p-ISSN: 2338-5324
e-ISSN: 2442-7276

JKP

JURNAL KEPERAWATAN PADJADJARAN

OPEN ACCESS

p-ISSN : 2338-5324 e-ISSN: 2442-7276

Jurnal Keperawatan Padjadjaran

Volume 9 Issue 3: December 2021

OPEN ACCESS

Jurnal Keperawatan Padjadjaran Volume 9 Issue 3
E-ISSN: 2442-7276; P-ISSN: 2338-5324
http://jkp.fkep.unpad.ac.id

Faculty of Nursing Universitas Padjadjaran, Building Academic 2 Floor 1
Jl Raya Bandung - Sumedang KM. 21, Hegarmanah, Jatinangor District,
Sumedang Regency, West Java Province, Indonesia, 45363
Mobile: 085317736810; Phone: 022-7796647; Fax: 022-7796647

p-ISSN : 2338-5324 e-ISSN: 2442-7276

Jurnal Keperawatan Padjadjaran

Editorial Boards

p-ISSN : 2338-5324 e-ISSN: 2442-7276

About Jurnal Keperawatan Padjadjaran

Jurnal Keperawatan Padjadjaran (JKP) is an international journal that provides a forum for nurses to promote excellence in nursing sciences and practice through the dissemination of the latest, evidence-based, peer-reviewed clinical information and original research. JKP is a scientific peer-reviewed nursing journal that is published three times a year (April, August, and December) by the Faculty of Nursing, Universitas Padjadjaran, Indonesia, in collaboration with the Association of Indonesian Nurses Educational Institutions (AINEC).

JKP welcomes studies from various study designs (original research, review article, case study, editorial, perspective, and letter to editor) to accommodate nursing research with rigorous methods for international readers. This journal has been publishing peer-review journals since 2013. This journal offers benefits for authors (1) A nursing journal with a high reputation; (2) indexed in major databases such as Science and Technology Index (SINTA) rank 2, and Directory of Open Access Journal (DOAJ); (3) and rapid decision for sustainability editorial process.

p-ISSN : 2338-5324 e-ISSN: 2442-7276

Jurnal Keperawatan Padjadjaran

JKP

Research Article
Volume 9 Issue 3
https://doi.org/10.24198/jkp.v9i3

Determinants of Knowledge and Behaviours of Indonesian Health Care Providers toward the Prevention of COVID-19

Yoyok Bekti Prasetyo[1*], Alhisna Fitri Setyamardina[2], Henik Tri Rahayu[3], Titih Huriah[4]

[1]Department of Community Health Nursing, Faculty of Health Sciences, Universitas Muhammadiyah of Malang, Malang, Indonesia
[2]Bachelor of Nursing Student, Faculty of Health Sciences, Universitas Muhammadiyah of Malang, Malang, Indonesia
[3]Department of Medical-Surgical Nursing, Faculty of Health Sciences, Universitas Muhammadiyah of Malang, Malang, Indonesia
[4]Department of Community Health Nursing, University Muhammadiyah of Yogyakarta, Yogyakarta, Indonesia

Abstract

Background: Due to the high risk of exposure of Health Care Providers (HCPs) at the forefront of the COVID-19 responses, HCPs' knowledge and prevention behaviors towards COVID-19 have become crucial parts of their job performances.
Purpose: This study aims to identify the level of knowledge and prevention behaviors of HCPs toward COVID-19 and factors associates.
Methods: This study utilized a cross-sectional research design. The samples consisted of 182 HCPs in Malang, East Java Province, Indonesia. The data were collected through structured self-developed online questionnaires, consisting of socio-demographic characteristics, knowledge, and prevention behaviors. The data were treated as categorical data types and then analyzed using frequency distribution, chi-squares, and logistic regression performed by SPSS 22 software.
Results: The HCPs working at hospitals have about one time better knowledge than those who work at public health centers, clinics, and pharmacies (COR = 1.03; 95% CI: 0.72-14.76). Nurses have 3.4 times better knowledge than other HCPs (COR = 3.43; 95% CI: 0.27-43.84). HCPs with 5 to 10-year experience have 6.4 times better prevention behavior than those with less than five years or over 10-year experience (COR = 6.42; 95% CI: 0.57-72.76).
Conclusion: The knowledge and prevention behaviors of HCPs toward COVID-19 prevention were influenced by age, residence area, occupation, and the length of working experience. Therefore, HCPs need to understand the new healthy habits and actively contribute to COVID-19 intervention programs.

Keywords: health care providers; knowledge and behavior; COVID-19 prevention.

Introduction

TIn December 2019, pneumonia of unknown origin occurred in Wuhan City, Hubei Province, China, and became an outbreak. The genome was identified as a new type of coronavirus related to SARS-CoV, so it was named Severe Acute Respiratory Syndrome Coronavirus Type 2 (SARS-CoV-2), in which SARS-CoV-2 is a β-coronavirus belonging to the subgenus Sarbecovirus (Nuccetelli et al., 2020). The World Health Organization (WHO) considers that the virus was categorized as high risk at the global level and then stated a Public Health Emergency of International Concern (PHEIC) on January 30, 2020; and the global spread of SARS-CoV-2 and thousands of deaths from the COVID-19 caused the WHO to declare a pandemic on March 12, 2020

OPEN ACCESS

Jurnal Keperawatan Padjadjaran (JKP)

Volume 9(3), 167-174

http://dx.doi.org/ 10.24198/jkp.v9i3.1709

Article Info

Received : September 14, 2021
Revised : October 19, 2021
Accepted : October 20, 2021
Published : December 08, 2021

Corresponding author

Yoyok Bekti Prasetyo
Community Nursing Department, Fakultas Ilmu Kesehatan, Universitas Muhammadiyah Malang, Jl. Bendungan Sutami No 188A, Sumbersari, Lowokwaru, Malang, East of Java, Indonesia, 65145; Phone: +628125208825, E-mail: yoyok@umm.ac.id

Citation

Prasetyo, Y.B., & Setyamardina, A.F. (2021). Determinants of Knowledge and Behaviours of Indonesian Health Care Providers toward the Prevention of Covid-19. *Jurnal Keperawatan Padjadjaran, 9*(3), 167-174. http://dx.doi.org/10.24198/jkp.v9i3.1709

Website

http://jkp.fkep.unpad.ac.id/index.php/jkp

E-ISSN: 2442-7276
P-ISSN: 2338-5324

(Nuccetelli et al., 2020).

By January 22, 2021, over 96 million had been confirmed COVID-19 positive and COVID-19 across 224 countries caused around 2.1 million deaths (WHO, 2020). In Indonesia only, the number of confirmed cases of COVID-19 exceeded 2.1 million, and about 27.453 deaths were caused by it (Ministry of Health Republic of Indonesia, 2020). The mortality rate caused by COVID-19 reached 3.5%, with the highest prevalence of deaths over 65 years old. Furthermore, there were 49,174 confirmed cases of COVID-19 in East Java, Indonesia, with the 1937 cases were reported from Malang City. The increasing number of confirmed cases occurred in Malang was mainly without symptoms and it reached 30,418 cases (Ministry of Health Republic of Indonesia, 2020).

Health care providers (HCPs) are at the forefront of the battle against COVID-19 (Saqlain et al., 2020). It is paramount that they have and practice adequate knowledge and behavior to prevent the widespread virus (Moudy & Syakurah, 2020). Being at the forefront of the battle means HCPs have a higher risk of exposure to COVID-19 due to close contact with infected patients when facilitating the transmission process (Asemahagn, 2020; Cooper et al., 2020). COVID-19 has caused various occupational health problems with high severity on HCPs, including mortality. Besides, HCPs have endured psychological stress, extensive working hours, burnout, job stigma, and physical violence due to COVID-19 impacts, which leads to the reduction of HCPs' immunity and increase the risks of severe impacts of the disease (Fang et al., 2020; Rahman et al., 2020). The increasing mortality rate among HCPs is alarming, particularly during the COVID-19 and other infectious disease responses (Saqlain et al., 2020).

Inadequate knowledge and inappropriate attitude of health care providers can directly affect their behaviors and lead to delays in diagnosis, poor infection control, and the spread of diseases (Abdel Wahed et al., 2020). Health care providers' lack of compliance toward health protocols, such as going to a crowded place for shopping after work or violating social distancing, can expose HCPs to COVID-19 or even spread it (Tsegaye et al., 2021). Thus, it is crucial to promote health care providers' knowledge and prevention behavior of COVID-19 (Alimansur & Quyumi, 2020). By improving their knowledge and skills, health care providers can provide better treatment to patients and become good role models to prevent COVID-19 spread (Olum et al., 2020). In the principal, the control and prevention of COVID-19 are crucial for three reasons: to prevent the virus transmission from patients to health care providers and vice versa, to prevent the spread of the virus, and to reduce the wastage of financial resources (Jemal et al., 2019).

In Indonesia, the study related to the issues mentioned earlier is still limited. Jemal et al. (2019) suggest that 89% of the HCPs involved in their study demonstrate adequate knowledge regarding COVID-19, and over 85% of them express their fear of getting infected by the virus. Olum et al. (2020) also suggest that about 54 % of health care providers indicate a lack of knowledge on COVID-19 prevention. Some factors influencing the HCPs' knowledge and behaviors towards COVID-19 prevention include working experience and job category (Zhang et al., 2020). Thus, the current study aims to identify the level of knowledge and prevention behavior of health care providers toward COVID-19 and its associated factors.

Methods

Study design and settings

This study used a cross-sectional research design. The research was conducted between March to April 2021.

Sample size determination and sampling procedures

The population of this study was health care providers who work in hospitals and other health care facilities (public health centers, clinics, and private practices) in Malang, East Java Province of Indonesia. In 2019, the number of health workers in Malang included doctors (1263), nurses (3028), midwives (733), pharmacists (429), and others (1006). In total, 6459 health workers with different professional disciplines worked in various healthcare facilities (The Central Bureau of Statistics Malang, 2020). The sample size was calculated using G*Power 3.1 software with a medium effect size (0.15), a significance level of 0.05, and power of study 0.80; required an estimated sample of 182. The subjects who met inclusion criteria and willing to participate in this study were recruited. The online survey was distributed through messaging social media (WhatsApp); thus, the accidental sampling technique was applied.

Data collection instruments and techniques

The data collected through online structured questionnaires consisted of self-developed socio-demographic characteristics, knowledge, and prevention behaviors towards COVID-19. The socio-demographic characteristics consisted of age (less than 30 and over 30 years), gender (males, females), region (rural and urban), workplace (hospitals, public health centers, clinics, pharmacies), occupations (doctors, nurses, others), work unit (COVID, non-COVID), and the length of work experience (less than 5, 5-10, over ten years). The knowledge about COVID-19 was measured using self-developed questionnaires consisting of eight questions related to COVID-19, spread, and preventions (for instance: I understand that COVID-19 can infect humans and animals, People suspected of COVID-19 infection must isolate themselves for 14 days, undergoing

Table 1. Respondent's Characteristics

Characteristics	n	%
Age		
<30 years	161	88.5
>30 years	21	11.5
Gender		
Males	37	20.3
Females	145	79.7
Residence		
Rural	83	45.6
Urban	99	54.4
Workplace		
Hospitals	129	70.9
Public Health Centres	27	14.8
Clinics	23	12.6
Pharmacies	3	1.6
Occupation		
Nurses	149	81.9
Doctors	9	4.9
Others	24	13.2
Work Unit		
Incovid	64	35.2
Noncovid	118	64.8
Work Experience		
<5 years	118	64.8
5-10 years	26	14.3
>5 years	38	20.9

Table 2. The determinants of health workers' knowledge and behavior

Variables	Knowledge	Behavior
	COR (95% CI)	COR (95% CI)
Age		
<30 years	1.58 (0.492-5.052)*	0.25 (0.48-1.255)
>30 years	*Ref*	*Ref*
Gender		
Males	1.17 (0.476-2.909)	0.80 (0.152-4.236)
Females	*Ref*	*Ref*
Residential area		
Rural	1.32 (0.647-2.705)	1.72 (0.495-5.982)
Urban	*Ref*	*Ref*
Workplace		
Hospitals	1.03 (0.72-14.76)	0.15 (0.007-2.987)
Public Health Centres	0.31 (0.019-4.95)	0.36 (0.015-8.322)
Clinics	0.62 (0.039-10.005)	0.12 (0.003-4.184)
Pharmacies	*Ref*	*Ref*
Occupations		
Nurses	3.43 (0.269-4.384)*	0.60 (0.109-3.350)
Doctors	0.73 (0.236-2.277)*	0.82 (0.050-13.45)
Others	*Ref*	*Ref*

Cont. Table 2. The determinants of health workers' knowledge and behavior

Variables	Knowledge	Behavior
	COR (95% CI)	COR (95% CI)
Work units		
Incovid	1.25 (0.558-2.820)	1.416 (0.318-6.12)
Noncovid	*Ref*	*Ref*
Work experience		
<5 years	0.914 (0.351-2.376)	3.913 (0.399-38.37)
5-10 years	0.953 (0.286-3.176)	6.419 (0.566-72.76)
>5 years	*Ref*	*Ref*

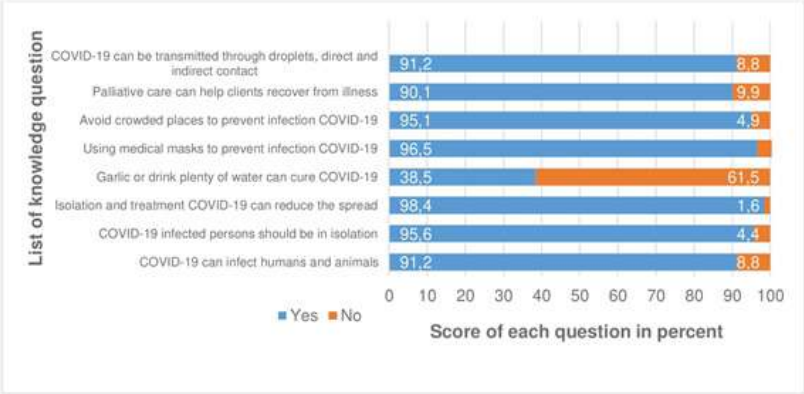

Figure 1. Knowledge of Health Workers about COVID-19 in The Malang Region of Indonesia, 2021

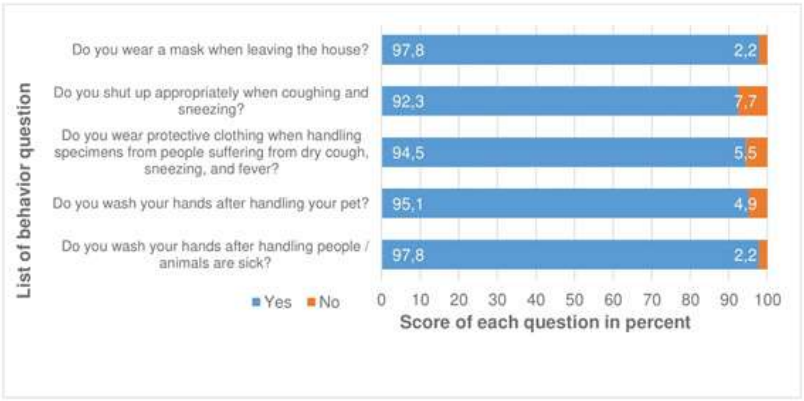

Figure 2. Behavior of Health Workers about COVID-19 in The Malang Region of Indonesia, 2021

isolation and receiving treatment when confirmed to be positive of COVID-19 will help reduce the spread of the virus). The prevention behavior was measured by using self-developed questionnaires consisting of five questions related to preventing COVID-19 (for instance: Do you wash your hands after taking care of patients? Do you wash your hands after interacting with pet animals? Do you wear protective gear while working? Do you cover your mouth when coughing and sneezing? Do you wear masks when you go out of your house?). This questionnaire was adopted and adapted to the conditions in Indonesia from research conducted by Asemahagn, M. A. in 2020 (Asemahagn, 2020) . Both knowledge and behaviors were answered with yes (1) or no (0), and data were categorized into two categories (good and poor). The questionnaires were designed using a Google Form (https://forms.gle/daT3Mo3ZZN3QYZ6v5), then distributed through the WhatsApp messaging application, then were downloaded into Microsoft-Excel format for further analysis.

Data quality assurance

The questionnaire was designed in a structure that was easy to follow. Its validity had been tested on medical experts, nurses, and pharmacists in the Faculty of Health Sciences of Muhammadiyah University of Malang, the Cronbach alpha coefficients were acceptable (0.65 for knowledge

and 0.71 for prevention behaviors).

Data Analyses

The data were analyzed using a descriptive statistic (distribution of frequency and percentage), multinomial logistic regression analysis to identify the factors related to knowledge and prevention behavior of COVID-19. The relationship between the independent and dependent variables was described using a crude odds ratio (COR) with 95% CI and a p-value <0.05 to demonstrate the odds of each group without counting other variables. COR is used to measure the association between an exposure (age, gender, residence, work place, occupation, work unit and work experiences) and an outcome (knowledge and behaviors).

Ethical approval

The research ethics committee of the Faculty of Medicine, Universitas Muhammadiyah Malang (No.E.5.a/049/KEPK-UMM/IV/2021) gave this research their clearance. All of the participants signed a written informed consent form. Confidentiality and privacy were assured.

Results

Respondent's Characteristics

Out of 182 subjects, the majority of health care providers were less than 30 years old (88.5%), worked at hospitals (70.9%), responsible in COVID-19 treatment rooms (35.2%), had less than five years of work experience (64.8%), and were nurses (81.9%) (Table 1).

Knowledge and Prevention Behaviours of COVID-19

Health care providers' knowledge regarding COVID-19 prevention was considered good, which seven items indicate a high percentage of HCPs correctly answered (above 90%). Only item 5 (knowledge about the consumption of garlic and water to prevent COVID-19) was low (38.5%). Despite a low percentage (<10%), some HCPs demonstrated poor knowledge of the prevention of COVID-19 transmission (8.8%) (Fig. 1). The prevention behaviors among HCPs were considered good (all items' percentages were above 90%) (Fig. 2). However, some HCPs still need to pay more attention to their habits of covering their mouths when sneezing and coughing (7.7%) and wear protective cloth when handling specimens of patients suffering from cough (5.5%).

The determinants of health care providers' knowledge and behavior

Table 2 shows the influence of the determinant factors: age, gender, residence, workplace, occupation, work unit, and work experiences on the knowledge and prevention behaviors of COVID-19 among Indonesian HCPs. Young HCPs had 1.6 times better knowledge than older ones (COR = 1.58; 95% CI: 0.92-5.052). The HCPs who lived in rural areas had 1.7 times better behavior than those in urban areas (COR = 1.72; 95% CI: 0.495-5.982). HCPs who worked in hospitals had one time better knowledge than those who worked at public health centers, clinics, and pharmacies (COR = 1.03; 95% CI: 0.72-14.76), where nurses had 3.4 times better knowledge than other HCPs (COR = 3.43; 95% CI: 0.269-43.84). Then, HCPs who had 5 to 10 years of work experience showed 6.4 times better prevention behaviors than those with less than five years or over ten years of work experience (COR = 6.42; 95% CI: 0.566-72.76).

Discussion

The study findings illustrated that most healthcare providers at the frontline of COVID-19 responses are young (<30 years). This situation may result from the explosion of COVID-19 confirmed cases that forced many hospitals to massively recruited new HCPs to fulfill the demand for healthcare services. Most of the recruits were fresh graduates (Fang et al., 2020; Wright et al., 2020). This fact affects the level of knowledge and prevention behaviors of COVID-19 demonstrated by HCPs as age influences their perception and mindset (Sugawara & Nikaido, 2014). Also, the study findings highlighted that the HCPs generally demonstrated good knowledge and prevention behaviors of COVID-19, which is in line with a study conducted by Yanti et al. (2020), which suggests that 99% of Indonesian citizens had had good knowledge and behaviors of the COVID-19 prevention programs. Health care providers' knowledge is crucial in the pandemics period, including the current situation of the COVID-19 outbreak (Asemahagn, 2020; Qian et al., 2020; Viswanathan et al., 2020), in which the HCPs' high level of knowledge significantly influences the number of cases and the prevention of COVID-19 (Haque et al., 2021; Shen et al., 2021). The proper prevention behaviors among HCPs might be achieved through the experiences, particularly during the battle against the COVID-19 pandemic. Besides, nurses have good knowledge because of their continuing education and experiences (Abou-Abbas et al., 2020; Asemahagn, 2020; Tsegaye et al., 2021).

Younger HCPs show better knowledge than older colleagues; it is highlighted that the young can learn faster due to their adeptness in utilizing technology to access information (Abou-Abbas et al., 2020; Maude et al., 2021). Surprisingly, the HCPs who lived in rural areas demonstrated 1.7 times better prevention behaviors than those in urban areas; it was interesting where HCPs in cities should have better knowledge and prevention behaviors than others in rural areas. HCPs in rurals usually had limited internet connection and information due to limited facilities and being far away from the centers.

It leads the HCPs who live in rural areas to have more efforts to upgrade their knowledge and apply behaviors independently as they can be a role model of their behaviors to society. Ashcroft et al. (2021) also mentioned a similar situation where health care providers in rural areas had faced various obstacles, including the limited internet network. Regarding the difficulty in accessing information, this study findings illustrated that it was mainly more challenging to encourage people who live in rural areas to comply with the health protocols such as wearing masks, maintaining physical distancing, as well as maintaining personal health compared to those who live in urban areas due to the differences educational and economic backgrounds (Singh et al., 2021). In other words, rural communities had low awareness of COVID-19 infection (Yue et al., 2021).

