingiber officinale) based drinks. IOP Conf. Series: Earth and Environmental Science. 102, 012025.

Wiendarlina IY, Sukaesih R (2019). Perbandingan aktivitas antioksidan jahe emprit (*Zingiber officinale var Amarum*) dan jahe merah (*Zingiber officinale var Rubrum*) dalam sediaan cair berbasis bawang putih dan korelasinya dengan kadar fenol dan Vitamin C. Jurnal Fitofarmaka Indonesia. 6(1): 315-324. DOI: 10.33096/jffi.v6i1.464

Wu YC, Chen, CS, Chan YJ (2020). The outbreak of COVID-19: An overview. J. Chin Med Assoc: JCMA, 83(3), 217–220. DOI: 10.1097/-JCMA.0000000000000270

Yuliani NY, Sembara J, Mau MA (2016). Uji aktivitas antioksidan fraksi etil asetat ekstrak etanol rimpang jahe merah (*Zingiber officinale var. Rubrum*) dengan metode DPPH (1,1-diphenyl-2-picryhydrazyl). Jurnal Info Kesehatan, 14(1): 1091-1111.

CLASSIFICATION OF HEART FAILURE USING THE NAÏVE BAYES ALGORITHM

Achmad Ridwan[1)], Taftazani Ghazi Pratama[2)], Agung Prihandono[2)], Sam'ani Intakoris[3)]

1) Study Program of Information Systems, Universitas Muhammadiyah Kudus,Central Java
2) Study Program of Computer Science, Universitas Muhammadiyah Kudus, Central Java
3) Study Program of Industrial Engineering, Universitas Muhammadiyah Kudus, Central Java

ABSTRACT

Background: Heart failure is a complex syndrome that can result from structural and functional cardiac disorder, rather than a single disease entity, its correct diagnosis can be challenging even for heart failure specialists. The diagnosis of heart failure can be difficult, even for heart failure specialists. The naive Bayes algorithm has the potential to assist physicians in heart failure diagnosis. This study aimed to investigate the classification of heart failure using the naïve Bayes algorithm
Subjects and Method: This was a cross-sectional study. A sample of 918 people consisted of 410 healthy people and 508 patients with heart failure. The data were obtained from Kaggle's secondary data. The data were classified using the naïve Bayes algorithm.
Results: Heart failure classification using the naïve Bayes algorithm had high accuracy (86.18%), precision (87.01%), recall (88.16%), and AUC (91.2%).
Conclusion: Waist-to-hip ratio and body mass index not correlated among patients with hypertension

Keywords: heart failure, naïve Bayes, classification.

Correspondence:
Achmad Ridwan. Study Program of Information Systems, Universitas Muhammadiyah Kudus. Jl. Ganesha 1 Purwosari Kudus, Central Java. Email: achmadridwan@-umkudus.ac.id. Mobile: +6285770111112.

BACKGROUND

The heart is one of the vital organs in the human body the size of a fist. The heart functions to pump and circulate blood and oxygen throughout the body. If the heart experiences abnormal conditions, humans will feel various complaints of diseases that attack the body. Some heart diseases include coronary heart disease, congenital heart disease, valvular heart disease, hypertensive heart disease, and so on. If this heart disease is not treated immediately, it will become a more dangerous disease, that is heart failure (Kompas, 2021)

Heart failure is a disease that attacks the heart characterized by the failure of the heart muscle to pump blood throughout the body. Heart failure is known as one of the deadliest diseases in the world. In 2019, an estimated 17.9 million people died due to heart disease, representing 32% of all global deaths 2019 according to a report from WHO (World Health Organization) (World Health Organization, 2021).

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.10

In Indonesia, data from *Riskedas* (Basic Health Research) in 2018 showed that the prevalence of heart disease based on doctor diagnoses in Indonesia was 1.5% with the highest prevalence rating (P2PTM Kemenkes RI, 2019).

Therefore, it is important to carry out early detection of heart disease so that it can be known whether a person has the potential to experience heart failure. One technology that can help the process of detecting disease is using data mining by classification. This study aimed to classify heart failure using the naive Bayes method and measure the performance of the classification model created.

SUBJECTS AND METHOD

1. Study Design

This was a cross-sectional study using secondary data from Kaggle (Fedesoriano, 2021).

2. Population and Sample

The total population obtained from the Heart Failure Prediction Dataset was 918, consisting of 410 healthy people and 508 patients with heart failure.

3. Study Variables

The variable in this study is the use of the Naive Bayes algorithm.

4. Operational Definition of Variables

The Naïve Bayes algorithm used to classify the Heart Failure Prediction Dataset is Naïve Bayes. This algorithm is a statistical classification that can be used to predict the probability of membership of a class. (Wu et al., 2008) stated that the Naive Bayes algorithm is one of the top 10 most influential data mining algorithms in the research community.