Further findings suggest that HCPs who worked in hospitals indicated better knowledge of COVID-19 prevention than other settings as hospitals were the referral healthcare to treating COVID-19 patients due to their adequate facilities. Besides, the COVID-19 cases in hospitals were usually much higher in number and complexities, so HCPs demanded to improve their knowledge and skills to provide better healthcare services (Qian et al., 2020; Saqlain et al., 2020; Zhang et al., 2020). Then, the findings also indicated that nurses had 3.4 times better knowledge than other HCPs because nurses took up the majority of responsibilities in healthcare facilities and spent the most hours providing healthcare services to patients. Accordingly, nurses were highly exposed to COVID-19 infection (Cai et al., 2020; Yifan et al., 2020); thus, continuous education and training on the newest updates of COVID-19 were being delivered to nurses and other health workers, as Maude et al. (Maude et al., 2021) claimed that the knowledge about the routes of transmission, general symptoms, and preventions was highly recommended to health workers (>80%).

Lastly, the length of work experience influenced HCPs' knowledge which those who have 5-10 years of experience indicated to have 6.4 times better knowledge than those who have less or more. It highlights that more extended work experience exposes HCPs to more information and skills to provide better healthcare service to patients. Despite not being significant in this study, the evidence suggests that HCPs with over ten years of experience show three times better skills than those who work for a shorter period (Abou-Abbas et al., 2020). Thus, it can be concluded that experience and other demographic factors significantly influenced health care providers' knowledge and behaviors (Tamang et al., 2020).

Conclusion

This study concludes that most health workers in Malang, East Java Province of Indonesia, have adequate knowledge and behavior toward COVID-19 prevention. The findings suggest that health care providers' knowledge and behavior are mainly influenced by age, residential area, workplace, occupation, and work experience. This study would emphasize the importance of understanding and implementing the new healthy habits to contribute to the COVID-19 prevention program actively. Aside from that, HCPs need to periodically cool down and reinvigorate themselves, reduce their workload, go for spiritual retreats, and educate themselves on the COVID-19 updates.

Limitations of the study

This study utilized an online survey that had some limitations, such as that it only reached a certain number of respondents in Malang of East Java Province. Since the instrument mainly used internet connection, technology, and electricity, some potential respondents with limitations might not participate in the study, although they might have a significant contribution. Then, the instruments in this study were developed and validated using a simple process; other advanced validations processes might be needed to gain more rigorous findings.

Acknowledgments

The author would like to thank the Dean of the Faculty of Health Sciences, the University of Muhammadiyah Malang, who has provided support in completing this study.

References

Abdel Wahed, W. Y., Hefzy, E. M., Ahmed, M. I., & Hamed, N. S. (2020). Assessment of knowledge, attitudes, and perception of health care workers regarding COVID-19, A cross-sectional study from Egypt. *Journal of Community Health, 45*(6), 1242–1251. https://doi.org/10.1007/s10900-020-00882-0

Abou-Abbas, L., Nasser, Z., Fares, Y., Chahrour, M., El Haidari, R., & Atoui, R. (2020). Knowledge and practice of physicians during COVID-19 pandemic: A cross-sectional study in Lebanon. *BMC Public Health, 20*(1), 1–9. https://doi.org/10.1186/s12889-020-09585-6

Alimansur, M., & Quyumi, E. (2020). Prevention efforts with compliance to the prevention of transmission of COVID-19 to COVID volunteers. *Journal of Public Health Research and Community Health Development, 4*(1), 81. https://doi.org/10.20473/jphrecode.v4i1.21792

Asemahagn, M. A. (2020). Factors determining the knowledge and prevention practice of healthcare workers towards COVID-19 in Amhara region, Ethiopia: a cross-sectional survey. *Tropical Medicine and Health, 48*(1), 72. https://doi.org/10.1186/s41182-020-00254-3

Ashcroft, R., Donnelly, C., Dancey, M., Gill, S., Lam, S., Kourgiantakis, T., Adamson, K., Verrilli, D., Dolovich, L., Kirvan, A., Mehta, K., Sur, D., & Brown, J. B. (2021). Primary care teams'

experiences of delivering mental health care during the COVID - 19 pandemic : a qualitative study. *BMC Family Practice*, 1–12. https://doi.org/10.1186/s12875-021-01496-8

Cai, Z., Cui, Q., Liu, Z., Li, J., Gong, X., Liu, J., Wan, Z., Yuan, X., Li, X., Chen, C., & Wang, G. (2020). Nurses endured high risks of psychological problems under the epidemic of COVID-19 in a longitudinal study in Wuhan China. *Journal of Psychiatric Research, 131*(April), 132–137. https://doi.org/10.1016/j.jpsychires.2020.09.007

Cooper, S., Wiyeh, A., Schmidt, B. M., & Wiysonge, C. S. (2020). Cochrane corner: Factors that influence compliance by healthcare workers with infection prevention and control guidelines for COVID-19 and other respiratory infections. *Pan African Medical Journal, 35*(2), 1–3. https://doi.org/10.11604/pamj.2020.35.2.23012

Fang, X., Zhang, J., Teng, C., Zhao, K., Su, K. P., Wang, Z., Tang, W., & Zhang, C. (2020). Depressive symptoms in the frontline non-medical workers during the COVID-19 outbreak in Wuhan. *Journal of Affective Disorders, 276*(July), 441–445. https://doi.org/10.1016/j.jad.2020.06.078

Haque, A., Mumtaz, S., Mumtaz, R., Masood, F., Buksh, H. A., Ahmed, A., & Khattak, O. (2021). Assessment of knowledge, perceptions and perceived risk concerning COVID-19 in Pakistan. *Journal of Epidemiology and Global Health, 11*(2), 186–193. https://doi.org/http://dx.doi.org/10.2991/jegh.k.210109.001

Jemal, S., Zeleke, M., Tezera, S., Hailu, S., Abdosh, A., Biya, M., & Abduljelil, S. (2019). Health care workers' knowledge, attitude and practice towards infection prevention in Dubti referral hospital, Dubti, North East Ethiopia. *International Journal of Advanced Community Medicine, 2*(1), 30–36. https://doi.org/10.33545/comed.2019.v2.i1a.07

Maude, R. R., Jongdeepaisal, M., Skuntaniyom, S., Muntajit, T., Blacksell, S. D., Khuenpetch, W., Pan-Ngum, W., Taleangkaphan, K., Malathum, K., & Maude, R. J. (2021). Improving knowledge, attitudes and practice to prevent COVID-19 transmission in healthcare workers and the public in Thailand. *BMC Public Health, 21*(1), 1–14. https://doi.org/10.1186/s12889-021-10768-y

Mikola, D., Wright, T., Beland, L., Brodeur, A., & Mikola, D. (2020). The Short-Term Economic Consequences of COVID-19 : Occupation Tasks and Mental Health in Abel Brodeur . *Disscussion Paper Series Institute of Labor Economics.* Retrieved January 14, 2021, from http://ftp.iza.org/dp13254.pdf

Ministry of Health Republic of Indonesia. (2020, September). Current Situation Developments (COVID-19). *In Ministry of Health Republic of Indonesia* (17–19). Retrieved January 21, 2021, from https://covid19.kemkes.go.id/download/Situasi_Terkini_050520.pdf

Moudy, J., & Syakurah, R. A. (2020). Pengetahuan terkait usaha pencegahan Coronavirus Disease (COVID-19) di Indonesia. *Higeia Journal of Public Health Research and Development, 4(*3), 333–346. https://doi.org/10.15294/higeia.v4i3.37844

Nuccetelli, M., Pieri, M., Grelli, S., Ciotti, M., Miano, R., Andreoni, M., & Bernardini, S. (2020). SARS-CoV-2 infection serology: A useful tool to overcome lockdown?. *Cell Death Discovery*, *6*(1). https://doi.org/10.1038/s41420-020-0275-2

Olum, R., Chekwech, G., Wekha, G., Nassozi, D. R., & Bongomin, F. (2020). Coronavirus Disease-2019: Knowledge, attitude, and practices of health care workers at Makerere University Teaching Hospitals, Uganda. I*n Frontiers in Public Health, 8*. https://doi.org/10.3389/fpubh.2020.00181

Qian, X., Ren, R., Wang, Y., Guo, Y., Fang, J., Wu, Z. D., Liu, P. L., & Han, T. R. (2020). Fighting against the common enemy of COVID-19: A practice of building a community with a shared future for mankind. *Infectious Diseases of Poverty, 9*(1), 4–9. https://doi.org/10.1186/s40249-020-00650-1

Rahman, M. A., Hoque, N., Alif, S. M., Salehin, M., Islam, S. M. S., Banik, B., Sharif, A., Nazim, N. B., Sultana, F., & Cross, W. (2020). Factors associated with psychological distress, fear and coping strategies during the COVID-19 pandemic in Australia. *Globalization and Health, 16*(1), 1–15. https://doi.org/10.1186/s12992-020-00624-w

Saqlain, M., Munir, M. M., Rehman, S. U., Gulzar, A., Naz, S., Ahmed, Z., Tahir, A. H., & Mashhood, M. (2020). Knowledge, attitude, practice and perceived barriers among healthcare workers regarding COVID-19: A cross-sectional survey from Pakistan. *Journal of Hospital Infection, 105*(3), 419–423. https://doi.org/10.1016/j.jhin.2020.05.007

Shen, F., Chen, M., Lu, Y., & Chu, Y. (2021). The effect of cognition and affect on preventive behaviors during the COVID-19 pandemic: a cross-sectional study in China. *BMC Public Health, 21,* 1–8. https://doi.org/http://dx.doi.org/10.1186/s12889-021-10784-y

Singh, D. R., Sunuwar, D. R., Shah, S. K., Karki, K., Sah, L. K., Adhikari, B., & Sah, R. K. (2021). Impact of COVID-19 on health services utilization in Province-2 of Nepal: A qualitative study among community members and stakeholders. *BMC Health Services Research, 21*(1), 1–14. https://doi.org/10.1186/s12913-021-06176-y

Sugawara, E., & Nikaido, H. (2014). Properties of AdeABC and AdeIJK efflux systems of Acinetobacter baumannii compared with those of the AcrAB-TolC system of Escherichia coli. *Antimicrobial Agents and Chemotherapy,*

58(12), 7250–7257. https://doi.org/10.1128/AAC.03728-14

Tamang, N., Rai, P., Dhungana, S., Sherchan, B., Shah, B., Pyakurel, P., & Rai, S. (2020). COVID-19: a National Survey on perceived level of knowledge, attitude and practice among frontline healthcare Workers in Nepal. *BMC Public Health, 20*(1), 1–10. https://doi.org/10.1186/s12889-020-10025-8

The Central Bureau of Statistics Malang. (2020). The number of health workers in districts in Malang 2018-2019. Retrieved July 14, 2021 from https://malangkota.bps.go.id/indicator/30/358/1/jumlah-tenaga-kesehatan-menurut-kecamatan.html

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), 490. https://doi.org/10.1186/s12879-021-06218-0

Viswanathan, R., Myers, M. F., & Fanous, A. H. (2020). Support Groups and Individual Mental Health Care via Video Conferencing for Frontline Clinicians During the COVID-19 Pandemic. *Psychosomatics,* 1–6. https://doi.org/10.1016/j.psym.2020.06.014

WHO. (2020). WHO Coronavirus Disease (COVID-19) Dashboard Data last updated: 2020/8/21, *10:25am CEST*. https://covid19.who.int/

World Health Organization. (2020). Material COVID-19 Risk Communication for Health Care Facilities (pp. 1–15). https://www.who.int/docs/default-source/searo/indonesia/covid19/risk-communication-for-healthcare-facility.pdf?sfvrsn=9207787a_2

Wright, J. K., Tan, D. H. S., Walmsley, S. L., Hulme, J., O'Connor, E., Snider, C., Cheng, I., Chan, A. K., Borgundvaag, B., McLeod, S., Gollob, M. H., Clarke, R. J., Dresser, L., Haji, F., Mazzulli, T., Mubareka, S., Jüni, P., Lee, D., Tomlinson, G., … Landes, M. (2020). Protecting frontline health care workers from COVID-19 with Hydroxychloroquine pre-exposure prophylaxis: A structured summary of a study protocol for a randomised placebo-controlled multisite trial in Toronto, Canada. *Trials, 21*(1), 20–22. https://doi.org/10.1186/s13063-020-04577-8

Yanti, B., Wahyudi, E., Wahiduddin, W., Novika, R. G. H., Arina, Y. M. D., Martani, N. S., & Nawan, N. (2020). Community knowledge, attitudes, and behavior towards social distancing policy as prevention transmission of COVID-19 in Indonesia. *Jurnal Administrasi Kesehatan Indonesia, 8*(2), 4. https://doi.org/10.20473/jaki.v8i2.2020.4-14

Yifan, T., Ying, L., Chunhong, G., Jing, S., Rong, W., & Zhenyu, L. (2020). Symptom cluster of ICU nurses treating COVID-19 pneumonia patients in Wuhan , China. *Journal of Pain and Symptom Management, 60*(1), e48–e53. https://doi.org/10.1016/j.jpainsymman.2020.03.039

Yue, S., Zhang, J., Cao, M., & Chen, B. (2021). Knowledge, attitudes and practices of COVID-19 among urban and rural residents in China: A Cross-sectional Study. *Journal of Community Health, 46*(2), 286–291. https://doi.org/10.1007/s10900-020-00877-x

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 Infection, 105*(2), 183–187. https://doi.org/10.1016/j.jhin.2020.04.012

The Effect of Using Simulation-Based Learning on Nursing Performances of Early Postpartum Hemorrhage in Nursing Students

Kornkarn Pansuwan*, Sirikanok Klankhajhon

Faculty of Nursing, Naresuan University, Phitsanulok, Thailand

Abstract

Background: Early posypartum haemorrhage (PPH) is a crucial problem in maternal and newborn care. The simulation-based learning has an important role to improve knowledge, practical skills, and attitude in realistic case-based scenarios.
Purpose: This study aims to examine the effect on using simulated scenario in the simulation laboratory on nursing performance of early postpartum hemorrhage of nursing students.
Methods: The quasi-experimental research, one group pretest-posttest design was used to study with the nursing students from the Faculty of Nursing, Naresuan University in Academic Year 2019 during the period of December 1, 2019 to January 31, 2020. The subjects of thirty nursing students were selected by purposive sampling. The instruments were the the ability in nursing of early postpartum hemorrhage through the questionnaires which consists of the performance test and satisfaction before and after the early PPH simulation program. The content of scenario consists of the definition, etiology, risk factors, signa and symptoms, treatment, holistic nursing care, and continuous care. The data were analysed as the descriptive: numbers, percentages, frequency, mean and standard deviation. The paired t-test was used to compare the outcome between pre-test and post-test.
Results: The data were analysed by t-test. The results illustrated that the students who learned through simulated scenario on performance in nursing care of women with early postpartum hemorrhage had, after learning, higher performance in nursing care of women with early postpartum hemorrhage than that before learning at the .01 level of significance. The students were satisfied learning by using the simulation program in the high level ($\bar{x}$ = 4.26, S.D. = 0.54).
Conclusion: The simulation-based learning improves the core competencies and performances of nursing students for management women with early postpartum hemorrhage as knowledge, potential clinical care skills, and attitude. It will be useful to implement for nursing care women regarding early postpartum hemorrhage in the real situations.

Keywords: nursing; postpartum hemorrhage; simulation-based learning; simulated scenario.

Introduction

Early posypartum haemorrhage (PPH) is definded as blood loss of 500 millilitres (ml.) or more within 24 hours at the after vaginal delivery or at least 1,000 ml. or more than caesarean delivery. Most of PPH majority result from uterine atony around sixty percentages, and then vaginal and perineal trauma, retained placenta, and disseminated intravascular coagulation (DIC) respectively. Time, within 24 hours after childbirth, is an important role in management of PPH in term of assessment, implementation, prevention, and evaluation (Suprasert, Cheewakriangkrai, Tongprasert & Pansri, 2015). Early PPH is a leading cause of maternal mortality globally including in Thailand as hypovolemic shock. It is also leading cause of hysterectomy

Jurnal Keperawatan Padjadjaran (JKP)

Volume 9(3), 175-180
© The Author(s) 2021
http://dx.doi.org/ 10.24198/jkp.v9i3.1682

Article Info

Received : August 06, 2021
Revised : October 05, 2021
Accepted : October 13, 2021
Published : December 08, 2021

Corresponding author

Kornkarn Pansuwan
Assistant Professor at Faculty of Nursing, Naresuan University, Phitsanulok 65000, Thailand, Phone: +66 55961640, E-mail: kornkarnpansuwan@gmail.com

Citation

Pansuwan, K., & Klankhajhon, S. (2021). The Effect of Using Simulation-Based Learning on Nursing Performances of Early Postpartum Hemorrhage in Nursing Students. *Jurnal Keperawatan Padjadjaran, 9*(3), 175–180. https://doi.org/ 10.24198/jkp.v9i3.1682

Website

http://jkp.fkep.unpad.ac.id/index.php/jkp

E-ISSN: 2442-7276
P-ISSN: 2338-5324

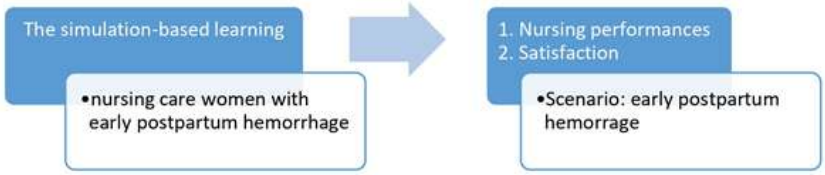

Figure 1. Conseptual Framework

after PPH that impact on increase rate of low self-esteem in women. The World Health Organization (WHO) recommendations have supported a critical intervention for PPH prevention as Active Management of Third Stage of Labour (AMTSL). It is consisted of three steps: administration of uterotonic, preferably oxytocin, immediately after delivery the baby; controlled cord traction (CCT) to delivery the placenta; and massage of uterine fundus after delivered placenta. This intervention has strongly evidenced to prevent and reduce rate of PPH (WHO, 2012). Nurse is a key person for assessment the risk factors, prevention, and management PPH (Sansiriphun & Baosoung, 2017).

The learning and teaching process in nursing aim to improve competencies of nursing care and clinical decision making that is a potential outcome-based and learning achievement in nursing education (Glynn, 2012). Simulation based learning is learning method and strategy to develop knowledge, attitude, and practical skills that facilitates the effective learning in realistic case-based scenarios as computer games, role-play situations, and SimMom in simulation laboratory. This strategy has supported to develop core competencies as follows: problems solving, managing common conditions and clinical care, accessing and using information for making decision, self-regulation and evaluation, caring and confident approach. The components of simulation-based learning design are devided in six steps: 1) problem identification and general needs assessment; 2) targeted needs assessment; 3) goals and measurable objectives; 4) educational strategies; 5) Implementation; and 6) Evaluation and feedback. This simulation-based learning impacts directly on learner performances following the circle of learning as knowledge acquisition, skills proficiency, decision making, simulation in teams, and clinical experiences respectively. It also indirect impacts on time, flexibility, confidence, and safety of patients in the real-life situations (Kanhadilok & Punsumreung, 2016). The study showed that the learning achievement of the simulation-based scenarios were significant related with higher competencies of communication, simulation in teams, management in critical care, analytical thinking, leadership, and rational nursing care complexity in nursing students (Lewis, Strachan, & Smith, 2012) especially in the COVID 19 pandemic.

Therefore, the aim of this study was to examine the effect on using simulated scenario on nursing performance of early postpartum hemorrhage and satisfaction of nursing students that improve the core competencies and performances of nursing students for management women with early postpartum hemorrhage as knowledge, potential clinical care skills, attitude, and implementing the real situations.

Conceptual of framework

In this study, the simulation-based learning was designed for nursing care women with early postpartum hemorrhage to enhance and integrate knowledge and practical skills in real-life situations including improving attitude and core nursing competencies and performances.

Research Hypothesis

1. Performances of nursing students for early postpartum hemorrhage after the simulation-based learning: stimulated scenario in simulation laboratory have significantly higher than before the intervention.
2. The simulation-based learning enhances the satisfaction of nursing students.

Methods

The quasi-experimental design was used based on the one group pre-test and post-test on the nursing performances of the nursing students. This study was conducted at the Faculty of Nursing, Naresuan University, Thailand over three months during the period of December 1, 2019 to January 31, 2020, Academic Year 2019. Ethical approval for the study was obtained from the Naresuan University Institutional Review Board (COA no 509/2019), Naresuan University, Thailand, dated on September 24, 2019. The decision to participate was made by individual students independently and without pressure. Nursing students could withdraw any time without giving any reason and their withdrawal from the research did not affect the learning and teaching process. All data in this study were identified by individual codes, except for copies of the consent form which contained the names and contact details of all participants. No data could be accessed by anyone other than the researcher, co-researcher and consultant. The data were presented and reported without personal identification. During data collection and analysis, the researcher used a computer with strong password protection. All files and documents were kept securely in the locked storage at Naresuan University, Thailand. Personal information will be kept for one year after the end of the study. All of process of this study processed following the protocol of the Naresuan University Institutional Review Board.

Table 1. The learning outcomes of the participants (n = 30)

Performance test	M	SD	t	df	p	d
Pre-test	19.60	1.658				
			12.428	29	0.000	4.67
Post-test	24.27	2.020				

Table 2: The satisfaction on the simulation program: nursing care women with early PPH

Items (n = 30)	Mean	SD	Level
The learning satisfaction (Overview)	4.26	0.54	High
(1) The orientation of the simulation program is clear and easy to understand	4.22	0.54	High
(2) The hirachy of learning activity are appropriate	3.94	0.57	High
(3) Appropriate time for learning activity	3.85	0.62	High
(4) Learners participate in the learning process	4.67	0.56	Highest
(5) Learners engage in the learning activities	4.58	0.51	Highest
(6) Give an opportunity to express learner's opinions and collaborate with team	4.12	0.48	High
(7) Support learner as an active learning	4.02	0.50	High
(8) Enhance knowledge and practical skills	4.08	0.63	High
(9) Appropriate and modern materials for simulation-based learning	4.55	0.49	Highest
(10) Positive larning environment	4.52	0.48	Highest

Thirty nursing students were selected by purposive sampling from 113 nursing students of the fourth year, Faculty of Nursing, Naresuan University, Thailand. Browne (1995) suggests that the sample size for the quasi-experimental design should be at least thirty subjects. It will be normal distributed. An estimate of the population standard deviation sufficient to achieve in the trials (Browne, 1995; Lancaster, Dodd, & Williamson, 2004). The participants were screened through inclusion and exclusion criteria. Inclusion criteria are student who express willingness to participate in the study. Grade point average (GPA) is considered, which determined to academic and performance skills. Students who had 1) excellent in academic (GPA 3.50-4.00), 2) good (GPA 2.50-3.49), and 3) satisfactory (GPA 2.00-2.49) were included in this study over ten students/group. Students who had got GPA <2.00 were excluded.

The simulation program: stimulated scenario about early postpartum hemorrhage was designed and developed by the researcher team. The scenario was conducted based on the content of nursing care during delivery and women with early postpartum hemorrhage; interactive learning; and simulation program development between behaviors, environment, and personal factors as follows: 1) a specific objective, 2) level of fidelity, 3) problem solving, 4) student support, and 5) reflective thinking (Rothgeb, 2008; Dleikan, Lakissian, Hani, & Sharar-Chami, 2020). The content of early postpartum hemorrhage scenario consists of the definition, etiology, risk factors, signa and symptoms, treatment, holistic nursing care, and continuous care. The contents were designed based on the evidences of nursing care of women with early postpartum hemorrhage (Who, 2012; Suprasert, Cheewakriangkrai, Tongprasert & Pansri, 2015; Sansiriphun & Baosoung, 2017; Murray & McKinny, 2019). The scenario was accuracy checked and tested by the three consultants, who is an expert in maternal and newborn nursing and midwifery.

The performance test, which consisted of communication, teams, management in critical care, analytical thinking, leadership, and rational nursing care complexity as knowledge, attitude, practical skills in nursing care of women with early postpartum hemorrhage, was conducted by the reascher team as a modified essay questions following the scenario with consists of fifteen items as a score from zero to two score: 0 was mean totally wrong, 1 was mean partially wrong and partially right, and 2 was mean totally right. The satisfaction questionnaire was designed by the reascher team for ten items as a rating scale from zero to five score: 0 was mean I really disagree with this item and 5 was mean I really agree with this item. All the questionnaires were tested the reliability with the thirty nursing students through a Kuder-Richardson (KR-20) at 0.88 and 0.91 respectively. The content validity was proved through the three experts based on the index of concurrence (IOC) at 0.8-1.0 and 0.7-1.0 respectively.

The data were collected from the thirty nursing students at the Faculty of Nursing, Naresuan University, Thailand through the questionnaires

which consists of the performance test and satisfaction of the simulation-based learning. Baseline measures through performane test was collected before starting the simulated scenario as a pre-test over thirty minutes. The learning outcomes data through the performance test around thirty minutes and satisfaction around fifteen minutes after the completion of the simulated scenario. The simulation program was proceeded as follows: 1) spilt students into six groups, five students in each group, 2) pre-brief about scenario around fifteen minutes, 3) role-play with SimMom in the simulation laboratory around thirty minutes, 4) debrief with the team around fifteen minutes, and 5) reflective feedback around fifteen minutes.

The data were analysed by using SPSS for Windows version 24.0 (IBM Corp, 2016). A two-tailed statistical evaluation of the study was performed with an alpha of 0.05 as the cut off for significance (Eldridge et al., 2016). The data were reported as the descriptive: numbers, percentages, frequency, mean and standard deviation. The paired t-test was used to compare the outcome between pre-test and post-test. The assumptions were checked normally as a distributed continuous variable by the researher (Field, 2015).

Results

The samples, thirty nursing students of the fourth years from the Faculty of Nursing, Naresuan University, Thailand, were invited to participate in this study. A total of thirty nursing students were participated in this simulation program and completion the questionnaires (100%). The sample was aged between 22 and 24 years. The mean (M) sample age was 22.40 years with standard deviation (SD) of 1.22 years. The performance in nursing care of women with early postpartum hemorrhage after study were higher than the before study significantly ($p = 0.000$). The sample demonstrated improvement across all performance test after the completion of the simulated scenario in term of knowledge, attitude, practical skills in nursing care of women with early postpartum hemorrhage which had an average score 19.60 and 24.27 scores respectively (Table 1).

The sample showed their satisfaction about experiences of the simulation program: nursing care of women with early postpartum hemorrhage scenario was high level (Table 2). The highest four items were illustrated as learners participate in the learning process, learners engage in the learning activities, and appropriate, modern materials for simulation-based learning, and positive learning environment.

In addition, the samples expressed their experiences that help to gain their knowledge, practical skills, and self-confidence in nursing care for women with early postpartum hemorrhage. They indicated that they enhance the skills in assessment, psychomotor activity, critical thinking, problem solving, decision making, collaboration with their teams when they engaged in this study through participation, observation, debriefing, and reflection. They also indicated they feel safe to learn and practice with nursing care scenario before practice in the real situation.

Discussion

This study demonstrated the simulation-based learning through the simulated scenario supported the learner to get higher score on the performance in nursing care women with early postpartum hemorrhage as the learning achievement. The performance of the participants after study the simulation program were significantly higher than before the study. The samples indicated their learning improvement as knowledge, attitude, practical skills in nursing care of women with early postpartum hemorrhage including the skills in assessment, psychomotor activity, critical thinking, problem solving, decision making, collaboration team, and self-confidence. The findings were consistent related with the studies on the learning achievement through the simulation-based learning. These studies were found the learners enhance their understanding, knowledge, skills, and self-practice in their issues in the simulation laboratory. It also gained their knowledge, practical skills, performances, and applying in the real situation. It is very useful to improve attitude, knowledge, capability, competencies, and practical skills in nursig care. Several studies illustrated the success rate of learning performances on the simulated scenario was associated with the high level of self-confidence, that related with high self-efficacy in term of knowledge and practical skills in nursing care including the critical thinking, problem solving, and decision making. The benefits of simulated based learing supported the learners to increase collaboration with orthers, positive observation, debriefing, and self-reflective thinking (Rothgeb, 2008; Khemmani, 2014; Dleikan, Lakissian, Hani, & Sharar-Chami, 2020).

The findings were consistent related with the study of Sinthuchai and Ubolwan (2017) that studied the effect of simulation-based learning on knowledge, satisfaction, and self-confidence of nursing students in the fourth year. The study found that after the intervention, the students get higher score of knowledge and self-confidence including the satisfaction than before of the study significantly (Sinthuchai & Ubolwan, 2017). This finding supported the benefits of the simulation-based learning through the simulated scenario in the simulation laboratory for nursing students. It showed that gained their knowledge and self-confidence in realistic case-based scenario before practice in the real situation and working in the future.

The simulation-based learning through the nursing care scenario as virtual reality processed in three stages as follows: 1) pre-brief phase that

preparing the students for make an understanding the process of the realistic case-based learning, simulation model, materials, and simulated scenario; 2) simulated clinical experience (SCE) phase that phase of practice in the virtual reality following the simulated scenario. This phase focuses to develop the knowledge, critical thinking, decision making, and team working of the students. The instructors take role as a facilitator in term of academic assessment, observation, and feedback to the students.; and 3) debriefing phase that is the most important in the simulation-based learning. This stage supports the learner to improve their knowledge, attitude, and nursing skills through slef-reflection and self-evaluation. All of the processes facilitate the learner to develop their knowledge and practical skills for integration nursing care in the real situation (Mahaprom, Chatrung, Noparoojjinda, Peawnalaw, & Doungkeaw, 2019).

The participants expressed their high satisfaction of the simulation program in term of learners participate in the learning process, learners engage in the learning activities, and appropriate, modern materials for simulation-based learning, and positive learning environment. It might be useful for nursing care at the real situation and work in the future. The participants also showed their experiences that they enhance the skills in assessment, psychomotor activity, critical thinking, problem solving, decision making, collaboration with team, and team communication. The simulation-based learning can be accessed anytime based on individual schedules and requirement until they gained their self-confidence and self-reflection in the simulation laboratory as the safety environment before nursing care practice in the real situation (Khammani, 2014; Sinthuchai & Ubolwan, 2017; Dleikan, Lakissian, Hani, & Sharar-Chami, 2020). It will be useful for them to get better understanding their SWOT: Strengths, Weaknesses, Opportunities, and Threats. This is an advantage to improve their nursing care skills and relevant skills in healthcare.

The small sample size and characteristics of nursing students who participated in this study has limited the generalisability of the study findings. The limitation of this study should be considered. Most of the students represented a highest level of nursing education in bachelor's degree that may have limited to represent of the entire population. The sample in this study was the fourth year of nursing students that studies the nursing theories, nursing process, nursing care, and clinical practice in the hospital and communities for maternal and newborn and midwifery both low risk, high risk, and complications during pregnancy, delivery, and postpartum period, which support the sample to gain better their understanding with the patients and their families than lower year of nursing students. Therefore, in the future, this simulation program will be tested the effectiveness and learning achievement in other groups of healthcare students. It also helpful for a nursing instructor to plan the research and development the simulation-based learning for integration within the theoretical and practical section in nursing education and after graduation that help to improve the learner's knowledge, attitude, practical skills, core nursing competencies and self-practice (Rothgeb, 2008; Khammani, 2014; Dleikan, Lakissian, Hani, & Sharar-Chami, 2020). This study will be use as a good strategy and evidence to develop the simulation-based learning for attachment and engagement the learners. In addition, the simulation program should be concerened the learner's readiness, time, the number of members in a team, and attachtive simulated scenario. It will increase the learning achievement of the nursing students that improve quality of care and safe in the healthcare system.

Conclusion

The study indicated the simulation-based learning that enhances the core competencies and performances of nursing students for management women with early postpartum hemorrhage as knowledge, potential clinical care skills, and attitude inclusing increasing self-confidence, critical thinking, problem solving, decision making, and collaboration with team and others. It will be useful to implement for nursing care women regarding early postpartum hemorrhage in the real situations and significantly improve the effective learning achievement.

Conflict of interest

This research was fund from Faculty of Nursing, Naresuan University, Thailand. The funder has no role in the study design, collection, management, analysis or interpretation of data or writing of this report.

Acknowledgement

The authors would like to thank Associate Professor Chommanard Wannapornsiri, Dean of faculty of Nursing, Naresuan University, Thailand for her kind support and valuable suggestion. This study was fund from Faculty of Nursing, Naresuan University, Thailand. We thank our research team for their kind supports and collaboration and we also thank the subjects for their participation in this study.
d/or publication of this article.

References

Browne, R.H. (1995). On the use of a pilot sample for sample size determination. *Statistics in Medicine, 14*(19), 33-40. https://doi.org/10.1002/sim.4780141709

Dleikan, C., Lakissian, L., Hani, S., & Sharar-Chami, R. (2020). Designing a simulation center: an experimental guide designing a simulation center. *Journal of Facilities Management, 18*(5). https://doi.org/10.1108/JFM-02-2020-0011

Eldridge, S.M., Lancaster, G.A., Campbell, M.J.,

Thabane, L., Hopewell, S., Coleman, C.L, et al. (2016). Defining feasibility and pilot studies in preparation for randomised controlled trials: Development of a conceptual framework. *PloS ONE, 11*(3), e0150205. https://doi.org/10.1371/journal.pone.0150205

Field, A. (2015). *Discovering statistics using IBM SPSS statistics IBM book*. SAGE Publications.

Glynn, D. M. (2012). Clinical judgment development using structured classroom reflective practice: A qualitative study. *Journal of Nursing Education, 51*(3),134–139. https://doi.org/10.3928/01484834-20120127-06

Kanhadilok, S., & Punsumreung, T. (2016). Simulation based learning: Design for nursing education. *Journal of Nursing and Education, 9*(1). [In Thai].

Khammani, T. (2014). Teaching science: Knowledge for effective learning process. (21st ed.). Bangkok: Chulalongkorn University Press. [In Thai].

Lancaster, G.A., Dodd, S., Williamson, P.R. (2004). Design and analysis of pilot studies: recommendations for good practice. *Journal of Evaluation in Clinical Practice.10*(2), 307–312. https://doi.org/10.1111/j..2002.384.doc.x

Lewis, R., Strachan, A., & Smith, M. M. (2012). Is high fidelity simulation the most effective method for the development of non-technical skills in nursing? A review of the current evidence. *The Open Nursing Journal, 6*(1), 82–89. https://doi.org/10.2174/1874434601206010082

Mahaprom, T., Chatrung, C., Noparoojjinda, S., Peawnalaw, S., & Doungkeaw, J. (2019). Development of an instructional model based-on simulation-based learning in nursing care of persons with health problems. *Multidisciplinary Journal for Health, 1*(2), 47-61. [In Thai].

Murray, S. S., & McKinny, E. S. (2019). *Foundations of maternal-newborn and women's health nursing (7th edition)*. Saunders Elsevier.

Rothgeb, M.K. (2008). Creating a nursing simulation laboratory: a literature review. *Journal of Nursing Education, 47*(11), 489-494. https://doi.org/10.3928/01484834-20081101-06

Sansiriphun, N., & Baosoung, C. (2017). *Nursing and midwifery: women with complications*. Chiang Mai: Faculty of Medicine Chiang Mai University. [In Thai].

Sinthuchai, S., & Ubolwan, K. (2017). Fidelity simulation-based learning: Implementation to learning and teaching management. *Journal of The Royal Thai Army Nurses, 18*(1). [In Thai].

Suprasert, P., Cheewakriangkrai, C., Tongprasert, F., & Pansri, T. (2015). *Chiang Mai textbook of ob&gyn: Advanced update*. Chiang Mai: Faculty of Medicine Chiang Mai University.

World Health Organization (WHO). (2012). WHO recommendations for the prevention and treatment of postpartum haemorrhage. Geneva: WHO. Retrieved January 20, 2016, from http://www.who.int/iris/bitstream/10665/75411/1/9789241548502_eng.pdf

The Experience of Health Care Workers Infected by Corona Virus Diseases-19

Siti Rochanah[1], Irma Nurbaeti[2*]

[1]Jakarta Islam Hospital, Jakarta, Indonesia
[2]Faculty of Health Sciences, Universitas Islam Negeri Syarif Hidayatullah Jakarta, Tangerang, Indonesia

Abstract

Background: The number of health workers on the front lines have been affected by COVID-19 and some of them have been infected by COVID-19 since the outbreak of COVID-19. Understanding healthcare workers experience is important to get their meaning and expression.
Purpose: The purpose of this study is to explore the experiences of healthcare workers infected by COVID-19.
Methods: Qualitative phenomenological approach is carried out in this study with phenomenological analysis for data interpretation. Data collection was carried out by in-depth interviews with 12 health workers who were infected by COVID-19 both during treatment and after being treated at a non-government hospital in Jakarta, Indonesia.
Results: We found five themes followed by fourteen subthemes. The themes were (1) The meaning of COVID-19 for her/himself, (2) The first feelings of being infected by COVID-19, (3) Experience of Clinical symptoms, (4) Experience of psychological and social disorders, (5) Experience in accessing health services.
Conclusion: Health workers infected by COVID-19 have had several positive and negative experiences. This research can provide an in-depth understanding of the lives of health workers infected by COVID-19. Proper planning and support is important to reduce health worker problems both physically and psychologically.

Keywords: covid-19; experience; healthcare workers; phenomenological research.

Introduction

Corona Virus Disease 2019 (COVID-19) is the latest infectious disease that has never been identified in humans before. It has been declared by the World Health Organization (WHO) as a pandemic in March 2020 (WHO, 2020). Previously, the disease was referred to as the '2019 novel coronavirus' or '2019-nCoV.' (WHO, 2020). Indonesia announced the COVID-19 outbreak in the first week of March 2020 (Ibrahim et al, 2020). The spread and increase in the number of cases took place quite rapidly throughout the world in a short time, including Indonesia. This is because initially, the COVID-19 outbreak was reported as limited person-to-person transmission and the contaminated source of infected or sick wild animals in wet markets probably originated in Wuhan, China. But emerging evidence with clusters of outbreaks among families confirms the possibility of person-to-person transmission. However, health workers as the front line have a high risk of being exposed to people infected with COVID-19 (Wu, Chen, & Chan, 2019).

The Ministry of Health reported a daily increase in positive confirmed cases of COVID-19 with a Case Fatality Rate of 3.03% and a positive 18.1% (Ministry of Health of the Republic of Indonesia, 2020). The spread of COVID-19 causes an increase in morbidity and mortality. Therefore, the number of hospitalized patients suffering from COVID-19 has greatly increased. The rapid spread of the disease in early 2020 caught many

Jurnal Keperawatan Padjadjaran (JKP)

Volume 9(3), 181-189

http://dx.doi.org/10.24198/jkp.v9i3.1664

Article Info

Received : June 02, 2021
Revised : October 31, 2021
Accepted : October 15, 2021
Published : December 08, 2021

Corresponding author

Irma Nurbaeti
Faculty of Health Sciences, Universitas Islam Negeri Syarif Hidayatullah Jakarta, Tangerang, Indonesia 15412,
Phone: 021 7401925, E-mail: irma.nurbaeti@uinjkt.ac.id

Citation

Rochanah, S., & Nurbaeti, I. (2021). The Experience of Healthcare Workers Infected by Corona Virus Diseases-19 . *Jurnal Keperawatan Padjadjaran, 9*(3), 181-189.
https://doi.org/10.24198/jkp.v9i3.1664

Website

http://jkp.fkep.unpad.ac.id/index.php/jkp

E-ISSN: 2442-7276
P-ISSN: 2338-5324

health care systems off guard and rushed to provide intensive care unit beds, ventilators and personal protective equipment (PPE) for healthcare workers and patients.

The coronavirus disease 2019 (COVID-19) is spreading rapidly, bringing stress and challenges to healthcare workers who interact directly with patients in the workplace. With the pandemic, healthcare workers have faced a storm of conditions that threaten their health, well-being, and ability to do their jobs (Neto et al., 2020). The sudden spike in the COVID-19 pandemic as a new highly contagious case has made health services unprepared. Personal Protective Equipment is incomplete, health workers are not skilled and there is not enough training time to provide knowledge and skills in treating patients. Health workers put the risk of transmitting the virus. Transmission of COVID-19 to health workers is through nosocomial infection from closed direct contact and/or droplets (Wahyuningsih et al., 2020). According to WHO, more than 10% of healthcare workers are disproportionately affected by COVID-19.

Several studies have examined the condition of health workers related to their duties in dealing with COVID-19. For example, several researchers studied the psychological impact on health workers (Janitra et al., 2021; Torales et al., 2020; Widjadja et al., 2020). Another study shows that health workers are against stigma (Abudi et al., 2020). Challenges that health workers face in responding to COVID-19 include fatigue from prolonged use of personal protective equipment and heavy workloads, as well as fear of infection and transmission to others, while social support and self-management strategies help health workers cope with stress (Liu, 2020). High risk pressure and exposure to COVID-19 on health workers has caused many health workers to be infected with COVID-19.

This condition causes physical, psychological, social and religious impacts for health workers when they become patients infected with Covid 19. What they are experiencing can have an impact on fellow health workers who treat Covid patients, can cause or increase feelings of fear that can interfere with their role in providing health services, even though at the same time their role is very much needed in situations of a pandemic spike.

Several previous studies conducted qualitative research on the experience of being infected with COVID-19 in Indonesia. Aungsuroch studied the experience of corona virus sufferers in the pandemic era in Indonesia with the subject as a general patient, not a health worker as a patient (Aungsuroch, Juanamasta, Gunawan, 2020.) Another study on the stigma against health workers related to their work in treating COVID-19 patients (Abudi et al., 2020). However, research is limited to the experiences of health workers infected with COVID-19 in Indonesia. The COVID-19 pandemic is a new, highly contagious outbreak, not much is known and it is important to address it immediately. However, the need for information about the experiences of health workers infected with COVID-19 is important. In addition, the important role of these health workers is to immediately return to work as the front line in overcoming the surge in the COVID-19 pandemic.

The voice of health workers is important to be heard. An in-depth understanding of the lives of health workers infected with COVID-19 is required, especially to gain new knowledge and sensitivity in providing holistic prevention, care and health services. Therefore, the purpose of our research is to explore in depth the life experiences of health workers who have been infected with COVID-19.

Methods

A qualitative method with an interpretive phenomenological approach is used in this study. This study was conducted at a hospital in Jakarta, Indonesia during June to July 2020. Twelve participants who were confirmed positive for COVID-19 involved in this study were selected using a purposive sampling technique. Data saturation was achieved in the eleventh participant. Inclusion criteria: health workers diagnosed with COVID-19, willing to participate as participants and able to share their experiences well/cooperatively.

The data collection process includes 2 stages: the first stage is research procedures related to obtaining research administration permits including research permits to hospitals and ethical approvals. Ethical approval was obtained from hospital number 015/V/2020/KE. The second stage is the data collection strategy. After obtaining ethical approval from the ethics committee and a research permit from the hospital, the process of selecting participants was carried out. The researchers were assisted by the team of the Hospital Risk Management Quality Committee to select the initial participants.

Participants are hospitalized or have completed hospitalization or self-isolation within 14-55 days. All of the participants had experienced mild, moderate and severe stress as indicated by complaints of stress during the interview. However, these participants can still receive direction from other parties, both from management, the health team and other family members.

Collecting data

Data were collected using in-depth interview techniques. Each participant was interviewed in depth for approximately 60-90 minutes according to their condition and gradually. In-depth interviews were conducted using an interview guide. Open-ended follow-up questions were used to obtain detailed descriptions, and examples were:“what is the meaning of COVID-19 to you?”; “how did you feel on the first day of being confirmed by COVID-19”; “how are you feeling now”; “what challenges did you encounter”; “how did you respond”; “what external support have you received”; and “what is

the plan after recovering from COVID-19?" Probing questions, such as "Please tell me more about that", were used to enhance the depth of discussion.