5. Instruments

The data in this study are secondary data obtained from Kaggle in the form of the Heart Failure Prediction Dataset.

6. Data Analysis

In this study, classification analysis is used to design a classification model for heart failure. Before the dataset is classified using the Naïve Bayes algorithm, the dataset analyzed whether there is a missing value or not. After analysis, the next step is to divide the dataset into 2 parts: (1) training data of 70% to create a model and (2) testing data to test the model on unlabeled data. The tool used for this research is RapidMiner. The classification model is built using the Naïve Bayes algorithm without setting parameters. In the final stage, the classification model that has been built is then measured its performance to determine the level of accuracy, precision, recall, and AUC.

RESULTS

Table 1 showed that class precision = 87.01%, and class recall: 88.16%. Classification of Heart Failure using the Naïve Bayes classification algorithm so that precision and recall values that are too far apart due to class imbalance in this dataset.

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.10

Table 1. Results of precision and recall of the heart failure dataset classification process using the Naïve Bayes Algorithm.

	true 0	true 1	class precision
pred. 0	103	18	85.12%
pred. 1	20	134	87.01%
class recall	83.73%	88.16%	

Figure 1 showed the accuracy results obtained in the Classification of Heart Failure using the Naïve Bayes classification algorithm are 86.18%. The accuracy value has reached a high enough level of accuracy for early detection of heart failure.

Figure 2 showed the results of the experimental classification of heart failure datasets for the AUC value of 0.912. This value is classified as an excellent classification value.

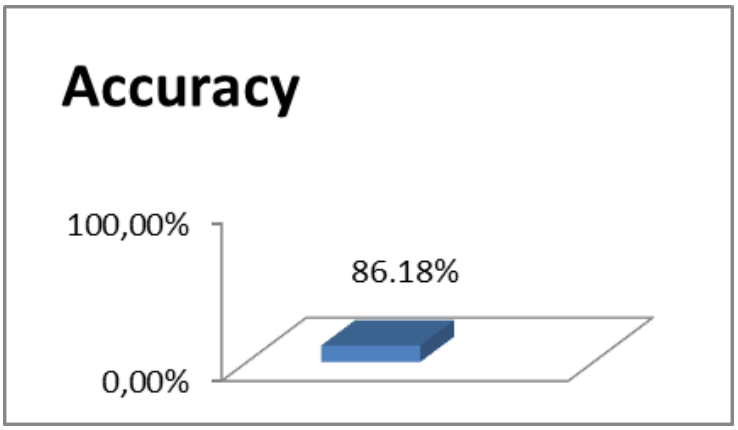


Figure 1. The results of the accuracy of the heart failure dataset classification process using the naïve Bayes Algorithm

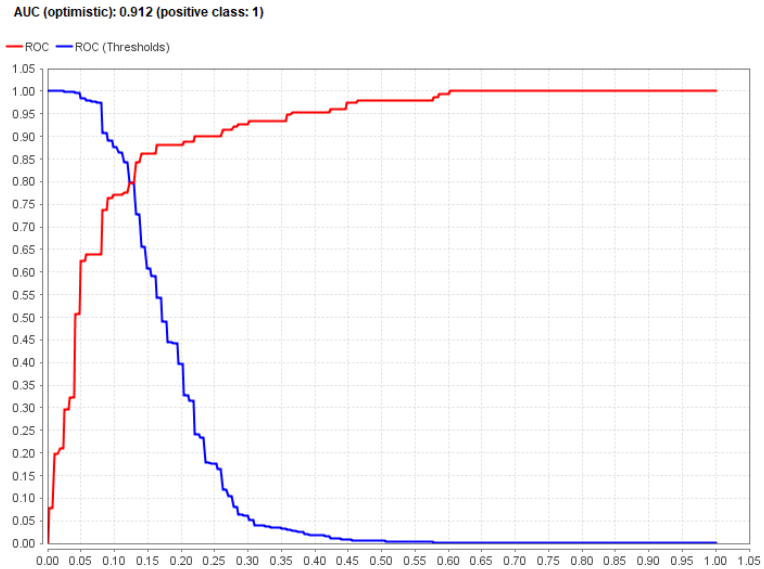


Figure 2. The results of the AUC classification process for heart failure datasets using the naïve Bayes Algorithm

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.10

DISCUSSION

The experiment was carried out using a computer platform based on Intel Core i3-6006U @ 2.00GHz, 4GB RAM, and Microsoft Windows 10 64-bit operating system. While the application development environment with Rapidminer Studio 7, for data using an Excel application.

In this process, the data is prepared so that it can be used to extract information. This is done to obtain more accurate analysis results in the use of machine learning and data mining techniques. One of the algorithms that are often used to classify disease datasets is the naïve Bayes Algorithm. Naïve Bayes has advantages such as being fast and having high accuracy in classifying small datasets as done by (Ridwan, 2020).