Observations were made on some of the participants who had finished treatment by observing the participants' expressions such as facial expressions, body language and various reactions of participants when speaking related to the participant's statements given and the environmental situation during the in-depth interview process. Researchers as the main research instrument are also assisted by other data collection instruments, namely in-depth interview guidelines, field notes and cellphones as voice recording devices or as chat interviews.

Data Analysis

Haase's adaptation of the Colaizzi method was used to analyze the transcripts. The analysis included reading the transcript several times to gain an understanding of meanings conveyed, identifying significant phrases and restating them in general terms, formulating meanings and validating meanings through research team dis- cussions to reach consensus, identifying and organising themes into clusters and categories, and developing a full description of themes.

Several strategies were used to ensure trustworthiness and credibility. Credibility was achieved by in-depth interviews followed by peer debriefing. Two co-authors analysed the transcripts independently by bracketing data on preconceived ideas and strictly following the adapted Colaizzi's method described above. Findings were then compared and discussed by the team until consensus was achieved on themes, theme clusters, and categories. Transferability was established by considering variations of participant characteristics and sufficient quotations collected through in-depth interviews. The audit trail was maintained to ensure all analysis steps could be traced back to original interviews.

Results

Overview of the participants:

A total of twelve health workers participated in this study. They consisted of two males and ten females. Health workers consisted of one radiologist, one general practitioner, five nurses and five midwives. Their ages varied from 23 years old to 48 years old. All participants were permanent employees of a type B hospital in Jakarta. Two participants were unmarried, the others were married and had children and spouses. Only one participant has a bachelor's level of education, namely a doctor and eleven others with a three-diploma education. Regarding the health status of the participants, one person with comorbid hypertension was regularly controlled for treatment and consumption of antihypertensive drugs. The other eleven participants had no comorbidities. The length of time participants experienced COVID-19 was between 14 days to 55 days.

This research raised five themes as follows 1) The meaning of COVID -19; 2) The feeling of being infected by the COVID-19 for the first time; 3) Clinical symptoms established; 4) Psychological and social status; and 5) Access to health services.

Theme 1: The meaning of COVID -19

The meaning of COVID-19 as an infectious disease was perceived by all informants. Based on literature, COVID-19 is an infectious disease caused by a new type of Coronavirus. In the early spreading of COVID-19, there was limited information and knowledge about COVID-19. All participants said that COVID-19 was an infectious disease that spread quickly and mentally impacted to infected people. All participants said that COVID-19 was a contagious disease caused by a new virus but there was a little information in early 2020. All participants had knowledge about virus from television or social media. The virus was related to immune system as they said that it was transmitting quickly but not a killer disease as long as the host had a good immune system.

COVID-19 emerged and existed out there. Meanwhile, for victims it tended to cause mental and psychological impact.

" ….. believe there is an outbreak of the COVID-19 disease that really exists". (P2)

Also, four informants said that COVID-19 was a pandemic disease that had a more psychological or mental impact than physical, while vaccine in the first outbreak was not found yet, resulting in uncertain condition of thought.

" …. COVID-19 is just like the influenza virus, transmitting quickly but not deadly, as long as the immune system is fine…"(P1)

" …. pandemic disease that has a more psychological impact…."(P4)

" ……virus outbreak attacking the immune system and there is no vaccine yet …" (P10)

and four participants said that COVID-19 can cause death or not depending on immunity.

" …. infectious disease that can be deadly or just a common disease". (P12)

Theme 2: The feeling of being infected by the COVID-19 for the first time

The findings show that when participants were first confirmed with COVID-19, they felt shock, sadness, and uncertainty.

1. Shock

Nine participants were shocked when they first obtained the reactive rapid test or antigen swab, even though reactive and antigen swab were not an exact diagnosis. This feeling occurred because the majority of participants felt healthy when being tested. They had no severe symptoms and complaint so they imagined the results of either the rapid test or antigen swab was non-reactive. Four of

the participants had mild symptoms such as unusual cough and flu. They felt shocked and not ready to be diagnosed with COVID-19, also felt guilty to go back home. Some of participants' expressions were:

" …. shocked because (I) rarely get near to the patient, how come you can get it" (P5)

" … shocked, I have no energy to walk to home". "… shock, until tears" (P3)

"Shocked, can't believe it, maybe wrong laboratory results because there are no symptoms" (P6)

2. Sadness

All participants felt sad when they knew they were infected with COVID-19. Their sadness was caused by some factors, such as feeling unwell, being far away from their family, and particularly because it was in fasting month and they were worried about their child. The sadness was expressed by crying. It was expressed:

"I was sad, feeling unwell," (P1)

"…. very sad, trembling". "Sad, leaving my child, because I was never far from my child, especially during the fasting month". "…Sad, it can hurt a long time". "… very sad, until crying" (P3)

3. Uncertainty

The result found that three of twelve participants felt a sense of uncertainty the first time. Being infected with Covid-19, knowing the positive result of the rapid test or swab, this uncertain feeling is caused because some of them are without symptoms or with mild symptoms. At that time, vaccine for COVID-19 was not established yet. These were participants' expressions:

" ….. mixed feelings, uncertain thoughts".

"…Confused, like mixed vegetables (in Bahasa Indonesia: gado-gado)"(P1)

" …Confused and confused". "…. Feeling drop, crying and feeling mixed"(P3)

Theme 3: Clinical symptoms established

COVID-19 infection causes mild to severe symptoms, such as fever, runny nose, cough, shortness of breath, and anosmia as specific signs. And sometimes infected people have no symptoms.

1. Physical symptom

Nine participants experienced physical symptoms of COVID-19 like the influenza virus: fever, cough, flu, dizziness and fatigue. Three of the participants had experienced a fever during their illness, as follows:

"…. I had fever and chills." (P8)

"…fever fluctuates in ten days". (P7)

Four participants experienced physical symptoms of coughing as follows:

"…Coughing for a long time, almost two months". (P7)

"…Cough also sputum". (P5)

Three of the participants felt flu, along with the expression:

"…. flu for many days and can't smell anything". (P4)

"…Not really ordinary flu, only at any time". "… runny nose"(P7)

One participant felt shortness of breath

"My condition was getting worse, I felt short of breath, I used an oxygen and bedrest" (P12)

While three participants felt both dizziness and headache because of the symptoms of the disease as well as the effects of the drug, as follows:

"…Headache and nausea" (P9)

"…Dizziness, heavy headache when taking Chloroquine (medicine)" (P5)

Another physical symptom was fatigue. One participant experienced physical fatigue and felt no energy. Following was one of the participants' expressions:

"The body feels tired, weak and ache" (P7)

2. Having no symptoms

COVID-19 does not always cause symptoms. Three participants had not complaint about physical symptoms.

"…. absolutely no complaints". (P2)

"….no complaints, I even have asthma". (P1)

Theme 4: Psychological and social status

Being infected by COVID-19 generated psychological and social disturbances. Participants felt psychological and social impact as follows: stress, shame, annoyance and resignation. Fortunately, as health workers, they had a positive coping, self-confident of being recover soon and ready to work again.

1.Stress

All participants experienced stress during illness from a mild, moderate or severe level related to physical complaints, examination results, length of recovery, side effects of therapy, information on the death of health workers due to COVID-19, being afraid of death threats and public views. We got their concerns:

*" …at first I didn't get stressed, but when I took the medicine there was an effect of nausea and my body wasn't feeling well, so it made me stressed"(*P8)

"…stressed, afraid to die because shortness of breath" (P12)

"…increasing of feeling down while hearing the medical personnel dropping" (P7)

One participant felt stressed because of feeling guilty about another people's view.

"…Stressed because of people's views" (P1)

2.Shame

Four participants said shame was related to the social impact of their illness, as follows:

"Shame, not confident to leave the house, because I see it.".(P3)

"Shame, because people's views seem embarrassing" (P1)

"Shame, like being hit by the plague, because

*the neighbors avoided"(*P6)

Feelings of shame will be reduced because participants were able to adapt to conditions along with the length of illness and because there was a lot of support from friends and family and neighbors. The following expressions of two participants were:

"…I used to be embarrassed ... not anymore". (P1)

"…In fact, now my neighbors are asking many questions"(P8)

3.Exasperated

Four participants felt annoyed, this happened because they felt they had tried to comply with the COVID-19 prevention protocol, but they still caught it. They felt that they adhered to the protocol and therapy but the swab results were still positive many times. Other things that annoyed them were the length of isolation and the length of the examination results.

"I was really annoyed to the patient who transmitted it, I grumbled to myself"(P7)

"Initially I was annoyed, it took a long time to get a negative result, again positive, eagerly waiting for the result"(P1)

"Annoyed, tired of the isolation over time"(P7)

4. Feeling of giving up

The emotional state caused by the Covid-19 disease made participants sad, embarrassed and annoyed. In the condition of the disease that did not result in a negative swab, eventually all the participants gave up. This was stated by all participants.

"Finally I surrendered, just surrendering to Allah's destiny". (P12)

"Had time to ask in vain, why Allah, why? Finally thought all was a test and really surrendered myself" (P9)

"This is a warning from Allah, in the past life was happy and happy, now there are favors that are revoked, resigned" (P1)

5.Self-confident

All participants felt confident to recover from COVID-19. Some of them experienced mild symptoms and some had no symptoms at all. One participant who had moderate symptoms, felt confident too when he got better. They get confident for recovering from illness.

*"…Sure can be cured, many peoples were healed"(*P8)

" …already no complaints, sure to recover"(P2)

"I was afraid to die when I had breathing difficulty, but slowly it got better and I started to believe myself to be healed" (P12)

6.Positive coping

All participants had positive coping, by increasing immunity, while some others get positive coping by religious practice, such as reciting Koran, prayer, dhikr and dhua'.

"…Keep the immune, think positively" (P10)

"Praying, reading the Koran and its meaning, it's already read juz 20" (P1)

"I think positively after all treatment" (P12)

7. Ready to work

All participants as health workers felt ready to work again after recovering, following their expressions:

"…Ready to get back to the hospital, even though there is a worry of getting re-infected"(P12)

"….ready to work, I even want to work in the COVID' room, so I can share and give motivation to patients".(P8)

".. After recovering, if God willing, I will work again" (P1)

Theme 5: Access to health services.

It was easy for all participants to be admitted to the hospital. They experience easy access to health services and strong support.

1. Satisfactory health services

All participants felt satisfied with service while hospitalized. They get a good health care.

"…All praise be to Allah, be served well"(P1)

"…The service is good, but if you get chloroquine, it is safer if there are officers watching it because there are side effects of the medicine, measured vital sign and apply ECG. (P5)

"…The service is good, especially if there is an evaluation after returning home"(P8)

2. Getting strong support

All participants felt a lot of support from family, friends and management team since they started isolation, treatment and when they went back to work. Here was their expression:

*"…My husband goes to hospital almost every night, even though it is far away" (*P3)

*"…My children pray, Mama don't die"(*P6)

"a lot of support including management" (P12)

Discussion

The purpose of this study was to explore more deeply about the life experiences of health workers who have been infected with COVID-19 while living their daily lives with the disease. We identified five themes in this study, which can be also considered as the stage of the process of those with COVID-19 from the first response until acceptance and readiness to work again.

The meaning of COVID -19 as an infectious disease that is perceived by all informants is in accordance with all literature discussing the meaning of COVID-19. COVID-19 is an infectious disease caused by a new type of Coronavirus. COVID-19 is a contagious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) (Ministry of Health the Republic of Indonesia, 2020). The understanding about COVID-19 at that time is still limited because SARS-

CoV-2 is a new type of Coronavirus that has never been identified in humans before.

The results showed that psychological responses were feelings of shock, sadness and uncertainty when participants were first diagnosed with COVID-19. All informants felt shocked according to their circumstances. Informants who actively took care of the patients with confirmed COVID-19 were a little surprised because they had a better understanding of the risk of transmission and how the transmission of COVID-19 occurred. Other informants felt that they did not have direct contact with patients who were positive or with mild symptoms. Participants understood that transmission can occur due to direct contact with people without symptoms or due to indirect contact with unknown source of transmission. This response in line with Kubler-Ross, which stated that feelings of shock is the first psychological response to unpreparedness in facing something or not accepting the reality that happened (Kubler-Ross in Potter and Perry, 2013). In general, no one is ready to get sick, including with COVID-19. The results of this study are in accordance with research by Aungsuroch et al. (2020) that even the subject of lay patients, the patients felt shocked as an initial response to diagnosis of COVID-19. There is no difference in the psychological response either as a layperson or as a health worker when diagnosed with COVID-19.

Feelings of uncertainty can occur for several reasons. First, it relates to the limited understanding of this disease. COVID-19 is a new disease and has not been recognized in routine practice by health workers. Information about this virus from January to July 2020 is still very limited because many things are being researched. Feelings of uncertainty are also related to understanding the impact of the COVID-19 disease, such as being highly contagious, can be deadly, isolation or treatment is long and there is a negative response from the community. This condition makes individuals continue to seek additional information.

Furthermore, participants also felt sadness. Feeling sad is the next stage of the grieving process, naturally occurs after someone experiences denial, in this case feeling shocked, uncertain. During this stage, the individual begins to understand certainty, because of this the individual weeps and grieves. They are scared of stigma. It happened in the early COVID-19 outbreak. Wahyuningsih et all (2020) found that nurses should have good preparation to reverse COVID-19 both physically and psychologically.

The results of the symptoms of being infected with COVID-19 are fever, cough, flu, shortness of breath, dizziness, fatigue, anosmia and even no symptoms. The results of this study are in accordance with the concept that the symptoms experienced are usually mild and appear gradually. Some infected people do not show any symptoms and still feel well. This is in accordance with research that the most common symptoms of COVID-19 are fever, fatigue, and dry cough. Some patients may experience aches and pains, nasal congestion, runny nose, shortness of breath, headache, conjunctivitis, sore throat, diarrhea, loss of smell or skin rash.

A study by Du Z et. Al. (2020) reported that 12.6% patients diagnosed COVID-19 exhibited pre-symptomatic transmission. According to data from countries affected by the pandemic, in the beginning it showed that 40% of cases would develop mild disease and 40% would develop moderate disease including pneumonia, 15% of cases would develop severe illness, and 5% of cases would develop critical condition (Susilo, 2020).

The incubation period for COVID-19 is between 3-14 days. It is characterized by leukocyte and lymphocyte levels that are normal or slightly decreased, and the patient has not felt the symptoms. Subsequently, the virus begins to spread through the bloodstream, mainly to ACE2-expressing organs and the patient begins to experience mild symptoms. In humans, SARS-CoV-2 primarily infects cells in the airways lining the alveoli. Infections of the respiratory tract can cause coughing and flushing. Fever occurs in an inflammatory process due to viral invasion. Decreased endurance and prolonged illness can cause fatigue. Four to seven days from the initial symptoms, the condition begins to worsen marked by the onset of shortness of breath, decrease and worsening of the lesions in the lungs. If this is not resolved, acute respiratory distress syndrome (ARDS), sepsis and other complications can occur. (Susilo et al, 2020).

The themes of psychological and social status were stress, shame, annoyance, resignation, positive coping, self-confidence to recover and readiness to work again. Explicitly, the participant's stress expression was found. A pandemic condition and being diagnosed with COVID-19 were events that cause of stress. This is in accordance with the statement of Asmundson et al (2020) that a life event can be a source of stress to someone if the incident requires behavioral adjustments in a very short time especially in COVID-19 pandemic. In line with that, Kaligis et all (2020) stated that pandemic COVID-19 had an impact on mental health condition in Indonesia, particularly stress.

Stress begins with anxiety that has existed since the beginning of caring for patients in a pandemic situation. This is in accordance with the results of several studies, namely research using a survey-based study of mental health from 1,257 health workers who treat COVID-19 patients in 34 hospitals in China. As a result, most of them reported 50% depressive symptoms, 45% anxiety, 34% insomnia and 71.5% psychological distress (Lai et al, 2020). Another study found during the acute SARS outbreak that 89% of health workers were at high risk of experiencing symptoms of psychological disorders, one of which was anxiety (Chua et al, 2014).

Some factors can be as a source of stress

or anxiety for health workers. The results of the study Fadli et al (2020) stated that family status, patient honesty, availability of personal protective equipment and knowledge had an effect on health workers' anxiety. Stress conditions increased due to various reasons of the participants, namely physical discomfort, side effects of therapy and information on the death of health workers. The existence of the bad stigma of COVID-19 as an infectious disease and the acceptance of negative responses from some of the people living around their homes creates feelings of shame because they feel rejected by the community. This makes some of them feel isolated even though they have been declared cured and returned home. Participants also understood that other people try to avoid contact with patients and family members. There is a negative stigma towards people infected with COVID-19, especially health workers suspected of carrying the virus. Health workers are victims of stigma (Abudi et al, 2020). Negative stigma arises because of limited public information about the COVID-19 healing process and the large number of hoaxes circulating in social media. Feelings of shame are only temporary, diminished by the large amount of support from family, community and co-workers.

Feelings of annoyance are manifestations of despair, rejection and expressions of angry feelings. Some participants felt annoyed because they felt they had tried to comply with COVID-19 prevention protocols and therapy, but they were still infected and recovered for a long time. They felt bored in treatment and isolation. The feeling of annoyance increased with the information that there were still many people who did not comply with the health protocol.

In dealing with a disease that did not immediately heal, in the end the participants felt resigned to accept the reality of their illness. Individuals have to work hard through the process until they finally reach the acceptance stage. Surrender means surrendering to Allah by making optimal treatment efforts. They are closer to God and this is the most important value in all aspects of medicine. This result was consistent with Aungsuroch's (2020) research finding. Aungsuroch found the theme of self-reflection with God in patients with COVID-19. Surrender increases the patient's self-awareness with its creator and is a source of self-strength.

Coping involves trying to manage stressful situations, expanding efforts to solve life's problems, and working to cope with and reduce stress. Success in coping is associated with a number of characteristics, including an appreciation of personal control, positive emotions, dealing with situation, and personal resources (Shanafelt, 2020). Health worker participants generally have strong personal resources. They immediately look for updated information about COVID-19, used to educate patients, get convenience in receiving education and comply with health instructions given. Positive coping that is done is to think positively, worship more, maintain personal hygiene, get plenty of rest, sunbathe, eat nutritiously and comply with health protocols (Sanafelt, 2020).

Self-confidence is a positive emotion. Self-confidence is a person's belief in all aspects of one's strengths and this belief makes him feel capable of achieving his goals in life. A person who has positive emotions can adapt well in traumatic situations (Asmundson, 2020). In this study, the strong confidence of the participants may relate to the large number of supportive resources, symptom of mild condition and the good progress of disease improvement.

The sub-theme of readiness to return to work shows a strong belief that they will recover and can work again as health workers which is their chosen profession. Readiness to work again is influenced by family support and management during illness and recovery. Working again will also eliminate boredom during treatment. The experience as a patient motivates them to recover quickly and help others through their work as health workers.

The results of research on the experience of health workers with COVID-19 in accessing health services indicate their satisfaction with health services and expectations of better services. Satisfaction with health services is reflected even though COVID-19 is a new disease, hospitals and health workers have made efforts to prepare adequate health care facilities to provide the best service in acute conditions. Participants generally have a strong assumption that good treatment will accelerate healing. They immediately search for the nearest health service to access. For health workers who are sick, of course it is easier to get health services, especially in their workplaces as well as other hospitals if a referral is needed. The strong support sub-theme was felt by the participants. As individuals and workers in stressful conditions, they really need support from other parties, especially family, colleagues, professions, management and the government.

This study provides new information about the experiences of health workers infected with COVID-19. This research helps to understand the mental processes and symptoms of pain experienced by participants. Participants without symptoms to mild symptoms of COVID-19 generally experienced more psychological than physical problems during illness. They experience stages of the grieving process mixed with other psychological problems ranging from shock responses, feelings of uncertainty, sadness, stress, shame, annoyance, resignation to acceptance and positive coping. In this study it was also found that participants did not experience feelings of uncertainty, were not irritated and did not feel ashamed. This condition is related to the speed of recovery and good acceptance in the community.

Health workers as the frontline in fighting the COVID-19 pandemic must take care of themselves. Various pressures and demands will affect their

health and morality. Psychosomatic approaches are important for maintaining the health of health workers (Fadli et al, 2020). It is very important for patients to achieve immediate recovery and assistance from all parties to overcome their physical, psychological and social burdens.

The strength of this study is that it provides new knowledge about the experience of health workers infected with COVID-19 in depth for the first time by involving 12 participants in this study. The limitations of this study are the factors that are relative to being infected with COVID-19 and the factors that support resilience from being infected with COVID-19 have not been studied.

Conclusion

The life experience of health workers infected with COVID-19 consists of five themes, namely: the meaning of COVID-19, the experience of being infected for the first time, the experience during clinical symptoms, the experience of psychological and social disorders, and the experience of accessing health services. The findings of this study can be used as a reference to improve the management and care of COVID-19 in hospitals physically, psychologically and socially. Effective management is needed to reduce physical complaints and treat the diseases. Prevention and isolation of COVID-19 is very important to reduce the risk of transmission, speed up recovery and adapt to their lives biologically, psychologically, socially and spiritually.

Acknowledgments

The authors would like to express gratitude the Director of the Hospital and all the participants who participated in this study.

References

Abudi, R., Mokodompis, Y., & Nurfadias, A. (2020). Stigma terhadap orang positif COVID-19. *Jambura Journal of Health Sciences and Research, 2*(2): 77-84. https://doi.org/10.35971/jjhsr.v2i2.6012

Asmundon, G., Paluszek, M.M, Landrya, C. A., Rachor, G. S., McKay, D., & Taylor, S. (2020). Do pre-existing anxiety-related and mood disorders differentially impact COVID-19 stress responses and coping? *Journal of Anxiety Disorders, 74*. https://doi.org/10.1016/j.janxdis.2020.102271

Aungsuroch, Y., Juanamasta, I.G., Gunawan, J. (2020). Experience of patient with coronavirus in the COVID-19 pandemic era in Indonesia. *Asian J Public Open Res, 8*, 377–392. https://doi.org/10.15206/ajpor.2020.8.3.377

Chua, S. E., Cheung, V., McAlonan, G. M., Cheung, C., Wong, J. W., Cheung, E. P., Chan, M. T., Wong, T. K., Choy, K. M., Chu, C. M., Lee, P. W., & Tsang, K. W. (2004). Stress and psychological impact on SARS patients during the outbreak. *Canadian journal of psychiatry, 49*(6), 385–390. https://doi.org/10.1177/070674370404900607

Du, Z., Xu, X., Wu, Y., Wang, L., Cowling, B. J., & Meyers, L. A. (2020). Serial interval of COVID-19 among publicly reported confirmed cases. *Emerging Infectious Diseases*, *26*(6), 1341-1343. https://doi.org/10.3201/eid2606.200357

Fadli, F., Safruddin, S., Ahmad, A.S., Sumbara, S., Baharuddin, R. (2020). Faktor yang mempengaruhi kecemasan pada tenaga kesehatan dalam upaya pencegahan COVID-19. *J Pendidik Keperawatan Indonesia, 6*(1), 57–65. https://doi.org/10.17509/jpki.v6i1.24546

Ibrahim, F., Natasha, A., Saharman, Y. R., & Sudarmono, P. (2020). Preliminary report of COVID-19 testing : experience of the clinical microbiology laboratory Universitas Indonesia , Jakarta , Indonesia. *New Microbes and New Infections, 37,* 100733. https://doi.org/10.1016/j.nmni.2020.100733

Janitra, F. E., Melastuti, E., & S, A. Y. (2021). Perceived stigma , psychological response , and nurse coping in the COVID-19 pandemic in Indonesia. *Jurnal Keperawatan Padjadjaran, 9(*1), 10-17. https://doi.org/10.24198/jkp.v9i1.1561

Kaligis, F., Indraswari, M. T., & Ismail, R. I. (2020). Stress during COVID-19 pandemic : mental health condition in Indonesia. *Medical Journal of Indonesia, 29*(4), 436–441. https://doi.org/10.13181/mji.bc.204640

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., Li, R., Tan, H., Kang, L., Yao, L., Huang, M., Wang, H., Wang, G., Liu, Z., & Hu, S. (2020). Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. *JAMA network open*, *3*(3), e203976. https://doi.org/10.1001/jamanetworkopen.2020.3976

Liu, Q., Luo, D., Haase, J. E., Guo, Q., Wang, X. Q., Liu, S., Xia, L., Liu, Z., Yang, J., & Yang, B. X. (n.d.). Articles The experiences of health-care providers during the COVID-19 crisis in China : a qualitative study. *The Lancet Global Health, 8*(6), e790–e798. https://doi.org/10.1016/S2214-109X(20)30204-7

Ministry of Health, The Republic of Indonesia (2020). COVID 19 dalam angka. Retrieved March 03, 2021, from https://www.kemkes.go.id/resources/download/info-terkini/covid%20dalam%20angka/covid-19-dalam-angka-22-agustus-2020.pdf

Neto, M. L. R., Almeida, H. G., Esmeraldo, J. D., Nobre, C. B., Pinheiro, W. R., de Oliveira, C. R. T., Sousa, I. da C., Lima, O. M. M. L., Lima, N. N. R., Moreira, M. M., Lima, C. K. T., Júnior, J. G., & da Silva, C. G. L. (2020). When health professionals look death in the eye: the

mental health of professionals who deal daily with the 2019 coronavirus outbreak. *Psychiatry Research, 288*. https://doi.org/10.1016/j.psychres.2020.112972

Nguyen, N., Le, D. D., Colebunders, R., Siewe Fodjo, J. N., Tran, T. D., & Vo, T. V. (2021). Stress and Associated Factors among Frontline Healthcare Workers in the COVID-19 Epicenter of Da Nang City, Vietnam. *International journal of environmental research and public health*, *18*(14), 7378. https://doi.org/10.3390/ijerph18147378

Shanafelt, T., Ripp, J., Sinai, M., & Trockel, M. (2020). Understanding and Addressing Sources of Anxiety Among Health Care Professionals During the COVID-19 Pandemic. *JAMA, 323*(21): 2133-2134. https://doi.org/10.1001/jama.2020.5893

Susilo, A., Rumende, C.M., Pitoyo, C., et al. (2020). Coronavirus Disease 2019: Tinjauan Literatur Terkini Coronavirus Disease 2019: Review of Current Literatures. *Jurnal Penyakit Dalam Indonesia, 7*(1): 45 - 67. http://dx.doi.org/10.7454/jpdi.v7i1.415

Torales, J., Higgins, M. O., Castaldelli-maia, J. M., & Ventriglio, A. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry, 66*(4): 317 - 320 . https://doi.org/10.1177/0020764020915212

Wahyuningsih, I. S., Janitra, F. E., Hapsari, R., Sarinti, S., Mahfud, M., & Wibisono, F. (2020). The nurses' experience during the caring of Coronavirus (COVID-19) patients: A descriptive qualitative study. *Jurnal Keperawatan Padjadjaran, 8*(3), 255–263. https://doi.org/10.24198/jkp.v8i3.1559

Widjaja, F., Shatri, H., Putranto, R. (2020). Health issues among healthcare workers during COVID-19 pandemic: A psychosomatic approach. *Acta Medica Indonesiana, 52*(2),172–176. Retrieved March 03, 2021, from http://www.actamedindones.org/index.php/ijim/article/view/1459/pdf

World Health Organization (2020, March 12). WHO announces COVID 19 Outbreak a pandemic. Geneva, Switzerland: World Heaalth Organization. Retrieved March 2, 2021, from https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/3/who-announces-covid-19-outbreak-a-pandemic

World Health Organization., (2020, July 9). Transmission of SARS-CoV-2 : implications for infection prevention precautions. March, 1–10. Retrieved March 2, 2021, from https://www.who.int/news-room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions

World Health Organization (2020). Coronavirus info. Geneva, Switzerland: World Health Organization. Retrieved March 02, 2021, from https://www.worldometers.info/coronavirus/

World Health Organization. (2020, March 11). WHO Director-General's opening remarks at the media briefing on COVID- 19. World Health Organization. Retrieved March 2, 2021, 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

Wu, Y., Chen, C., & Chan, Y. (2019). The outbreak of COVID-19 : An overview. *J Chin Med Assoc, 83*: 217–220. https://doi.org/10.1097/JCMA.

Analysis of Factors Affecting Commitment and Ability of Families to Early Detection in Stunting

Nursalam Nursalam[1*], Sri Utami[2], Rekawati Susilaningrum[3]

[1*]Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia
[2,3]Polytechnic Health of Surabaya, Surabaya, Indonesia

Abstract

Background: Stunting is a public health problem in the world, stunting will have an impact on the growth and development of children. The first 1000 days of life are important to prevent stunting, this is a period when the child's body system experiences physical growth, intelligence, and children's abilities.
Purpose: This study aims to analyze the factors that influence family commitment and ability to detect stunting.
Methods: A cross-sectional study was conducted on 130 respondents in public health center, Surabaya, Indonesia. Data was collected through a questionnaire via Google form, anonymous online research questionnaire was collected through social media, such as Telegram, WhatsApp, Facebook which was conducted from June to September 2020. Data were analyzed using SPSS software version 21 with multivariate logistic regression.
Results: The dominant factor affecting the commitment in early detection of stunting was community resources (p = 0.006; CI 95% = 0.888 - 4.272). Supporting (p = 0.000; CI 95% = 1.757-79.610), empowering (p = 0.000; CI 95% = 0.603 – 18.363) and enabling (p = 0.000; CI 95% = 0.395 – 4.869) were dominant factors that affected the ability to detect early stunting.
Conclusion: The behavior of commitment and willingness in early detection of stunting in children is an important role that every parent must have with full support from the family. The main factor influencing family commitment is community resources and the main factor is the willingness of early detection to support, empower and enable families to provide care for their children.

Keywords: family ability; family commitment; early detection; stunting.

OPEN ACCESS

Jurnal Keperawatan Padjadjaran (JKP)

Volume 9(2), 190-198

http://dx.doi.org/10.24198/jkp.v9i3.1722

Article Info

Received : September 24, 2021
Revised : November 04, 2021
Accepted : November 05, 2021
Published : December 10, 2021

Corresponding author

Nursalam Nursalam
Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia, Postal address: 45363, Phone: ,
E-mail: nursalam@fkp.unair.ac.id

Citation

Nursalam, N., Utami, S., Susilaningrum, R. (2021). Analysis of Factors Affecting Commitment and Ability of Families to Early Detection in Stunting. *Jurnal Keperawatan Padjadjaran, 9*(3), 190-198.https://doi.org/10.24198/jkp.v9i3.1722

Website

http://jkp.fkep.unpad.ac.id/index.php/jkp

E-ISSN: 2442-7276
P-ISSN: 2338-5324

Introduction

The growth and development of children is still one of the problems that need to be considered by all countries, especially countries with lower middle income (Lestari, Fujiati, Keumalasari, & Daulay, 2018). Child development including physical, emotional and social development is very important, growth and development problem can cause a child to experience delays and become stunted (Curry, 2018; Goldin & Papaioannou, 2003). The condition of stunting in children, which is the main factor, is the condition of the family environment and parenting styles (Fajrianti, Yunitasari, & Pradanie, 2020; Situmeang, Etti Sudaryati, & Jumirah, 2020). Stunting is a problem that can be prevented if periodic health checks for pregnant women are carried out (Pertiwi, Lestari, & Ulfiana, 2019; Utami, Setiawan, & Fitriyani, 2019), so that if it is known that there is a risk of stunting, action can be immediately given (Primasari & Keliat, 2020). The ability of families to detect stunting early is still very lacking (Pradnyawati, Kartinawati, & Juwati, 2019; Primasari & Keliat, 2020), babies are considered to just not want to eat and that is a natural activity, so when they are brought to health services, babies have experienced more serious growth and development delays (Curry, 2018). The problem of stunting must be resolved with the cooperation of parents, families, health workers, the community and the government, because the commitment to preventing and overcoming stunting is the

key to reducing the high stunting rate in Indonesia (Utami, Susilaningrum, & Nursalam, 2019; Utami, Susilaningrum, Taufiqurrahman, & Nursalam, 2019). Until now, there are not many studies that discuss the factors that influence commitment and early detection ability, especially on factors related to interpersonal and health promotion.

The incidence of stunting in Indonesia is still very high. Based on anthropometric measurements of infants such as weight based on age, nutritional status and height, Indonesia is a country with the fifth rank of stunting cases that have not been resolved in the world. (Leroy & Frongillo, 2019; Ryadinency & Patmawati, 2020). The incidence of stunting in 2017 in the world was 22.2% or around 150.8 million children under five in the world were stunted. It illustrates that more than half of the world's stunted children come from Asia (55%) while more than a third (39%) live in Africa. (Alkaff, Flynn, Sukmajaya, & Salamah, 2020; Soekatri, Sandjaja, & Syauqy, 2020). The incidence of stunting in children under five in Asia is 83.6 million, the highest proportion is from South Asia (58.7%) and the lowest proportion is in Central Asia (0.9%) (Utami et al., 2019; Utami, Susilaningrum, Taufiqurrahman, et al., 2019). Stunting prevalence data collected by the World Health Organization (WHO) shows that Indonesia is one of the third countries with the highest prevalence in the Southeast Asia / South-East Asia Regional region (Beal, Tumilowicz, Sutrisna, Izwardy, & Neufeld, 2018; Langi, 2020). The average prevalence of stunting under five in Indonesia in 2005-2017 is 36.4%. According to the 2013 Basic Health Research, the national prevalence of stunting reached 37.2 percent, an increase from 2010, which was 35.6% and 2007, which was 36.8%. This means that about 8.9 million Indonesian children, or one in three Indonesian children, suffer from suboptimal growth. The prevalence of stunting in Indonesia is higher than other countries in Southeast Asia, such as Myanmar at 35%, Vietnam at 23%, and Thailand at 16%. This condition is still very high, even though one of the points for sustainable development goals (SDGs) is to try to improve the health of mothers and children (Utami, Susilaningrum, Taufiqurrahman, & Nursalam, 2019).

Indonesia is a country with a fairly high prevalence of stunting compared to other middle-income countries (Beal et al., 2018; Rizal & van Doorslaer, 2019). Toddlers who are stunted will experience a slowdown in the process of growth and development of intelligence, so that they are not able to be maximized, are more susceptible to disease and are at risk of looking different compared to other children of the same age (Titaley, Ariawan, Hapsari, Muasyaroh, & Dibley, 2019). The importance of the first 1000 days of life is crucial in preventing stunting, this is a time when the child's body system experiences physical growth, intelligence, and ability. So far, the program that has been carried out by the government through the National Team for the Acceleration of Poverty Reduction has determined 100 priority districts / cities for stunting reduction (Susilaningrum, Utami, Nursalam, & Tristiana, 2018). Priority areas or areas that are the main locus of stunting intervention are areas that have a high prevalence rate of stunting compared to other areas (Izza, Purnomo, & Mahmudah, 2019). The aim of this program is to reduce the stunting rate so that it does not increase. The government also cooperates with the public health sector, public health center to participate in the prevention, early detection and promotion of stunting health. Therefore, this study aims to analyze the factors that influence family commitment and ability to detect stunting.

Methods

Research Design

This study was quantitative research design with cross-sectional survey.

Participant Setting

The population of the study were all families with children aged 0 - 72 months in the area of the Public Health Center in Surabaya City. A total of 130 family respondents were selected to be the research sample through simple random sampling technique. The criteria of the sample were 1) families with husband and wife who have children aged 0 – 72 months; 2) following the health check-up regularly; 3) able to use a smartphone and have internet access; 4) able to speak Indonesian; 5) willing to be a respondent. The exclusion criteria were families with health problems and mental health disorders.

Procedures

The pandemic condition in the city of Surabaya with the implementation of social distancing made direct data collection impossible. Therefore, the survey of data collection on respondents was carried out online through Google. Questionnaires were distributed online using a Google form, online research questionnaire collection was anonymously collected through social media, such as Telegram, WhatsApp, Facebook which was conducted in June - September 2020. Respondents filled out questionnaires voluntarily, not through coercion and anonymous questionnaires. All respondents were given informed consent online beforehand, willing respondents were allowed to continue filling out the questionnaire and for respondents who did not wish to continue, there was no coercion element. The online questionnaire consists of a demographic data questionnaire, commitment and family abilities, family connectedness, community resources, competing role demand, empowering, enabling and supporting. The final results of the study will be linked to the commitment variable and the ability to detect early child growth and development.

Variable definition

Respondents will fill out questionnaires online

Table 1. The Demographic Characteristics of Respondents (n=130)

Variable	n	%
Mother's Age		
< 20 years	2	1.5
20 – 30 years	98	75.4
> 35 years	30	23.1
Mother's Education		
Basic Education	46	35.4
Middle Education	68	52.3
High Education	16	12.3
Mother's Job		
Housewives	106	81.5
Civil Servant	7	5.4
Privat Employee	17	13.1
Mother's Income		
Under Minimum Regional	124	95.4
Same and above Minimum Regional	6	4.6
Father's Job		
Entrepreneur	6	4.6
Civil Servant	104	80.6
Private Employee	20	14.8
Father's Income		
Under Minimum Regional	106	82.2
Same and above Minimum Regional	24	17.8
Number of Children		
One	48	37.0
Two	50	38.5
Three	32	24.5
Last Child's Age		
1 years	32	24.6
2 years	26	20.0
3 years	72	55.4
Healthcare Utility		
Very limited	1	0.8
Sometimes	6	4.6
Often	6	4.6
Always	117	90.0

through surveys of demographic data variables, family connectedness, community resources, competing role demand, empowering, enabling and supporting, commitment and family abilities. The demographic data questionnaire consisted of open-ended questions regarding age, education, occupation of mothers and husbands, income, number of children and visits to public health center. The questionnaire on family connectedness, community resources and competing role demand is a questionnaire with a Likert scale consisting of strongly agree = 4, agree = 3, disagree = 2 and strongly disagree = 1, with unfavorable questions is the opposite. The questionnaire is a modification of 24 questions with the validity of the questionnaire 0.819 - 0.936 and the reliability of 0.866. The empowering, enabling and supporting questionnaire is a modification of the health promotion model theory which has gone through the validity test with a value of 0.879 - 0.916. The questionnaire consists

Table 2. The Cross-Tabulation Commitment and Ability of Mother to Detect Stunting in Children (n=130)

Variable	Commitment			P	Ability			P
	Low	Moderate	High		Low	Moderate	High	
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
Mother's Age								
< 20 years	0 (0.0)	1 (0.8)	1 (0.8)	0.798	1 (0.8)	-	1 (0.8)	0.104
20 – 30 years	28 (21.5)	45 (34.6)	25 (19.2)		9 (6.9)	56 (43.1)	33 (25.4)	
> 35 years	8 (6.2)	12 (9.2)	10 (7.7)		2 (1.5)	22 (16.9)	6 (4.6)	
Mother's Education								
Basic Education	11 (8.5)	23 (17.7)	12 (9.2)	0.258	3 (2.3)	32 (24.6)	11 (8.5)	0.255
Middle Education	19 (14.6)	32 (24.6)	17 (13.1)		7 (5.3)	40 (30.8)	21 (16.2)	
High Education	6 (4.6)	3 (2.3)	7 (5.4)		2 (1.5)	6 (4.6)	8 (6.2)	
Mother's Job								
Housewives	28 (21.5)	50 (38.6)	28 (21.5)	0.758	9 (6.9)	67 (51.5)	30 (23.1)	0.642
Civil Servant	2 (1.5)	3 (2.4)	2 (1.5)		1 (0.8)	3 (2.3)	3 (2.3)	
Privat Employee	6 (4.6)	5 (3.8)	6 (4.6)		2 (1.5)	8 (6.2)	7 (5.4)	
Mother's Income								
Under Minimum Regional	34 (26.1)	57 (43.9)	33 (25.4)	0.065	11 (8.4)	74 (56.9)	39 (30.0)	0.559
Same and above Minimum Regional	2 (1.5)	1 (0.8)	3 (2.3)		1 (0.8)	4 (3.1)	1 (0.8)	
Father's Job								
Entrepreneur	2 (2.7)	1 (1.4)	4 (3.1)	<0.0001	-	2 (1.7)	3 (2.3)	0.539
Civil Servant	24 (17.5)	55 (41.6)	25 (18.4)		10 (7.8)	62 (47.1)	33 (23.8)	
Privat Employee	11 (8.5)	1 (1.4)	7 (5.4)		1 (0.9)	14 (10.9)	5 (3.9)	
Father's Income								
Under Minimum Regional	29 (22.5)	50 (38.8)	27 (20.9)	0.283	8 (6.2)	66 (51.2)	34 (24.8)	0.572
Same and above Minimum Regional	7 (5.4)	7 (5.4)	10 (7.0)		3 (2.3)	11 (9.3)	8 (6.2)	
Number of Children								
One	11 (8.5)	20 (15.4)	17 (13.1)	0.303	2 (1.5)	29 (22.3)	17 (13.1)	0.694
Two	16 (12.3)	25 (19.2)	9 (6.9)		7 (5.4)	29 (22.3)	14 (10.8)	
Three	9 (6.9)	13 (10.0)	10 (7.7)		3 (2.3)	20 (15.4)	9 (6.9)	
Last Child's Age								
1 years	11 (8.5)	15 (11.5)	6 (4.6)	0.347	4 (3.1)	23 (17.8)	5 (3.8)	0.274
2 years	6 (4.6)	9 (6.9)	11 (8.5)		3 (2.3)	14 (10.8)	9 (6.9)	
3 years	19 (14.6)	34 (26.2)	19 (14.6)		5 (3.8)	41 (31.5)	26 (20.0)	

Cont. Table 2. The Cross-Tabulation Commitment and Ability of Mother to Detect Stunting in Children (n=130)

Variable	Commitment			p	Ability			p
	Low	Moderate	High		Low	Moderate	High	
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
Healthcare Utility								
Very limited	1 (0.8)	-	-	0.224	-	1 (0.8)	-	0.036
Sometimes	2 (1.5)	3 (2.3)	1 (0.8)		3 (2.3)	2 (1.5)	1 (0.8)	
Often	0 (0.0)	2 (1.5)	4 (3.1)		0 (0.0)	4 (3.1)	2 (1.5)	
Always	33 (25.4)	53 (40.8)	31 (23.8)		9 (6.9)	71 (54.6)	37 (28.5)	
Family Connectedness								
Low	25 (19.2)	5 (3.8)	1 (0.9)	<0.0001	4 (3.1)	21 (16.2)	6 (4.6)	0.002
Moderate	11 (8.5)	38 (29.2)	18 (13.8)		7 (5.4)	45 (34.6)	15 (11.5)	
High	0 (0.0)	15 (11.5)	17 (13.1)		1 (0.8)	12 (9.2)	19 (14.6)	
Community Resources								
Low	25 (19.3)	2 (1.5)	2 (1.5)	<0.0001	5 (3.9)	18 (13.8)	6 (4.7)	<0.0001
Moderate	7 (5.4)	41 (31.5)	8 (6.2)		5 (3.9)	42 (32.3)	9 (6.9)	
High	4 (3.1)	15 (11.5)	26 (20.0)		2 (1.5)	18 (13.8)	25 (19.2)	
Competing Role Demand								
Low	1 (0.8)	2 (1.5)	-	0.706	1 (0.8)	2 (1.6)	-	0.338
Moderate	23 (17.7)	42 (32.3)	25 (19.2)		6 (4.6)	56 (43.1)	28 (21.5)	
High	12 (9.2)	14 (10.8)	11 (8.5)		5 (3.8)	20 (15.4)	12 (9.2)	
Empowering								
Low	6 (4.7)	4 (3.1)	2 (1.5)	0.001	5 (3.8)	6 (4.6)	1 (0.8)	<0.0001
Moderate	25 (19.2)	29 (22.3)	12 (9.3)		7 (5.4)	49 (37.7)	10 (7.7)	
High	5 (3.8)	25 (19.2)	22 (16.9)		0 (0.0)	23 (17.7)	29 (22.3)	
Enabling								
Low	3 (2.3)	4 (3.0)	-	<0.0001	4 (3.1)	3 (2.4)	-	<0.0001
Moderate	22 (16.9)	9 (6.9)	4 (3.0)		5 (3.8)	25 (19.2)	5 (3.8)	
High	11 (8.5)	45 (34.7)	32 (24.7)		3 (2.3)	50 (38.5)	35 (26.9)	
Supporting								
Low	4 (3.1)	5 (3.8)	-	<0.0001	6 (4.6)	3 (2.3)	-	<0.0001
Moderate	26 (20.0)	31 (23.8)	4 (3.1)		6 (4.6)	47 (36.2)	8 (6.2)	
High	6 (4.6)	22 (16.9)	32 (24.6)		0 (0.0)	28 (21.5)	32 (24.6)	

of 28 questions which are also arranged on a Likert scale. The dependent variable of family commitment and ability in early detection of children's growth and development consists of 24 and 10 questions with a Likert scale and has been declared valid and reliable after going through questionnaire testing. Interpretation of scores to determine the assessment category is <35 for low, 35 - 78 for moderate and 79 for high.