After the research was carried out using the Training data and the Testing Heart Failure Prediction Dataset, the results of precision and recall are shown in table 2. From Table 2, we obtained Class Precision = 87.01%, and Class Recall: 88.16%. Classification of Heart Failure using the Naïve Bayes classifycation algorithm has a class precision value for the attribute value of pred.0 turns out to be 0 as much as 103, the attribute value pred.0 turns out to be correct 1 as much as 18, the attribute value pred.1 turns out to be correct 0 as much as 20, the attribute value pred. 1 turned out to be correct 1 as many as 134.

In addition to measuring the level of precision and recall, this classification model also measured the level of accuracy. The accuracy results obtained in the Classification of Heart Failure using the naïve Bayes classification algorithm are 86.18%. The ROC (Receiver Operating Characteristic) curve above (figure 3) shows the naïve Bayes algorithm has an AUC value of 0.912 which means Good Classification where the AUC value is at the top level based on the grouping of the AUC value (Hoo et al., 2017).

In this study, it was shown that naïve Bayes provides good accuracy for the classification of heart failure. In this study, only 1 naïve Bayes classification algorithm was used. Therefore, for further research, this classification algorithm is compared with other algorithms such as the c4.5 algorithm (Pratama et al., 2021) or using bagging techniques to address class imbalances or use feature selection to obtain relevant attributes (Chandrashekar and Sahin, 2014) to see an increase in performance results (Ridwan, 2020). The results of this study are expected to be able to use these attributes for early detection before the stage of diagnosis by doctors.

AUTHOR CONTRIBUTION

Achmad Ridwan designed and conceptualized the construction of a classification model, Taftazani Ghazi Pratama collected, analyzed data, and wrote papers. Agung Prihandono and Sam'ani Intakoris interpreted the results and designed the discussion.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This research was funded by The Institution of Research and Community

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.10

Services Universitas Muhammadiyah Kudus.

ACKNOWLEDGMENT

The author would like to thank the leadership and Institution of Research and Community Services Universitas Muhammadiyah Kudus for the support and assistance that has been given.

REFERENCES

Amanda D and Martini S (2018). Hubungan Karakteristik dan Obesitas Sentral Dengan Kejadian Hipertensi. Jurnal Berkala Epidemiologi, 6(1): 43-50. DOI: 10.20473/jbe-.v6i12018.43-50.

Chandrashekar G, Sahin F (2014). A survey on feature selection methods, Computers, and Electrical Engineering. Elsevier Ltd, 40(1), pp. 16–28. DOI: 10.1016/j.compeleceng.2013.11.024.

Fedesoriano (2021). Heart Failure Prediction Dataset. Available at: https://www.kaggle.com/fedesoriano/heart-failure-prediction (Accessed: 6 November 2021).

Hoo ZH, Candlish J, Teare D (2017). What is an ROC curve?. Emerg Med J. DOI: 10.1136/emermed-2017-206735.

Kompas (2021) Penyakit Jantung yang Bisa Diidap Orang Muda, Termasuk Gagal Jantung. Available at: https://www.kompas.com/sains-/read/2021/11/04/080000523/5penyakitjantung-yang-bisa-diidap-orangmudatermasukgagaljantung?page=all (Accessed: 6 November 2021).

P2PTM Kemenkes RI (2019) Hari Jantung Sedunia (HJS) Tahun 2019 : Jantung Sehat, SDM Unggul. Available at: http://p2ptm.kemkes.go.id/kegiatan-p2ptm/pusat-/hari-jantung-sedunia-hjs-tahun-2019-jantung-sehat-sdm-unggul.

Pratama TG, Ridwan A Prihandono A (2021). Application of the C4.5 Algorithm for Early Cervical Cancer Classification, Urecol Journal. Part E: Engineering, 1(1): 1–6.

Ridwan A (2020). Penerapan Algoritma Naïve Bayes Untuk Klasifikasi Penyakit Diabetes Mellitus, SISKOM-KB, 4, pp. 15–21.

Ridwan A (2020). Penerapan Teknik Bagging Pada Algoritma Naive Bayes, 1, pp. 63–70.

World Health Organization (2021) Cardiovascular diseases (CVDs). Available at: https://www.who.int-/news-room/factsheets/detail/-cardiovascular-diseases (cvds) (Accessed: 6 November 2021).