Data Analysis

The research data that had been tabulated were then analyzed using SPSS Version 21. The results of the study were presented through descriptive analysis with a frequency distribution table and cross tabulation between variables. Analysis of the factors that affect commitment and ability to detect early childhood growth and development was carried out using bivariate statistical tests and multivariate logistic regression with a significance level of $p<0.05$.

Table 3. Multivariate Analysis in Commitment and Ability of Mother to Detect Stunting

Variable	Commitment in Early Detection				Ability in Early Detection			
	P	Exp (B)	95% CI		P	Exp (B)	95% CI	
			Lower	Upper			Lower	Upper
Family connectedness	0.040	1.200	0.527	2.730	0.178	0.845	0.121	5.892
Community resources	0.006	1.948	0.888	4.272	0.068	1.018	0.197	5.262
Competing role demand	0.171	1.753	0.730	4.208	0.594	2.222	0.395	12.509
Empowering	0.774	0.607	0.250	1.473	<0.0001	3.328	0.603	18.363
Enabling	0.251	1.222	0.489	3.058	<0.0001	1.387	0.395	4.869
Supporting	0.498	1.122	0.462	2.729	<0.0001	11.827	1.757	79.610

Ethical Clearance

This study has obtained the feasibility of an ethical clearance received by the Ethics Research Commission, Surabaya Health Polytechnic with the certificate number EA / 261 / KEPK-Poltekkes_Sby / V / 2020. Voluntary respondent approval was carried out through online Google-based questionnaires. All respondents have agreed and are willing to participate in this study. The management of research ethics is carried out by evaluating proposals and research designs that have been made through the ethical principles of health research. The ethical review was carried out at the Faculty of Nursing, Airlangga University for one month and analyzed by reviewers who already have expertise in the field of research.

Results

Table 1 shows that the highest maternal age is 20-30 years old as much as 75.4% (98 respondents) with the highest education being senior high school as much as 52.3% (68 respondents). The most dominant occupation of mothers is as housewives as much as 81.5% (106 respondents) with the most occupations of husbands being civil servants as much as 80.6% (104 respondents), the most dominant income is under regional minimum as much as 82.2% (106 respondents). The maximum number of children was having 2 children as much as 38.5% (50 respondents), the highest age of children was 3 years as much as 55.4% (72 respondents) and the most frequent visits to public health center were always 90.0% (117 respondents).

Table 2 shows the cross tabulation of the factors that influence commitment at the age of 20-30 years showing moderate commitment as much as 34.6% (45 respondents), maternal education with secondary education level is 24.6% (32 respondents), housewives and fathers with jobs as civil servants also showed that their commitment was moderate. The number and age of the last child in each family indicated that the level of family commitment was also moderate. Families who always come to health facilities have a moderate level of commitment as much as 40.8% (53 respondents). In terms of family connectedness, community resources and the demands of a moderately competitive role, it shows that family commitment in early detection of stunting is also moderate. However, in families with a high level of support, the commitment to early detection of stunting is also high. (32 respondents). The most stunting detection ability is at the moderate level, high detection ability is shown in housewives aged 20-30 years by 25.4% (33 respondents). Frequent visits to health facilities also did not result in high abilities, but their abilities were still moderate with 54.6% (71 respondents). Families with high community resources, the ability to detect early stunting also showed high results (19.2%), as well as families with high support, enabling and reinforcing also showed high ability to detect stunting.

Table 3 shows the multivariate analysis with logistic regression on the variables that show the significant value of the bivariate analysis. Family commitment in early detection of stunting shows that the factor that has the greatest influence is community resources with a value of p = 0.006; Exp (B) = 1,948; CI 95% = 0.888 - 4.272, this shows that community resources affect commitment 1-4 times compared to other variables. In the ability to detect early stunting, the most dominant factors are supporting, enabling and empowering. Supporting has a value of p = 0.000; Exp (B) = 11.827; CI 95%= 1.757-79.610, this shows that supporting affects the ability 1.7 - 79 times compared to other factors. Empowering also showed significant with p = 0.000; Exp (B) = 3.328; CI 95%= 0.603 – 18.363, this show that empowering affect ability 0.6 – 18 times than other factors, it also showed in enabling variable that affect the ability 0.3 – 5 times than other variables (p = 0.000; Exp (B) = 1.387; CI 95%= 0.395 – 4.869).

Discussion

Family commitment in early detection of stunting showed that the factor that has the greatest influence was community resources, while on the ability to detect early stunting, the most dominant factors were supporting, empowering and enabling. Community resources could be used as reinforcement in increasing family commitment in early detection of stunting, because community involvement was the key to successful public health. The ability to detect early stunting shows that the most dominant factor is the support factor. The higher the support, the

higher the family's ability to take early detection measures. It is also supported by empowering and enabling factors, because caring for children requires the participation of parents and families to be given family empowerment to create the best environment in parenting. Enabling factors that come from outside the individual also play a major role in supporting and facilitating children's growth.

Several factors that cause stunting are the poor ability of families to care for children, the lack of knowledge of mothers in maintaining health and nutrition before and during pregnancy (Fajrianti et al., 2020), and after childbirth (Utami, Susilaningrum, & Nursalam, 2019). The availability of health services is still limited, especially in remote areas, including pregnancy check-up, so that during pregnancy and childbirth, mothers do not get maximum health services (Krisnana, Pratiwi, & Cahyadi, 2020; Utami, Susilaningrum, Taufiqurrahman, et al., 2019). Initial knowledge also shows a lack of quality, so that what mothers know is also limited in consuming nutritious food, doing activities during pregnancy, taking vitamins, resting, managing stress and routine pregnancy check-ups. This will not happen and can be prevented if community involvement and support are also high. Community involvement is an important role of public health programs (Howard et al., 2018; Lestari et al., 2018).

Many programs in managing stunting have become the main focus in the success of health planning (Susilaningrum, Utami, Taufiqurrahman, & Nursalam, 2020). What needs to be improved so that the program can be implemented more effectively in reducing stunting is to collect data in an integrated manner through tiered community involvement (Primasari & Keliat, 2020; Titaley et al., 2019). This is consistent with research which states that stunting can be resolved by regular monitoring of pregnant women and families who are detected to be experiencing nutritious food deficiencies (Damanik & Wanda, 2019; Husaini et al., 2018). Other research also states that the role of all sectors of society is the main key to solving stunting.

The main problem of stunting is that during the 1000 days of the baby's life, during which time there must be regular monitoring to prevent the condition of malnutrition that gets worse in the baby (Andersen et al., 2016). Based on the feeding pattern, it can be seen that the incidence of stunting mostly shows that the toddlers are not getting good feeding patterns (Soekatri et al., 2020). This poor feeding can stem from a lack of family knowledge, unavailability of nutritious food, lack of involvement in the public health sector, access to health services and various other problems (Rahayu, Yulidasari, Khairiyati, Rahman, & Anhar, 2016; Susilaningrum et al., 2018). The results of this study are in line with the research which states that the pattern of care for feeding is one of the risk factors for stunting, this is because the monotonous daily diet does not vary and the mother's lack of knowledge in fulfilling child nutrition is the most decisive thing (Utami, Susilaningrum, & Nursalam, 2019). The results of other studies also state that the supervision of the various parties involved can affect the behavior of the mother, the mother will tend to be more motivated if there are many support systems found in parenting the child. This will cause food intake for toddlers to be less, both in terms of quality and quantity so that they are prone to stunting (Krisnana et al., 2020).

During the study, researchers also found several limitations. Researchers needed to evaluate the factors that influence commitment and willingness to self-detect stunting in families with disease, so that differences can be identified in families with children with normal growth and development. Families with children at risk and families with children who are already categorized as stunting, so that the bias is used as a reference in providing health interventions to deal with stunting.

Conclusion

Stunting is a problem in public health and the global problem in sustainable development goals, stunting is still the main focus of the government in maternal and child health. The main factor affecting family commitment is community resources and the main factor in the willingness to early detection is support, both support from family, community and all parties involved in handling stunting. Commitment and willingness behavior in early detection of stunting in children is an important role that every parent must have with the full support of the family. It can be concluded that the role of family especially parents in parenting their children can prevent stunting. This study has benefits in public health that has been proven through the dominant factors that affect the ability and commitment of the family.

Declaration conflict of interest

This manuscript does not have any conflict of interest with anyone and the authors of this study also do not have any conflict of interest.

Acknowledgment

The authors state to thank you to all respondents that voluntary filled out the questionnaire, we also thank to all families with children aged 0 - 72 months in the area of the Public Health Center in Surabaya City. Special mention for the Surabaya Health Polytechnic of Surabaya that gives the funding and facilitate this research.

Funding

The authors received funding from Surabaya Health Polytechnic of Surabaya Grant for the period of 2020-2021.

Authors' Contribution

This study involves all research members. SU has the job to concept the research idea and organize the job description of every member, she also prepares the research methods and procedure. RS prepares

the research instrument, ethical submission and organizes the research. NN is a supervisor of this research. NN reviews and revises all the manuscript and research data after research finished.

Data Availability Statement

This research study has completed data saved by the authors and the authors just present the important data that was suitable for this research. If the reader needs to share the data, they can get more information from corresponding author.

References

Alkaff, F. F., Flynn, J., Sukmajaya, W. P., & Salamah, S. (2020). Comparison of WHO growth standard and national Indonesian growth reference in determining prevalence and determinants of stunting and underweight in children under five: A cross-sectional study from Musi sub-district. *F1000Research*, 9. https://doi.org/10.12688/f1000research.23156.2

Andersen, C. T., Stein, A. D., Reynolds, S. A., Behrman, J. R., Crookston, B. T., Dearden, K. A., … Fernald, L. C. H. (2016). Stunting in infancy is associated with decreased risk of high body mass index for age at 8 and 12 years of age. *Journal of Nutrition*. *146*(11), 2296-2303. https://doi.org/10.3945/jn.116.234633

Beal, T., Tumilowicz, A., Sutrisna, A., Izwardy, D., & Neufeld, L. M. (2018). A review of child stunting determinants in Indonesia. *Maternal & Child Nutrition, 14*(4), e12617. https://doi.org/10.1111/mcn.12617

Curry, G. (2018). Stunted growth: the early development of football in Derby and South Derbyshire. *Soccer and Society, 19*(1), 24–34. https://doi.org/10.1080/14660970.2016.1276241

Damanik, S. M., & Wanda, D. (2019). The influence of feeding practice on the risk of stunting in infant and young children in developing countries:A literature review. *Ilmu Gizi Indonesia, 3*(1), 13-22. https://doi.org/10.35842/ilgi.v3i1.117

Fajrianti, D., Yunitasari, E., & Pradanie, R. (2020). The Correlation Between Personal Reference: Health Workers and Health Facilities with Parenting in Stunting Prevention. *Pediomaternal Nursing Journal, 6*(2), 125-132. https://doi.org/10.20473/pmnj.v6i2.20966

Goldin, S. N., & Papaioannou, V. E. (2003). Unusual misregulation of RNA splicing caused by insertion of a transposable element into the T (Brachyury) locus. *BMC Genomics, 4*. https://doi.org/10.1186/1471-2164-4-14

Howard, S. C., Zaidi, A., Cao, X., Weil, O., Bey, P., Patte, C., … Moreira, C. (2018). The My Child Matters programme: effect of public–private partnerships on paediatric cancer care in low-income and middle-income countries. *The Lancet Oncology, 19*(5), e252–e266. https://doi.org/10.1016/S1470-2045(18)30123-2

Husaini, Marlinae, L., Setyaningrum, R., Rosadi, D., Wulandari, A., Ulfah, N., & Hastaniah. (2018). Analysis of factors affecting stunting events in underwrapped in cempaka velocity mining area kota banjarbaru in year 2017. *Indian Journal of Public Health Research and Development, 9*(7), 85–89. https://doi.org/10.5958/0976-5506.2018.00618.6

Izza, N., Purnomo, W., & Mahmudah. (2019). Factors affecting the occurrence of stunting in indonesia. *Indian Journal of Public Health Research and Development, 10*(10), 1845–1850. https://doi.org/10.5958/0976-5506.2019.03114.0

Krisnana, I., Pratiwi, I. N., & Cahyadi, A. (2020). The relationship between socio-economic factors and parenting styles with the incidence of stunting in children. *Systematic Reviews in Pharmacy, 11*(5), 738–743. https://doi.org/10.31838/srp.2020.5.106

Langi, L. A. (2020). Clean and healthy living behavior with the stunting events in children in central Java, Indonesia. *Systematic Reviews in Pharmacy, 11*(12), 127–133. https://doi.org/10.31838/srp.2020.12.21

Leroy, J. L., & Frongillo, E. A. (2019). Perspective: What Does Stunting Really Mean? A Critical Review of the Evidence. *Advances in Nutrition, 10*(2), 196–204. https://doi.org/10.1093/advances/nmy101

Lestari, S., Fujiati, I. I., Keumalasari, D., & Daulay, M. (2018). The prevalence and risk factors of stunting among primary school children in North Sumatera, Indonesia. *IOP Conference Series: Earth and Environmental Science, 125*(1), 12219. https://doi.org/10.1088/1755-1315/125/1/012219

Nelly SD Situmeang, Etti Sudaryati, & Jumirah. (2020). Correlation of parenting and nutrient intake with stunting in children 24-59 months. *Britain International of Exact Sciences (BIoEx) Journal, 2*(1), 280–285. https://doi.org/10.33258/bioex.v2i1.147

Pertiwi, M. R., Lestari, P., & Ulfiana, E. (2019). Relationship between parenting style and perceived information sources with stunting. *International Journal of Nursing and Health Services, 2*(4), 273–279. https://doi.org/10.35654/ijnhs.v2i4.150

Pradnyawati, L. G., Kartinawati, K. T., & Ratna Juwati, D. A. P. (2019). Parenting pattern of feeding in stunting toddlers at the working area of Tegallalang I Primary Health Centre. *Journal of Community Empowerment for Health, 2*(2). https://doi.org/10.22146/jcoemph.47019

Primasari, Y., & Anna Keliat, B. (2020). Parenting practices as an effort to prevent the impact of stunting on children's psychosocial development. *Jurnal Ilmu Keperawatan Jiwa, 3*(3), 263–272. https://doi.org/10.32584/jikj.v3i3.609

Rahayu, A., Yulidasari, F., Khairiyati, L., Rahman,

F., & Anhar, V. Y. (2016). The risk factor of mother's nutrition knowledge level related to stunting in public health center region Cempaka, Banjarbaru City. *International Journal of Applied Business and Economic Research, 14*(10), 6999–7008. Retrieved June 06, 2021, from https://serialsjournals.com/abstract/15578_ch-54.pdf

Rizal, M. F., & van Doorslaer, E. (2019). Explaining the fall of socioeconomic inequality in childhood stunting in Indonesia. *SSM - Population Health, 9*. https://doi.org/10.1016/j.ssmph.2019.100469

Ryadinency, R., N, S., & Patmawati, T. A. (2020). Analysis of determinant factors in stunting children in Palopo, Indonesia. *Journal Wetenskap Health, 1*(2), 77–82. https://doi.org/10.48173/jwh.v1i2.39

Soekatri, M. Y. E., Sandjaja, S., & Syauqy, A. (2020). Stunting was associated with reported morbidity, parental education and socioeconomic status in 0.5–12-year-old Indonesian children. *International Journal of Environmental Research and Public Health, 17*(17), 1–9. https://doi.org/10.3390/ijerph17176204

Susilaningrum, R., Utami, S., Nursalam, N., & Tristiana, R. D. (2018). Analysis of factors related to behavior cognition and effects on pregnant women in maternal and child health (Mch) handbook utilisation. *Indian Journal of Public Health Research and Development, 9*(11), 492–497. https://doi.org/10.5958/0976-5506.2018.01504.8

Susilaningrum, R., Utami, S., Taufiqurrahman, T., & Nursalam, N. (2020). Development of interprofessional collaboration model to manage stunting in toddler. *International Journal of Psychological Rehabilitation, 24*(7), 7494–7502. https://doi.org/10.37200/IJPR/V24I7/PR2700717

Titaley, C. R., Ariawan, I., Hapsari, D., Muasyaroh, A., & Dibley, M. J. (2019). Determinants of the stunting of children under two years old in Indonesia: A multilevel analysis of the 2013 Indonesia basic health survey. *Nutrients, 11*(5). https://doi.org/10.3390/nu11051106

Utami, R. A., Setiawan, A., & Fitriyani, P. (2019). Identifying causal risk factors for stunting in children under five years of age in South Jakarta, Indonesia. Enfermeria Clinica, *29*(2), 606-611. https://doi.org/10.1016/j.enfcli.2019.04.093

Utami, S., Susilaningrum, R., & Nursalam. (2019). The effect of health promotion based on the health promotion model with a peer group approach regarding the utilization of maternal and child health handbook. *Indian Journal of Public Health Research and Development, 10*(10), 1987–1992. https://doi.org/10.5958/0976-5506.2019.03139.5

Utami, S., Susilaningrum, R., Taufiqurrahman, & Nursalam. (2019). Factors associated with interprofessional collaboration for handling stunting in children. *Journal of Global Pharma Technology, 11*(8), 262–267. Retrieved June 03, 2021, from http://www.jgpt.co.in/index.php/jgpt/article/view/2863/2315

Correlation between Fatique and Stress among Female in Caring for the Elderly at Hospitals

Roxsana Devi Tumanggor*[1], Anna Kasfi[2], Nurbaiti Nurbaiti[3], Diah Lestari Nasution[4]

[1, 3, 4]Faculty of Nursing, Universitas Sumatera Utara, Medan, Indonesia
[2]University of Sumatera Utara Hospital, Medan, Indonesia

Abstract

Background: Studies showed that the caregiving process has an impact on physical and psychological health, such as stress and fatigue.
Purpose: This research aims to analyze the correlation between fatigue and stress in female caregivers caring for the hospitalized elderly in Medan, Indonesia.
Methods: This is a correlational study with a cross-sectional approach. Data collection was conducted from March to October 2020 and 42 caregivers participated. The data analysis was performed to analyze for frequency distribution and the Pearson correlation test was used to measure the strength of the correlation between variables.
Results: It was reported that 47.5% of female caregivers were in the average age range of 47 years, and provided care almost 24 hours per day. The elderly had been sick for less than a year on average and showed some degree of partial dependence. Based on the results of the Pearson correlation test, the value of Sig. 0.000 < 0.05 was obtained. Furthermore, the direction of the positive relationship can be seen from the sign of the coefficient (Pearson's correlation of 0.759), which means that the higher the fatigue, the higher the stress level.
Conclusion: These results are expected to be the basic data for future research and should be considered hospitals regarding care for the elderly. This can reduce the impact of the stress on the caregivers' which can affect the quality of care provided.

Keywords: aged, caregivers, cross-sectional studies, female, mental health.

Introduction

In 2020, the elderly growth rate of over 60 years was about 10% of the total population (Kementrian Kesehatan Republik Indonesia, 2013). In the case of Sumatera Utara Province, it was predicted that the number of elderly people would be 8.3% by 2020 (Pusat Data dan Informasi Kemenkes RI, 2016), and one out of four elderly would experience illness. Therefore, the role of the family and related parties is necessary for handling illness conditions and the aging process experienced by the elderly (Conley & St Pierre, 2016).

In general, the elderly are cared for by women in the family such as wives, daughters, daughters-in-law, sisters, and grandchildren (Desbiens et al., 2018). This is linked to the great family structure of Indonesian culture, which is made up of fathers, mothers, children, grandparents, and even cousins, nephews, from both husband and wife. Therefore, these women are responsible for many things at the same time, such as being a mother, wife, caregiver for the elderly as well as a breadwinner with duties and responsibilities that differ from domestic chores (Annisa, 2016).