Wu X, Kumar V, Quinlan JR, Ghosh J, Yang Q, Motoda H, McLachlan GJ, et al. (2008). Top 10 algorithms in data mining' Knowledge and Information Systems. DOI: 10.1007/-s10115-007-

THE EFFECT OF VITAMIN D, VITAMIN C, AND MULTIVITAMIN ON LENGTH OF STAY AND CLINICAL OUTCOME OF COVID-19 PATIENTS AT BANTUL GENERAL HOSPITAL, YOGYAKARTA

Nadia Husna, Niken Larasati, Mila Adiningsih, Esanda Zulfi Amedea

Pharmacy Department, Faculty of Health, Jenderal Achmad Yani University
Gamping, Sleman, Yogyakarta

ABSTRACT

Background: Vitamin and multivitamins placed as supportive role in COVID-19 pharmacology therapy. They worked through several mechanisms such immuno-modulatory, antioxidant, and anti-inflammatory. Clinical evidence on their positive impact on clinical improvement was remain limited. The aims of this study to describe the use of vitamins and multivitamins and to analyse the association between vitamins or multivitamins against length of stay and clinical outcome.
Subjects and Methods: Study design was using analytical observational, cross-sectional, and retrospective approach. Research was taken in Bantul General Hospital Yogyakarta using consecutive sampling method from medical record data of COVID-19 inpatients from March 2020 to May 2021. The independent variables is vitamins or multivitamins. The dependent variables is length of stay and clinical outcome. Bivariate analysis was using Chi square test.
Results: Total of 214 patients met the inclusion criteria. Majority numbers were found in male group (53.70%), 45-64 years old (50.90%), moderate level (80.40%), and having comorbid (89.30%). Pneumonia, diabetes, and hypertension were the common morbidities existed in this study. Most of patients suffered fever, dyspnea, and fever as their symptoms during the infection. Vitamin D, vitamin C, and multivitamin ranked as three biggest consumption supplements by 29.15%, 26.86%, and 23.50%, respectively. There was no association found on vitamin C and vitamin D utility to length of stay and clinical outcome. Meanwhile, there was significant association between multivitamin and clinical outcome (OR= 1.14; CI95%= 1.08-1.20; P=0.029).
Conclusion: There was no association discovered between vitamin D and vitamin C against length of stay and clinical outcome in this study whereas the only meaningful association found on the use of multivitamin to better improvement on clinical outcome marked by healed. The implication of this study was to suggest the application of multivitamin among COVID-19 patients in order to earn better outcome.

Keywords: vitamin C, vitamin D, multivitamin, COVID-19, outcome.

Correspondence:
Nadia Husna. Pharmacy Department, Faculty of Health, Jenderal Achmad Yani University Yogyakarta. Jalan Brawijaya, Ringroad Barat, Ambarketawang, Gamping, Sleman, Yogyakarta. Email: nadia.husna118@gmail.com. Mobile: 082134425472.

BACKGROUND

World Health Organization (WHO) announced COVID-19 as pandemic on March 2020. This situation began by the spread of the disease in China since Desember 2019 and has increased 13-fold around the world (WHO, 2020). Pharmacological therapy on COVID-19 was on their pursuit to discover the proper treatment. In Indonesia, COVID-19 Treatment Protocol Guideline recommended several medications including vitamin C,

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.11

vitamin D, antivirus, antibiotic, and other officially registered traditional supplements (Indonesian Ministry of Health, 2020). Various micronutrients consisted vitamins showed supportive function in immune system and in minimizing the risk of respiratory infection. The consumption of multivitamin rose during COVID-19 era compared to previous time in Saudi Arabian population (Bakhshwin and Bakhshwin, 2021). Vitamin C was believed inhibit the activation of a main proinflammatory transcription factor, NFkB, and also to prevent the production of Interleukin-6 (IL-6) and Tumor necrosis factor alpha (TNF-α) (Dewi et al., 2021). In other hand, vitamin D assumed to have direct inhibition effect on viral replication and anti-inflammatory or immunemodulatory way (Ali, 2020). However, clinical evidence on support role of vitamins and minerals were still limited (Louca et al., 2021).

SUBJECTS AND METHOD

1. Study design

An analytical observational, cross-sectional, and retrospective were using in this study. Research venue was in Bantul General Hospital, Yogyakarta Province and using secondary data through medical data record.

2. Population and Sample

The number of participants was 214, determined by using Slovin formula. Sampling method was using purposive sampling.

Inclusion criteria were adult inpatients (≥18 years old) confirmed positive COVID-19 by Polymerase Chain Reaction (PCR) test result from March 2020 until May 2021, with or without comorbid, received vitamin C, vitamin D, and/ or multivitamin as one of pharmacological therapy. The exclusion criteria were pregnant woman and hospital discharge status requested by patients themselves.

3. Study Variables

The independent variables is vitamins or multivitamins. The dependent variables is length of stay and clinical outcome

4. Operational Definition of Variables

Vitamins or multivitamins defined by vitamin D, vitamin C, multivitamin, zinc, curcuma, and folic acid that consumed by COVID-19 patients.

Length of stay defined by the duration of patient's stay in hospital counted from admission day until hospital discharge day. Secondary outcome was determined by clinical outcome.

Clinical outcome interpreted as the status of COVID-19 patients by the time of hospital discharge. They were divided into healed and death. Healed defined improvement condition in a patient with or without negative result of PCR test and confirmed by medical doctor. Clinical outcome was divided into two characteristics. Primary outcome was length of stay categorized as ≤ 7 days and > 7 days.

5. Data analysis

Univariate analysis was used to describe patient's demographics and medication characteristics, represented as frequencies and percentages. Bivariate analysis was used to analyze the association between medications use (vitamin C, vitamin D, and multivitamin) towards length of stay and clinical outcome by Chi-square test.

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.11

Data was processed by SPSS version 22.

6. Research Ethics

Ethical approval was issued by Ethic Committee of University of Jenderal Achmad Yani with approval number of Skep/0100/KEPK/V/2020.

RESULTS

1. Patient's Demographics

Data in Table 1 shown COVID-19 was most likely occurred in male group (53.70%). In the age group, more than half patients with age range between 45 and 64 years old (50.90%) were detected in COVID-19 positive.

Table 1. Demographic of COVID-19 Patients (n=214)

Characteristics		Frequency	%
Sex	Male	115	53.70
	Female	99	46.30
Age	18-44 years old	54	25.20
	45-64 years old	109	50.90
	65-74 years old	32	15.00
	>74 years old	19	8.90
Severity Level	Mild	21	9.80
	Moderate	172	80.40
	Severe	21	9.80
Comorbid	Yes	191	89.30
	No	23	10.70

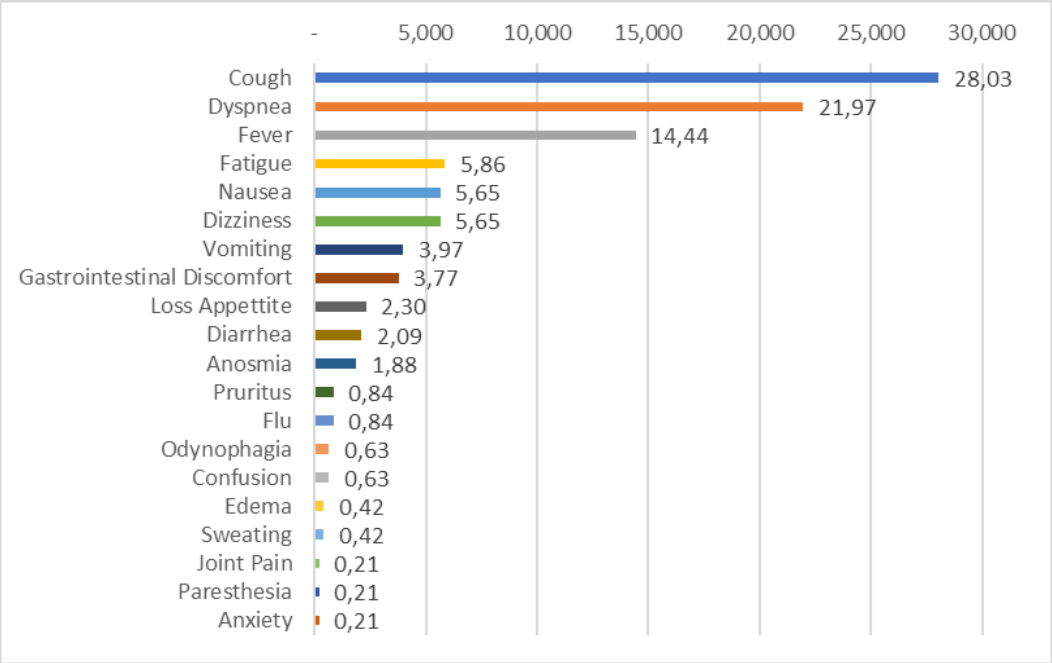


Figure 2. Distribution of Symptoms in COVID-19 Patients in percentages (n=478)

Most of all patients in this study were classified in moderate level (80.40%) and suited to hospitalize in order to have better monitoring. Comorbidities were highly detected in the major prevalence on these patients (89.30%). Figure 1 exposed the type of comorbidities which existed in nearly all the patients in this study. Pneumonia, diabetes mellitus, and hyper-

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.11

tension were three common diseases detected in the total case of 308 comorbidities by 27.27%, 15.58%, and 14.29%, respectively. Based on Figure 2, general symptoms occurred in respiratory infection pointed cough, dyspnea, and fever ranked as three major symptoms.