Research revealed that women with dual roles as family caregivers often experience psychological stress and physical fatigue (Desbiens et al., 2018). This is due to several factors, such as the duration of care, the effects of care, and the decrease in the physical condition of the elderly. This then

OPEN ACCESS

Jurnal Keperawatan Padjadjaran (JKP)

Volume 9(3), 199-205
© The Author(s) 2021
https://doi.org/10.24198/jkp.v9i3.1669

Article Info

Received : June 17, 2021
Revised : November 05, 2021
Accepted : November 15, 2021
Published : December 22, 2021

Corresponding author

Roxsana Devi Tumanggor
Faculty of Nursing, Universitas SUmatera Utara, Medan, Indonesia, Postal address: 20155, Phone: 62 819-1081-9799, E-mail: roxsana.tumanggor@usu.ac.id

Citation

Tumanggor, R. D., Kasfi, A., Nurbaiti, N., & Nasution, D. L. (2021). Correlation between Fatique and Stress among Female in Caring for The Elderly at Hospital. *Jurnal Keperawatan Padjadjaran, 9*(3), 199-205.https://doi.org/10.24198/jkp.v9i3.1669

Website

http://jkp.fkep.unpad.ac.id/index.php/jkp

E-ISSN: 2442-7276
P-ISSN: 2338-5324

leads to fatigue in the caregivers and tends to lead to psychological symptoms during the caring process (Roth et al., 2015). However, this dual role is often overlooked in healthcare. The stress experienced by the female caregivers showed a high level of emotions, and therefore it has an impact on the poor quality of health provided (Kim & Schulz, 2008).

In addition, researches related to the burden of the caregivers' have been carried out, both in terms of caring for patients with cancer (Hartnett, Thom, & Kline, 2016), chronic mental illness (Nuraini et al., 2020), or aging with special medical conditions (Tumanggor, Elfira, & Aizar, 2020). Therefore, the independent or partial provision of patient care represents a separate burden that has an impact on the physiological and psychological health of the caregivers (Schulz & Sherwood, 2008). This research has shown that females tend to show a greater psychological burden than males during the caring process (Penning & Wu, 2016). Furthermore, a qualitative study related to the female caregivers' stress in caring for the elderly at Universitas Sumatera Utara Hospital (Tumanggor, Elfira, & Aizar, 2020), showed one of the research themes on caregivers fatigue. The research conducted by Johansen et al. (2018) stated that fatigue is one of the impacts in the caring process given to patients that are totally or partially dependent. The higher the dependence level of the patient, the higher the level of caregiver fatigue, which then contributes to the deterioration of the quality of life of the caregivers' (Hong & Harrington, 2016).

The research conducted by Roth et al. (2015) showed that there was no relationship between fatigue and the stress that caregivers experience during the caring process. This is because of certain conditions such as disabled patient, high dependence levels, financial problems as a result of caring, and the multiple roles of female caregivers in the family (Gérain & Zech, 2019; Wolff et al., 2016). Other research has also described variables of fatigue and stress in certain populations and conditions. For example, Llanque et al. (2016) showed that fatigue can lead to burnout if the caring process is exposed to long-term stress. Therefore, some of the research above shows the importance of fatigue and stress that female caregivers are exposed to under certain circumstances with long duration.

However, the research on female caregivers' stress has not been extensively conducted in nursing science in Indonesia. Moreover, it also emphasizes the relationship between fatigue and stress experienced by caregivers when caring for the elderly being hospitalized. Although physical and psychological stress during care affects the caregiver in terms of time, finances, physically and mentally, which triggers a decrease in physical health status and fatigue in caregivers (Lynch et al., 2018). If this is related to the caring process for the elderly, then this will worsen the condition and reduce the quality of life of the caregiver's physical and mental health (Wasilewski, 2016).

Moreover, the research conducted by Schrank et al. (2016) showed a significant difference between the burden experienced by female and male caregivers in caring for patients with cancer. This study was carried out with the involvement of 272 caregivers to determine their stress, support, adaptability, expectations, and background. Based on the t-test and chi-square, it was reported that women experienced more burden during the caring process than men. Furthermore, this is related to several factors such as the caregiver's age, emotional adjustment, and the dual roles as caregiver and breadwinner in the family. However, the investigation on the relationship between fatigue and stress among females as family caregivers has not been widely explored in Indonesia. Even though it has various cultures with a certain perspective on women as mothers, wives, and children (Annisa, 2016).

According to Wulansari (2013), gender inequality is often occurred in Asia, such as in Indonesia. Women are struggling with self acknowledgment in society related to the social-economic status, occupation, financial offer, and many issues. In some cultures, women are treated differently in Indonesia. It is very often that women do not have the right to express opinions, and devote themselves only to the family. In fact, as a breadwinner, it is normal when a women's income supports the family financially, including taking care of the elderly. This is one of the factors that contributes to women's mental health. In contrast to western culture, most women there have a legal right to express opinions and regulate life accordingly. Even though Asian and western cultures share most values in the caregiving process, but at least there is no such obligation caring for the elderly in the family, like in Asians. Therefore, it is important to conduct research examining the relationship between female caregiver's fatigue and stress while caring for the elderly with chronic diseases at the Universitas Sumatera Utara Hospital, Medan - Indonesia, to be considered for research related to women's health in the future.

Methods

This research is a correlational study using the Pearson correlation test approach, which aims to analyze the correlation between fatique and stress among the female caregivers in caring for the elderly at the Universitas Sumatera Utara Hospital (USU Hospital). The population consists of all female caregivers in caring for the elderly at USU Hospital in 2020, but since there is no record of the family caregiver's population in USU Hospital, therefore the researchers applied the convenience sampling method resulted in a sample of 42 respondents from two inpatient units for adult in USU Hospital from March to October 2020. The female samples were the elderly daughters, wives, grandchildren, sisters,

Table 1. Respondent Characteristics

Demographics	n (%)
Age (Years old)	
21 – 30	5 (2.1)
31 – 40	12 (5.04)
41 – 50	9 (3.78)
51 – 60	7 (2.94)
61 – 70	8 (3.36)
71 – 80	1 (0.42)
Occupation	
Student	5 (2.1)
Civil Servant	4 (1.68)
Nurse	2 (0.84)
Retirement	3 (1.26)
Unemployment/Housewife	15 (6.3)
Farmer	2 (0.84)
Lecturer	1 (0.42)
Enterpriser	8 (3.36)
Self Employed	2 (0.84)
Education Level	
Elementary School	6 (14.3)
Junior High School	4 (9.5)
Senior High School	12 (28.6)
Diploma-3/Bachelor Program	16 (38.1)
Master Program	3 (7.1)
Doctoral Program	1 (2.4)
Marital Status	
Single	9 (21.4)
Married	30 (71.4)
Widow	3 (7.2)
Relationship with the Elderly	
Wife	20 (47.6)
Child	18 (42.9)
Grandchild	1 (2.4)
Younger sister	1 (2.4)
Niece	1 (2.4)
Daughter in law	1 (2.4)
Caregiving Duration	
< = 1 year	29 (69.0)
>1 year	13 (31.0)
Caregiver Support System	
Yes	26 (61.9)
No	16 (38.1)
Demographics	Mean ± SD
Age	46.81 ±13.42
Number of children	2.31 ± 2.04
Total caring time	21.88 ± 5.61

Table 2. Elderly Characteristics

Demographics	n (%)
Previous Hospitalization History	
Never	19 (45.2)
Ever	23 (54.8)
Fall History	
No	37 (88.1)
Yes	5 (11.9)
Living with the Caregiver	
Yes	30 (71.4)
No	12 (28.6)
Elderly Barthel Index	
Independent	11 (26.2)
Partial	24 (57.1)

Table 3. Pearson Correlation Test Results

Variable	Stress (p Value)
Fatigue	<0.0001

P Value = 0.05 level of significance

nieces or daughters-in-law. And, the hospitalized elderly age was > 60 years old according to the definition of WHO (World Health Organization, 2001). Some researches related to stress and fatique among family caregivers used variant technique samples to obtain research samples. A research conducted by Cohen et al., (2007) analyze the stress factors among 24 caregivers. This is considered a small sample size, but the samples are collected with time duration, similar to this study.

The data collection was carried out using three instruments namely demographic data, an instrument for measuring fatigue and stress based on the fifth edition of nursing outcome classification in the Indonesian book version. The fatique instrument consist of 19 items and the stress instrument consist of 35 items with yes and no answer choices. The total score ranges from 0-19 for fatique level and 0-35 for stress level. The reliability test from the previous study for fatique was 0.82 (Tiesinga, Dassen, Halfens, & van den Heuvel, 2001). Before the data collection, each respondent was given an explanation related to the purpose and approval of participation directly. The samples are allowed to be withdrawn during data collection anytime. Furthermore, it passed the ethical test process with letter number: 169/KEP/USU/2020 by the Research Ethics Commission of the Universitas Sumatera Utara, June 30, 2020. The data analysis conducted was univariate, which aims to describe the characteristics of each variable studied. Furthermore, bivariate analysis with Pearson Correlation Test was used to determine the strength of the correlation between fatigue and stress.

Results

Based on the results, two important elements were obtained, namely data related to the characteristics of the research sample and the Pearson Correlation Test on fatigue and stress variables. Out of the 42 samples, 47.6% of female caregivers were elderly couples with an average age of 47 years and 52.4% were working. About 69% of the caregivers had cared for less than a year. About 62% of the female caregivers received assistance while caring for the elderly, and 71.4% were living with the elderly for almost 24 hours of care a day. Furthermore, more than 50% of the elderly had a partial dependence level on caregivers. This means that the elderly needed assistance in fulfilling their daily needs in several aspects and could be independent in other aspects. Further information on the characteristics of the female caregivers and the elderly are shown in Tables 1 and 2.

The analysis of the Pearson Correlation Test data shows the value of Sig. 0.000 < 0.05. This means that there was a significant correlation between fatigue and stress variables. Furthermore, the positive relationship direction is seen from the sign of the coefficient (Pearson Correlation 0.759), which means that the higher the fatigue, the higher the caregiver stress level, as shown in table 2.

Discussion

Based on the results, it was reported that the majority of female caregivers are wives in the elderly age, with an average age of 47 years. This is a common case because female elderly caregivers

on average are a couple (Desbiens et al., 2018), and spend more than 50% of their time providing care. The research conducted by Sharma et al., (2016) stated that female caregivers provide care for about 21 hours per day for sick family members. This is due to several factors, namely obligations as daughters and wives as well as emotional ties. Furthermore, this form of treatment is viewed as a form of family participation, especially in Indonesian families (Annisa, 2016).

These results suggest that 57.1% of the elderly are partially dependent, therefore caregivers provide many services to meet patients' daily needs, such as eating, drinking, bathing, dressing, and toileting. Fulfilling these four basic needs requires an immediate response, therefore these are considered burdens by the caregiver. Ultimately, full duties and responsibilities, as well as vulnerability to psychological disorders further worsen the health status of female caregivers and can have an indirect impact on the quality of care (Wasilewski, 2016).

Research proves that caregivers with physical and psychological stress during caring tend to be physically and emotionally abusive to the elderly (Lino et al., 2019; Orfila et al., 2018), although some researches show that there was no relationship between high levels of fatigue and stress experienced by women during the caring process. However, certain characteristics in the sample have shown to contribute to the deterioration of the caregiver's health, such as the old age of caregivers, elderly dependency level, and the caregivers' dual role as a partner and breadwinner for the family. This is a predisposing factor in causing fatigue and stress for female caregivers during the caring process (Gérain & Zech, 2019). And, all of these characteristics revealed in this study result, and contribute to the female caregivers' fatique and stress.

The results indicated that there was a significant correlation between fatique and stress among female caregivers. The more tired the caregiver is in providing care, the higher the stress level they experienced. This is similar with research conducted by Lynch et al., (2018), which reported that female caregivers are prone to fatigue and stress, with several factors contributing to these two variables, such as age and financial problems, which are two important points reported in the results.

According to Herdman & Kamitsuru (2014), fatigue is one of the terminologies of nursing diagnosis defined by the condition of feeling tired continuously and has a physical and mental impact on an individual daily life. This is a natural human response in dealing with physical stress (Scruggs, 2009). However, if not treated immediately, the quality of care for the elderly will continue to decline, with a deterioration in the quality of life of caregivers (Ho et al., 2009). Therefore, it is important to consider an intervention in the future to reduce fatigue and stress factors experienced by female caregivers, which appear to be the majority group caring for other family members (Desbiens et al., 2018). This could have a positive impact on the elderly and caregivers in the future.

Study Limitation

This research was conducted during the COVID-19 pandemic, which reduced the number of hospitalized patients at USU Hospital by 80-90%. Furthermore, due to a lot of misinformation related to the spread of the COVID-19 pandemic in the community, most of the families of patients refused to participate in the research because they believed that their data would be misused. It was very difficult for researchers, although the USU Hospital had made it easier for patients and families by providing information. Therefore, the sample, which consisted of only 42 people, was not a general conclusion that described the conditions of females while being the main caregiver for the elderly at USU Hospital, Medan.

Conclusion

This research shows a very significant correlation between female caregivers' fatigue and stress experienced during caring for the elderly at USU Hospital. The average respondent that became the sample was elderly couples with an average age of 47 years and provided care almost 24 hours daily. The significant relationship between fatigue and stress is an indication that immediate treatment is needed to overcome caregiver fatigue, and therefore it can reduce the stress impact. Reducing the caregivers' stress level indirectly improves the quality of care for the elderly. This is important in healthcare as family members are an important support system in the caring process. In addition, this research results will contribute to the provision of family caregiver-based nursing interventions. It will develop several specific interventions which might support the hospital services and develop nursing research in the future.

Acknowledgment

The authors express profound gratitude to the Universitas Sumatera Utara for providing funding for this research. This also applies to female caregivers who were willing to be research samples, perhaps thanking them is not enough because they have been providing valuable data during the data collection process. The authors are also grateful to the USU Hospital for giving permission and facilitating data collection during the research.

References

Annisa, F. (2016). Burden of family caregiver. *Belitung Nursing Journal, 2*(1), 10–18. https://doi.org/10.33546/bnj.7

Cohen, M., Katz, D., & Baruch, Y. (2007). Stress among the family caregivers of liver transplant recipients. *Progress in Transplantation, 17*(1), 48–53. https://doi.org/10.7182/

prtr.17.1.a651683t34177n77

Conley, D., & St Pierre, J. (2016). *Foundations for gerontological unit I*. Jones & Bartlett Learning, LLC.

Desbiens, N. A., Mueller-rizner, N., & Virnig, B. (2018). Stress in Caregivers of Hospitalized Oldest-Old Patients. *The Journals of Gerontology*, *56*(4), 231–235. https://doi.org/10.1093/gerona/56.4.M231

Gérain, P., & Zech, E. (2019). Informal Caregiver burnout? Development of a theoretical framework to understand the impact of caregiving. *Frontiers in Psychology, 10*(July). https://doi.org/10.3389/fpsyg.2019.01748

Hartnett, J., Thom, B., & Kline, N. (2016). Caregiver Burden in End Stage Ovarian Cancer. *Clinical Journal of Oncology Nursing, 20*(2), 1–13. https://doi.org/10.1188/16.CJON.169-173

Herdman, T.H. & Kamitsuru, S. (2014). NANDA International Nursing Diagnoses: Definitions & Classification, 2015–2017. Wiley Blackwell

Ho, S. C., Chan, A., Woo, J., Chong, P., & Sham, A. (2009). Impact of caregiving on health and quality of life: A comparative population-based study of caregivers for elderly persons and noncaregivers. *Journal of Gerontology: Medical Sciences, 64*(8), 873–879. https://doi.org/10.1093/gerona/glp034

Hong, M., & Harrington, D. (2016). The effects of caregiving resources on perceived health among caregivers. *Health and Social Work, 41*(3), 155–163. https://doi.org/10.1093/hsw/hlw025

Johansen, S., Cvancarova, M., & Ruland, C. (2018). The effect of cancer patients' and their family caregivers' physical and emotional symptoms on caregiver burden. *Cancer Nursing, 41*(2), 91–99. https://doi.org/10.1097/NCC.0000000000000493

Kaur Popli, U., & Panday, R. (2018). Caregivers Burden of Hospitalized Elderly. *Journal of Gerontology & Geriatric Research, 07*(05). https://doi.org/10.4172/2167-7182.1000483

Kementrian Kesehatan Republik Indonesia. (2013). *Buletin jendela data dan informasi kesehatan*. Pusat Data dan Informasi Kemenkes RI.

Kim, Y., & Schulz, R. (2008). Family caregivers ' strains family caregivers ' strains. *Journal of Aging and Health, 20*(5), 483–503. https://doi.org/10.1177/0898264308317533

Lino, V. T. S., Rodrigues, N. C. P., de Lima, I. S., Athie, S., & de Souza, E. R. (2019). Prevalence and factors associated with caregiver abuse of elderly dependents: The hidden face of family violence. *Ciencia e Saude Coletiva, 24*(1), 87–96. https://doi.org/10.1590/1413-81232018241.34872016

Llanque, S., Savage, L., Rosenburg, N., & Caserta, M. (2016). Concept analysis: Alzheimer's caregiver stress. *Nursing Forum, 51*(1), 21–31. https://doi.org/10.1111/nuf.12090

Lynch, S. H., Shuster, G., & Lobo, M. L. (2018). The family caregiver experience – examining the positive and negative aspects of compassion satisfaction and compassion fatigue as caregiving outcomes. *Aging and Mental Health, 22*(11), 1424–1431. https://doi.org/10.1080/13607863.2017.1364344

Nuraini, T., Tumanggor, R. D., Hungerford, C., Lees, D., & Cleary, M. (2020). Caregiver burden for people with schizophrenia in Medan, Indonesia. *Issues in Mental Health Nursing, 0*(0), 1–4. https://doi.org/10.1080/01612840.2020.1847223

Orfila, F., Coma-Solé, M., Cabanas, M., Cegri-Lombardo, F., Moleras-Serra, A., & Pujol-Ribera, E. (2018). Family caregiver mistreatment of the elderly: Prevalence of risk and associated factors. *BMC Public Health, 18*(1), 1–14. https://doi.org/10.1186/s12889-018-5067-8

Özcan, N. K., Boyacıoğlu, N. E., & Sertçelik, E. (2017). Reciprocal abuse: Elder neglect and abuse by primary caregivers and caregiver burden and abuse in Turkey. *Archives of Psychiatric Nursing, 31*(2), 177–182. https://doi.org/10.1016/j.apnu.2016.09.011

Penning, M. J., & Wu, Z. (2016). Caregiver stress and mental health: Impact of caregiving relationship and gender. *Gerontologist, 56*(6). https://doi.org/10.1093/geront/gnv038

Pusat Data dan Informasi Kemenkes RI. (2016, June 03). *Situasi lanjut usia di Indonesia.* Retrieved January 12, 2021, from https://pusdatin.kemkes.go.id/article/view/16092300002/infodatin-situasi-lanjut-usia-lansia-di-indonesia.html

Roth, D. L., Fredman, L., & Haley, W. E. (2015). Informal caregiving and its impact on health: A reappraisal from population-based studies. *Gerontologist, 55*(2), 309–319. https://doi.org/10.1093/geront/gnu177

Schrank, B., Ebert-vogel, A., Amering, M., Masel, E. K., Neubauer, M., Watzke, H., Zehetmayer, S., & Schur, S. (2016). Gender differences in caregiver burden and its determinants in family members of terminally ill cancer patients. *Psycho-oncology, 25*(7), 808–814. https://doi.org/10.1002/pon.4005

Schulz, R., & Sherwood, P. R. (2008). Physical and mental health effects of family caregiving. *American Journal of Nursing, 108*(9), 23–27. https://doi.org/10.1097/01.NAJ.0000336406.45248.4c

Scruggs, B. (2009). Fatigue: Assessment and management. *Home Health Care Management & Practice, 22*(1), 16–25. https://doi.org/10.1177/1084822309340300

Sharma, N., Chakrabarti, S., & Grover, S. (2016). Gender differences in caregiving among family - caregivers of people with mental illnesses. *World Journal of Psychiatry, 6*(1), 7. https://doi.org/10.5498/wjp.v6.i1.7

Tiesinga, L.J., Dassen, T.W.N., Halfens, R.J.G.,

& van den Heuvel, W. (2001). Sensitivity, specificity, and usefulness of the Dutch Fatigue Scale. *Nursing Diagnosis, 12*(3), 93-106. https://doi.org/10.1111/j.1744-618x.2001.tb00478.x

Tumanggor, R. D., Elfira, E., & Aizar, E. (2021). Female caregivers stress in caring for hospitalized elderly with chronic disease at Universitas Sumatera Utara hospital: A phenomenology study. *Technium Social Sciences Journal, 20*(1), 643–651. https://doi.org/10.47577/tssj.v20i1.3511

Wasilewski, M. B. (2016). Caregiver burden – A critical discussion. *International Journal of Nursing Studies 50*(3), 431-441. https://doi.org/10.1016/j.ijnurstu.2012.10.005

Wolff, J. L., Spillman, B. C., Freedman, V. A., & Kasper, J. D. (2016). A national profile of family and unpaid caregivers who assist older adults with health care activities. *JAMA Internal Medicine, 176*(3), 372–379. https://doi.org/10.1001/jamainternmed.2015.7664

World Health Organization. (2001). Men Ageing And Health. Retrieved December 28, 2020, from https://apps.who.int/iris/handle/10665/66941

Wulansari, S. A. (2013). Gender inequality perception: a comparative study of women in Japan and Indonesia. 1–28. https://doi.org/10.1002/9781119990413.ch1

Determining Behavior to Uptake and Its Predictors toward Cervical Cancer Screening among Women: A Case-Control Multistage Study

Eko Winarti[1*], Dhita Kris Prasetyanti[2], Moh Alimansur[3], Rozzana Mohd Said[4]

[1,2]Faculty of Health Sciences, College of Midwifery, Universitas Kadiri, Kediri, Indonesia
[3]Collage of Nursing, Akademi Keperawatan Dharma Husada, Kediri, Indonesia
[4]Faculty of Health Sciences, Universiti Teknologi MARA, Selangor, Malaysia

Abstract

Background: Cervical cancer is a primary cause of mortality cancer among Indonesian women. Notwithstanding these threats, cervical cancer screening services have low uptake. Additionally, there was a lack of multistage case-control studies regarding positive behavior and its determinants for cervical cancer screening.
Purpose: This study was to ascertain the uptake behavior and its predictors toward cervical cancer screening.
Methods: A case-control study was conducted in Kediri with a sample size of 410 using multistage random sampling (ratio 1:1) from nine community health services and data were collected between June 11 to September 18, 2019. Data were obtained through questionnaires and assessed using Chi-square, Independent t-test, and multiple logistic regression with adjusted odds ratio (AOR).
Results: Behavior of cervical cancer screening was related to knowledge (AOR= 1.61), husband support (AOR= 1.38), social support (AOR= 5.03), external motivation (AOR= 1.24), internal motivation (AOR= 1.37), perceived susceptibility (AOR= 1.49), perceived barrier (AOR= 0.74), perceived benefit (AOR= 0.73), perceived severity (AOR= 1.36), self-efficacy (AOR= 1.30), perceived threat (AOR= 1.26), and intention to screening (AOR= 3.06) with p value <0.05 after adjusting covariate factors.
Conclusion: Knowledge, husband and social support, external and internal motivation, all domains of health belief, and intention to uptake screening were found to be strongly associated with behavior to uptake cervical cancer screening.