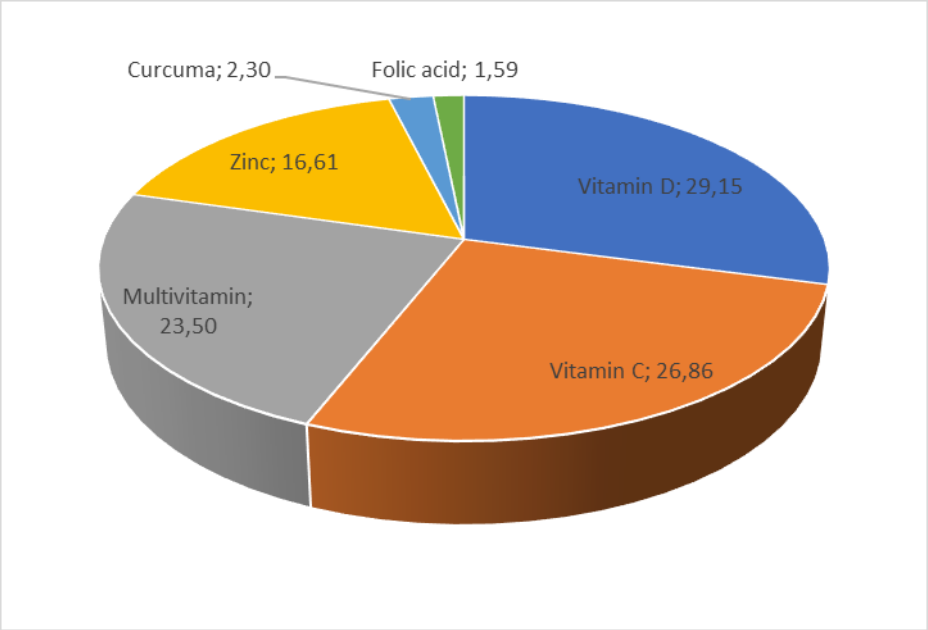


Figure 3. Prevalence of Vitamins and Multivitamins (n=566)

2. Medication Characteristics

Figure 3 placed vitamin D, vitamin C, multivitamin, zinc, curcuma, and folic acid in order according to their apply in COVID-19 patients from largest to smallest percentage.

3. Correlation between Medications and Clinical Indicator on COVID-19 Patients

The result can be seen in Table 2 and Table 3 that the use of vitamins and multivitamin only earned significant effect on those who took multivitamin as one of their therapy with 1.140 times to have chance of being recover. The utility of vitamins and multivitamin brought expectation of better outcomes in COVID-19 clinical aspects.

Table 2. Correlation Analysis between Vitamins and Multivitamin against Length of Stay

Type of Vitamins or Multivitamin		Length of Stay, n (%)		P value	OR	CI95%
		≤ 7 days	> 7 days			
Vitamin D	Yes	67 (31.30)	96 (44.90)	0.079	1.84	0.93-3.68
	No	14 (6.50)	37 (17.30)			
Vitamin C	Yes	58 (27.10)	92 (43.00)	0.706	1.12	0.61-2.06
	No	23 (10.70)	41 (19.20)			
Multivitamin	Yes	11 (5.10)	24 (11.20)	0.392	0.71	0.33-1.55
	No	70 (32.70)	109 (50.90)			

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.11

Table 3. Correlation Analysis between Vitamins and Multivitamin against Clinical Outcome

Type of Vitamins or Multivitamin		Clinical outcome, n (%)		p	OR	95% CI
		≤ 7 days	> 7 days			
Vitamin D	Yes	148 (69.20)	15 (7.00)	0.353	1.57	0.60-4.09
	No	44 (20.60)	7 (3.30)			
Vitamin C	Yes	133 (62.10)	17 (7.90)	0.437	0.66	0.23-1.88
	No	59 (27.60)	5 (2.30)			
Multivitamin	Yes	35 (16.40)	0 (0.00)	0.029	1.14	1.08-1.20
	No	157 (73.40)	22 (10.30)			

DISCUSSIONS

1. Patient's Demographics

Similar study in United States described common result as 374 out of 3,449 inpatients were male. Intrinsic biological factor was the key factor of this event where estrogen in female had several benefit effects in reducing COVID-19 exposure. Some particular mechanism of estrogen was increasing expression of antiviral and pro-inflammatory, upregulation mechanism of Angiotensin Converting Enzyme 2 (ACE2), and reducing worse outcome in COVID-19 (Eskandari et al., 2021). One research in Ecuador came up with the median age in male and female COVID-19 patients were 42 and 39, respecttively. In addition to that, age between 19-50 years old group (59.6%) reported as the most infected group which very identical with this study findings (Ortiz-Prado et al., 2021).

Many studies exhibited that the opportunity of COVID-19 infection has increased gradually with age. Degradation of T cells, B cells, and innate immune cells which led to reduction of viral clearance were convinced as the disadvantage mechanism in older people (Kang and Jung, 2020). One review analysis indicated that comorbidities made it more susceptible for patients to invade by COVID-19 infection. Those who own comorbidities had a considerable possibility to experience worse symptoms and death (Nugraha et al., 2020).

Plausible mechanism of worsening conditions in COVID-19 patients with comorbidities was robust expression of ACE-2 receptor and elevated release of proprotein convertase that allow the entry access into host cells. Comorbidities might direct to life-threatening conditions then ended up increasing of morbidity and mortality. Chronic Obstructive Pulmonary Disease (COPD), hypertension, malignancies, and HIV were commonly found among COVID-19 patients (Ejaz et al., 2020). Furthermore, a large study involved 1590 COVID-19 patients in China noted hypertension, diabetes, malignancy, and diabetes as risk factors that contribute of deteriorating factors of intensive care unit admission, ventilation, and death (Guan et al., 2020). Figure 1 showed pneumonia, diabetes, and hypertension were ranked as common comorbidities in this study. This finding was similar to the result of study previously mentioned.

Several symptoms accompanied COVID-19 patients. Cough, dyspnea,

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.11

and fever were generally occurred in most of patients. A review consisted of 24,410 adults from 9 countries (148 studies) tested positive for coronavirus captured that fever and cough were the highest prevalence symptoms by 78% and 57%, respectively (Grant et al., 2020). Convincing pathway of these symptoms explained that SARS-CoV-2 was received via respiratory and bind to the nasal epithelial cells in the upper respiratory tract later replicated and propagated itself. During this stage, immune system went down and the individuals made themselves highly infectious. Furthermore, this process then manifested fever, cough, and malaise (Parasher, 2021).

2. Medication Characteristics

Vitamins and multivitamins were widely used not only in COVID-19 patients but also in healthy people. Total number of vitamins and multivitamins of 214 COVID-19 patients in this study was 566. Vitamin D (29.15%), vitamin C (26.86%), and multivitamins (23.50%) were 3 types used in frequent times among 7 variants. Resemblant result displayed from a study placed in Jakarta with 3,576 participants where vitamin C took first place by 51.20% followed by multivitamins by 20.20%.

This data came up with reason that vitamin C would have protection effect from COVID-19. Previous studies mentioned the use of vitamin A, C, D, E, zinc, selenium, and copper would benefit in enhancing immune system and keep body from virus infection (Srimiati et al., 2020). Immunomodulatory and induces secretion of antimicrobial peptides were two claimed mechanism of vitamin D. In the other hand, stimulate Interferons (IFN) production which led lymphocyte proliferation and intensified capability of phagocytic were some certain works from vitamin C. Multivitamins gave distinct advantage through antiinflammatory and antioxidant properties that may decrease the severity of COVID-19 (Michienzi and Badowski, 2020).

3. Correlation between Medications and Clinical Indicator on COVID-19 Patients

One investigation to analyze the association between vitamin D plasma levels and COVID-19 susceptibility, severity, or hospitalization determined that no association was found from all categories (Butler-Laporte et al., 2021). The evidence of vitamin C role in COVID-19 patients was yet controversy. A rapid review stated that the use of vitamin C provided shortened period on several outcomes included Intensive Care Unit (ICU) average stay, duration of mechanical ventilation, and mortality in sepsis patients.

However, this promising impact was highly rely on the dose of vitamin C which very vary in multiple researches (Hemilä and de Man, 2021). On the contrary, one research noted that vitamin C has no correlation on COVID-19 hospitalisation or severe COVID-19 (Hui et al., 2021). A recent study performed significant reduction on oxygen support, intensive care support, or both on the apply of combination of vitamin D, magnesium, and vitamin B12 on the elderly people. This positive outcome was seemingly could made an easier way to reach recovery condition (Tan et al., 2020).

There was no association discovered between vitamin D and vitamin

https://doi.org/10.26911/ICPHmedicine.FP.08.2021.11

C against length of stay and clinical outcome in this study whereas the only meaningful association found on the use of multivitamin to better improvement on clinical outcome marked by healed. The implycation of this study was to suggest the application of multivitamin among COVID-19 patients in order to earn better outcome.

REFERENCES

Ali N. (2020). Role of Vitamin D in Preventing of COVID-19 Infection, Progression and Severity. J Infect Public, 13(10), 1373–1380. doi:10.1016/j.jiph.2020.06.021

Bakhshwin DM, Bakhshwin A. (2021). Impact of the Emerging COVID-19 Pandemic on the Consumption of Multivitamins (C, D and Zinc) by the Saudi Arabian Population. Int J Pharm Res. 33: 11–20. doi:10.9734/jpri/2021/v33i2-6b31476.

Butler-Laporte G, Nakanishi T, Mooser V, Morrison DR, Abdullah T, Adeleye O, Mamlouk N, et al. (2021). Vitamin D and COVID-19 Susceptibility and Severity in The COVID-19 Host Genetics Initiative: A Mendelian Randomization Study. PLoS Medicine, 18(6), 1–14. doi:10.1371/journal.pmed.10-03605.

Dewi AMC, Dagradi EM, Wibowo P. (2021). The Effect of High Dose Vitamin C (Ascorbic Acid) on Proinflammatory Cytokines in COVID-19. Health Sci J. 5(1), 46–50. doi: 10.33086/mhsj.v5i-1.1884.

Ejaz H, Alsrhani A, Zafar A, Javed H, Junaid K, Abdalla AE, Abosalif KOA, et al. (2020). COVID-19 and Comorbidities: Deleterious Impact on Infected Patients. J. Infect. Public, 13(12), 1833–1839. doi:10.1016/j.jiph.2020.07.014

Eskandari A, Brojakowska A, Bisserier M, Bander J, Garikipati VNS, Hadri L, Goukassian D, et al. (2021). Retrospective Analysis of Demographic Factors in COVID-19 Patients Entering The Mount Sinai Health System. PLoS ONE, 16(7): 1–17. doi:10.1371/journal.-pone.0254707.

Grant MC, Geoghegan L, Arbyn M, Mohammed Z, Mcguinness L, Clarke EL, Wade RG (2020). The prevalence of symptoms in 24, 410 Adults Infected by The Novel Coronavirus (SARS- CoV-2; COVID-19): A systematic review and meta-analysis of 148 studies from 9 countries. PLOS ONE. doi: 10.1371/journal.pone.02347-65.

Guan W, Liang W, Zhao Y, Liang H, Chen Z, Li Y, Liu X, et al. (2020). Comorbidity and Its Impact on 1590 Patients with COVID-19 in China: A Nationwide Analysis. Eur, 55(5). doi:10.1183/1399300-3.005472020.Supp1.

Hemilä H, de Man AME. (2021). Vitamin C and COVID-19. Front. Med. 7: 1–3. doi: 10.3390/nu90-40339.

Hui LL, Nelson EAS, Lin SL, Zhao JV. (2021). The Role of Vitamin C in Pneumonia and COVID-19 Infection in Adults with European Ancestry: a Mendelian Randomisation Study. Eur. J. Clin. Nutr., 2–5. doi:10.1038/s41430021009-93-4.

Indonesian Ministry of Health. (2020). Protokol Tata Laksana Covid-19 Buku Saku. Kementrian Kesehatan, 105. https://www.papdi.or.id/pdfs/983/BukuPedomanTatalaksana COVID-195OP Edisi 3 2020.pdf

Kang SJ, Jung SI. (2020). Age-Related Morbidity and Mortality among Patients with COVID -19. Infect Chemother, 52(2), 154–164. doi: 10.3947/ic.2020.52.2.154

Louca P, Murray B, Klaser K, Graham MS, Mazidi M, Leeming ER, Thompson E, et al. (2021). Modest effects of dietary supplements during the COVID-19 pandemic: Insights from 445 850 users of the COVID-19 Symptom Study app. BMJ nutr. prev. health, 4(1), 149–157. doi:10.1136/bmjnph2021000250.

Michienzi SM, Badowski ME. (2020). Can Vitamins and / or Supplements Provide Hope Against Coronavirus ?. Drugs In Context, 9, 1–29. doi:10.7573/dic.2020-5-7.

Nugraha A, Utama TA, Rinjani S. (2020). Smoking and Comorbidities in COVID-19 : A Systematic Review. UJPH, 9(1). doi:10.15294/ujph.v9i2.38181.

Ortiz-Prado E, Simbaña-Rivera K, Barreno LG, Diaz AM, Barreto A, Moyano C, Arcos V, et al. (2021). Epidemiological, Socio-demographic and Clinical Features of The Early Phase of The COVID-19 Epidemic in Ecuador. PLoS Negl Trop Dis. 15(1): 1–18. doi:10.1371/journal.pntd.0008958.

Parasher A. (2021). COVID-19: Current Understanding of Its Pathophysiology, Clinical Presentation and Treatment. Postgrad. 97 (1147), 312–320. doi:10.1136/postgradmedj2020-138577.

Srimiati M, Fayasari A, Rizqiawan A, Agestika L (2020). Food Suplement Consumption Does Not Related to Self-Reported Symptoms of COVID-19 among Students in Binawan University. AcTion, 5(2), 203–209.

Tan CW, Ho LP, Kalimuddin S, Cherng BPZ, Teh YE, Thien SY, Wong HM, et al. (2020). Cohort Study to Evaluate Effect of Vitamin D, Magnesium, and Vitamin B12 in Combination on Severe Outcome Progression in Older Patients with Coronavirus (COVID-19). Nutrition, 79–80. doi:10.1016/j.nut.2020.111017.

WHO (2020). WHO Director General's opening remarks at the media briefing on COVID-19. World Health Organization.