Keywords: cervical cancer; health belief; intention; motivation; screening.

OPEN ACCESS

Jurnal Keperawatan Padjadjaran (JKP)

Volume 9(3), 206-215

https://doi.org/10.24198/jkp.v9i3.1691

Article Info

Received : August 21, 2021
Revised : October 29, 2021
Accepted : November 04, 2021
Published : December 24, 2021

Corresponding author

Eko Winarti
Faculty of Health Sciences, College of Midwifery, Universitas Kadiri, Kediri, Indonesia, 64115, Phone: 62 85707388190, E-mail: ekowinarti@unik-kediri.ac.id

Citation

Winarti, E., Prasetyanti, D.K., Alimansur, M., & Said, R.M (2021). Determining Behavior to Uptake and Its Predictors towards Cervical Cancer Screening among Women: A Case-Control Multistage Study. *Jurnal Keperawatan Padjadjaran, 9*(3), 206-215. https://doi.org/10.24198/jkp.v9i3.1691

Website

http://jkp.fkep.unpad.ac.id/index.php/jkp

E-ISSN: 2442-7276
P-ISSN: 2338-5324

Introduction

Cancer is a major public health concern all over the world and it was responsible for 530,000 to 570,000 new cases occurred with 270,000 to 311,000 of fatalities worldwide from 2012 to 2018 (Arbyn et al., 2020). Moreover, approximately 90% of fatalities occurred in low-income and middle-income countries in 2018 (Arbyn et al., 2020). The incidence of mortality rate was generally two-fold to three-fold higher in developed countries compared with low-income and middle-income countries (DeSantis et al., 2015) .

Indonesia has a high prevalence of both incident and fatalities estimates of 13,762 and 7,493, respectively. These estimates make cervical cancer the second most frequently diagnosed cancer in Indonesian women, after breast cancer, and also the leading cause of cancer mortality rate (Jaspers, Budiningsih, Wolterbeek, Henderson, & Peters, 2011). To produce considerable reduction in cervical cancer incidence and mortality through increased acceptance of cervical cancer screening services, such barriers must be addressed (Rahayu & Ochoa, 2015).

Remarkably, the target population for screening tests in Indonesia was 37,415,483 women (29.07%), with 3,040,116 women (8.12%) undergoing examinations up to 2017 (Kementerian Kesehatan, 2017). In East Java Province, there were 6,278,356 women (31.72%) targeted for cervical cancer screening assessment, but only 1.4% performed to screening (Kementerian Kesehatan, 2017). Interestingly, according to statistics from the Kediri's Health Office Center, the coverage of early detection of cervical cancer in 2014 almost reached 1% of the target established by the health government of Kediri, which was 10% (Muhith et al., 2020). This challenge indicated that potential factors for behavior to uptake cervical cancer screening are comprehensive identified. These factors include demographic characteristics and factors related to knowledge, health belief, motivation and intention to uptake the screening test (Bayu, Berhe, Mulat, & Alemu, 2016; Ebu, Mupepi, Siakwa, & Sampselle, 2015; Roncancio et al., 2015). Consequently, these factors may contribute to enhancing cervical cancer screening.

Women's insufficient knowledge of preventive cervical cancer indicated low self-perception of disease risk and low utilization of screening services program (Ebu et al., 2015). Interestingly, the previous study done among Indonesian parents, female undergraduate student, and adult women showed a low level of knowledge regarding the screening test of cervical cancer (Endarti, Satibi, Farida, Rahmawanti, & Andriani, 2018; Jaspers et al., 2011). Furthermore, these studies were limited to screening service focused on women, and offered little insight into cervical cancer screening especially knowledge of the vaccine among populations with community multistage study in Indonesia. Therefore, the knowledge of the disease amongst women in Indonesia remains clarified.

The health belief model (HBM) is one of the theoretical guidelines for health lifestyle practices in epidemiology and behavior study. Moreover, the HBM is common and widely accepted due to its high prediction accuracy (Daryani, Shojaeezadeh, Batebi, Charati, & Naghibi, 2016; Rosenstock, Strecher, & Becker, 1988). The HBM has a strong correlation with how women assess the challenges and difficulties they could encounter when adopting new practices related to health, especially the behavior to conduct cervical cancer screening. These highlights, the probability of an individual behavior is the greatest when the individual is both motivated to act and has formed tactics and plans that facilitate behavioral engagement. The interconnections between motivation and behavior are required to establish better understanding of the success of behavioral performance screening to intention screening tests (Gu, Chan, He, Choi, & Yang, 2013), but these interconnections require explored.

Social support such as husband support and social support was considered to be a motivation for women to get routine cancer screenings (Mouttapa et al., 2016). Currently, incorporating social support messages into interventions may be a straightforward successful method for increasing women's screening test (Greibe Andersen, Shrestha, Gyawali, Neupane, & Kallestrup, 2020). Sometimes, intention is one of the most widely used theories of planned behavior (TPB) to clarify the interaction between intention and behavior to perform cervical cancer screening (Ogilvie et al., 2016).

Remarkably, several studies examine behavioral determinants including health beliefs, motivation, social support and intention (Daryani et al., 2016; Zare et al., 2016). However, there are no studies examining this relationship based on behavioral theory regarding cervical cancer screening with a multistage case-control study among Indonesian women living in Kediri, East Java Province. The findings of this research were to determine the knowledge, intention, motivation, and social support, as well as health belief constructs, that influence cervical cancer screening behavior among Indonesia women in area.

Methods

This research collected data using a case-control study (1:1 ratio) between June 11 to September 18, 2019. Sampling was carried out using a multistage simple random sampling method, where the researcher took samples through a stratified process and similar with other implemented of multistage random sampling in the health community center (Rias, Gordon, et al., 2020; Rias, Kurniasari, et al., 2020).

This research has received approval from the Ethics committee of Universitas Airlangga with registration number 38/KEPK/UA/II date on and duration .The first stage; determine the number of samples that must be taken at each District Health Center in Kediri with a proportional population; there were 46 respondents from Sukorame Health Center, Selatan Health Center with 50 respondents, Utara Health Center with 36 respondents, Ngletih Health Center with 96 respondents, Pesantren I Health Center with 50 respondents, Campurejo Health Center with 4 respondents, Mrican Health Center with 26 respondents, Balowerti Health Center with 86 respondents, and Pesantren II Health Center with 16 respondents. The second stage; determine the selected district community health center in each community health center randomly. The third stage; respondents in each district were selected by simple random sampling. Both women conduct-case and not conduct-control screening cervical cancer were recruited from nine primary clinics in community and were assessed using medical record and brief interview aimed to assess behavioral uptake a cervical cancer screening and the cancer family history.

Additionally, physicians and principal author independently evaluated the clinic medical records

Table 1. Characteristics of The Respondent

Variables	n	%
Age		
20-35	160	39.0
>35-50	250	61.0
Education		
ISCED <3	164	40.0
ISCED ≥3	246	60.0
Occupation		
Unemployed workers	289	70.5
Employed workers	121	29.5
Income (IDR)		
<1.47 million	159	38.8
≥1.47 million	251	61.2
Cancer family history		
No	395	96.3
Yes	15	3.7
Knowledge (Mean ± SD)	4.89	1.59
Husband support (Mean ± SD)	15.62	1.98
Social support (Mean ± SD)	4.77	1.10
External motivation (Mean ± SD)	19.86	3.33
Internal motivation (Mean ± SD)	22.16	2.61
Perceived susceptibility (Mean ± SD)	16.32	3.54
Perceived barriers (Mean ± SD)	23.04	4.78
Perceived benefits (Mean ± SD)	23.13	3.21
Perceived severity (Mean ± SD)	20.65	3.13
Perceived self-efficacy (Mean ± SD)	27.06	4.88
Perceived threat (Mean ± SD)	25.73	3.73
Intention to screening (Mean ± SD)	12.04	1.89

Note: IDR = Indonesian Rupiah rate; ISCED = International Standard Classification of Education; SD = Standard Deviation.

of the qualifying case and control groups. The sample size calculation in this study is based on the rule of thumb (Aguinis & Harden, 2010), which states that the sample size should be large enough to include at least five to ten observations for each estimated parameter with under estimation rate of 20%. In total, 410 participants, 205 women who do not conduct screening, and 205 women who conduct screening, were consecutively recruited. Thus, all participants agreed to participate in the study.

The sample case study included women who were married, aged between 20 to 39 years, who confirmed not pregnant and had carried out to detection of cervical cancer using the visual acetate acid inspection method or pap smear screening test. The control group is some women who are married, not pregnant but have not carried out early detection of cervical cancer screening. Both case and control respondents excluded those who were pregnant, had a Mini-Mental State Exam score of ≤24, and disability or used antidepressant as well as not completing the questionnaire. All across the observation period, trained nurses and authors questioned all participants using a questionnaire that included questions about participants' demographic data, such as age, education, occupation, income and cancer family history. Additionally, clinical related health factors including knowledge, husband support, social support, both external and internal motivation, all domains of health belief model, as well as the intention to uptake screening were evaluated.

The respondents' general knowledge was consisting of 9 question items regarding information related to the early detection of cervical cancer and cognitive construct (Waller, Ostini, Marlow, McCaffery, & Zimet, 2013). We interpreted the score with "wrong (0-point)" and "correct (1-point)" and the total possible lower score was 0-9; which indicated that a higher score suggests greater familiarity with knowledge of cervical cancer screening. The Indonesian version of knowledge questionnaire had

Table 2. Relationships of Distributions of Demographic with Intention to Uptake in Cervical Cancer Screening

Variables	Behavior to uptake in cervical cancer screening, n (%)		p value
	Not conduct screening (n=205)	Conduct screening (n=205)	
Age[a]			
20–35	95 (46.3)	65 (31.7)	0.002
35–50	110 (53.7)	140 (68.3)	
Education[a]			
ISCED <3	79 (38.5)	85 (41.5)	0.545
ISCED ≥3	126 (61.5)	120 (58.5)	
Occupation[a]			
Unemployed workers	129 (62.9)	160 (78.0)	0.001
Employed workers	76 (37.1)	45 (22.0)	
Income (IDR)[a]			
<1.47 million	85 (41.5)	74 (36.1)	0.265
≥1.47 million	120 (58.5)	131 (63.9)	
Cancer family history[a]			
No	202 (98.5)	193 (94.1)	0.018
Yes	3 (1.5)	12 (5.9)	
Knowledge (Mean ± SD)[b]	4.21 (1.46)	5.56 (1.41)	<0.001
Husband support (Mean ± SD)[b]	15.07 (2.18)	16.18 (1.69)	<0.001
Social support (Mean ± SD)[b]	4.20 (1.07)	5.33 (0.71)	<0.001
External motivation (Mean ± SD)[b]	18.93 (3.09)	20.79 (3.31)	<0.001
Internal motivation (Mean ± SD)[b]	20.89 (1.55)	23.43 (2.83)	<0.001
Perceived susceptibility (Mean ± SD)[b]	14.33 (2.70)	18.32 (3.15)	<0.001
Perceived barriers (Mean ± SD)[b]	24.27 (3.90)	21.80 (5.42)	<0.001
Perceived benefits (Mean ± SD)[b]	22.52 (3.26)	23.74 (3.06)	<0.001
Perceived severity (Mean ± SD)[b]	19.19 (2.62)	22.12 (2.91)	<0.001
Perceived self-efficacy (Mean ± SD)[b]	24.58 (4.33)	29.54 (4.08)	<0.001
Perceived threat (Mean ± SD)[b]	23.56 (3.15)	27.82 (3.02)	<0.001
Intention to screening (Mean ± SD)[b]	10.90 (1.89)	13.17 (1.01)	<0.001

Note: IDR = Indonesian Rupiah rate; ISCED = International Standard Classification of Education; SD = Standard Deviation; [a]Chi-Square; [b]Independent t- test

good internal consistency with Cronbach's alpha was 0.689 for our study.

The constructs for the HBM were a 5-likert scale (1 being extremely dissatisfied and 5 being extremely dissatisfied), and study with continuous data was developed by the researcher and obtained from Champion (Champion & Skinner, 2008) to adjust the scale and make required improvements to make them valid for both Bahasa Indonesia and the culture, consisting of 49 items, involving 6 items for susceptibility, severity 7-items, benefit 7-items, barrier 11-items, self-efficacy 9-items, and threat 9 items. The questionnaire's content validity was determined by 5 experts in nursing and public health with content validity 0.91 and internal validity of questions was acceptable reliability with Cronbach's alpha coefficient of 0.746, 0.768, 0.802, 0.781, 0.774, 0.758 in perceived susceptibility, severity, benefit, barrier, self-efficacy, and threat, respectively. The motivation questionnaire was developed and has been modified by researchers based on the motivational theory (Reiss, 2012) related to women's motivation in carrying out early detection of cervical cancer. This variable questionnaire consists of 15 question items (external motivation with 8-items, and internal motivation with 7-items), using a Likert scale consisting answer choices from strongly agree score = 4, agree score = 3, disagree score = 2 and strongly disagree score = 1. Higher score indicated those with good motivation. In our study, the content validity was 0.87 with acceptable Cronbach's alpha coefficient of 0.796 and 0.789 in

Table 3. Adjusted beta-coefficients and 95% confidence intervals (CIs) of knowledge, support, motivation, intention to screening and HBM constructs with participants' behavioral to uptake in cervical cancer screening

Variables	Behavioral to uptake in cervical cancer screening, n (%)	
	Unadjusted OR (95% CI), p value	AOR (95% CI), p value
Knowledge	1.89 (1.62~2.21), <0.001	1.61 (1.09~2.38), 0.017
Husband support	1.37 (1.22~1.54), <0.001	1.38 (1.04~1.81), 0.024
Social support	3.47 (2.69~4.49), <0.001	5.03 (2.26~11.19), 0.001
External motivation	1.20 (1.12~1.28), <0.001	1.24 (1.02~1.51), 0.032
Internal motivation	1.70 (1.50~1.93), <0.001	1.37 (1.04~1.80), 0.026
Perceived susceptibility	1.57 (1.43~1.72), <0.001	1.49 (1.20~1.86), 0.001
Perceived barriers	0.88 (0.84~0.93), <0.001	0.74 (0.62~0.89), 0.001
Perceived benefits	1.13 (1.06~1.21), <0.001	0.73 (0.58~0.93), 0.009
Perceived severity	1.50 (1.36~1.66), <0.001	1.36 (1.05~1.75), 0.018
Perceived self-efficacy	1.33 (1.25~1.42), <0.001	1.30 (1.08~1.55), 0.005
Perceived threat	1.65 (1.49~1.83), <0.001	1.26 (1.01~1.57), 0.038
Intention to screening	2.69 (2.23~3.25), <0.001	3.06 (1.99~4.71), 0.001

Note: Adjusted b coefficients and 95% CI were estimated using multiple logistic regression after adjusting for age, education, occupation, income and cancer family history. CI = confidence interval; OR = odds ratio; AOR = adjusted odds ratio.

internal and external motivation, respectively. The support system instrument used by the researcher to collect data on husband's support and social support was adopted from the Partner Interaction Questionnaire (Cohen & Lichtenstein, 1990), which was modified by the researcher to husbands support and social support regarding the implementation of early detection of cervical cancer. The questionnaire consists of 9 items for husband support and 3 items for social support question items; if the answer is "yes = score 2", and for the answer is "no = score 1". Higher score indicated good support system. In our study, the content validity was 0.95 with acceptable Cronbach's alpha coefficient of 0.786 and 0.803 in husbands support and social support, respectively.

Intentions to screening questionnaire were adapted from the self-administered TPB questionnaire (Ajzen, 1991) and developed to cervical cancer screening with 7 items. We interpreted the score with "no (1-point)" and "yes (2-point)" and the total possible lower score was 1-14; which indicated that a higher score suggests strong intention of cervical cancer screening. The Indonesian version of Intentions to screening questionnaire had good internal consistency with Cronbach's alpha of 0.718 in our study.

Descriptive analyses were used to determined sociodemographic data, knowledge, husband support, social support, both external and internal motivation, all domains of health belief model, as well as the intention to uptake screening between groups. The outcomes are showed as percentages (%), frequency (n) or mean □ standard deviation (SD). The differences significance was calculated using a Chi-square and Independent t-test. The relation between outcome and the predictor variables was determined using simple logistic regression, used to calculate the odds ratio (ORs) and measure the association between determinates factors and behaviors cervical cancer screening in the analytical bivariate. Moreover, a multiple logistic regression with adjusted OR (AORs) with the corresponding of 95% confidence interval (CI) was obtained from following the multiple logistic regression for behaviors cervical cancer screening in relation to specific independent variables of interest (knowledge, husband support, social support, both external and internal motivation, all domains of health belief model, as well as the intention to uptake screening) after the adjustment for potential confounding factors in the models (age, education, occupation, income and cancer family history). At a p-value of 0.05, statistical SPSS version. 25 IBM (Armonk, NY, USA) significance was established. OR and 95% confidence intervals were used to express the direction and intensity of the association.

Results

This study enrolled a total of 410 respondents from Kediri, East Java. Approximately half of the study's 250 (61.0%) participants were in the age range of 35–50 years. The majority of respondents 246 (60.0%) were ISCED □3, and more than half 289 (70.5%) were unemployed or housewife. The 251 (61.2 %) and 395 (96.3 %), respectively, had monthly income of ≥1.47 million. Our respondents also showed that mean (SD) was 4.89 (1.59) of knowledge, 15.62 (1.98) husband support, 4.77 (1.10) social support, external motivation 19.86 (3.33), and internal motivation 22.16 (2.61). Moreover, the mean (SD) value of them of perceived susceptibility, barrier, benefit, severity, self-efficacy, threat, and intention to screening were 16.32 (3.54), 23.04 (4.78), 23.13

(3.21), 20.65 (3.13), 27.06 (4.88), 25.73 (3.73), respectively (Table 1).

The overall characteristics of the respondents are summarized in Table 2. No significant differences were noted in education, and income between groups outcome. However, significant difference in age, occupation, and cancer history was revealed between groups. Notably, the finding revealed that there were significantly different ($p < 0.001$) score in knowledge, support system, motivation, health belief models construct between group of behavior to uptake in screening variables (Table 2).

The univariate analysis revealed that knowledge, husband support, social support, both external and internal motivation, perceived susceptibility, barriers, benefits, severity, self-efficacy, and threat as well as the intention to uptake, had significant effects on behaviors to uptake in screening. Multiple logistic regression also shown knowledge, both external and internal motivation, perceived susceptibility, barriers, benefits, severity, self-efficacy, threat and intention. As shown in the adjusted OR for comparing the effects of variables on performance, the greatest impact belonged to social support. Also, internal motivation variable had a greater effect on behaviors than external motivation; and the individual's susceptibility had a greater effect on the behaviors than the perceived benefit after adjusted with covariate (Table 3).

Discussion

To the best of our knowledge, this case-control with multistage survey seems to be the first study engaging a validated questionnaire to investigate the health belief of screening cervical cancer as well as the factors affecting behavior toward screening for Indonesian women in Kediri, Indonesia. Furthermore, the highlight findings suggested that women's social support and intention was persistently related with behavioral to uptake the cervical cancer screening.

Prior study revealed that knowledge was significantly correlated with behaviors uptake cervical cancer screening, also indicated that the evaluating women's knowledge of cervical cancer implies putting the current aspect into consideration and suggest strategies for improved an understanding, attitudes, and demand for cervical cancer screening services (Weng, Jiang, Haji, Nondo, & Zhou, 2020). Our study was also in line with previous studies among Ghanaian women which revealed that a large proportion (93.6% and 97.7%) of women in Ghana's central area lacking of knowledge of cervical cancer and screening, (Ebu et al., 2015). The pooled odds of knowledge score were 1.61 times greater for women who screened of cervical cancer than for those who do not conduct screening test. Similarly, with systematic review and meta-analysis among Ethiopian women with a favorable knowledge toward cervical cancer screening were 3.2 times more likely to have a test than those with a poor knowledge (Kassie et al., 2020). However, several studies conducted in various parts of Indonesia have revealed that the majority of women do not only have poor knowledge about cervical cancer screening tests, but also have lack of awareness about the illness itself (Endarti et al., 2018; Jaspers et al., 2011). Lack of knowledge and awareness is caused by the possibility that Indonesian women are lack of informing community education, low income status, and living in rural area (Spagnoletti, Bennett, Wahdi, Wilopo, & Keenan, 2019). This implies that encouraging knowledge should be strategically undertaken.

Our findings regarding the relationship between support systems, including husbands and social support (family and friends), and screening uptake, highlight the importance of prevention strategies that include structured behavior change communication strategies that are sensitive to sociocultural beliefs, particularly patriarchal culture (Afsah, Astuti, Azizah, & Muflihin, 2019), and aim to alleviate common misconceptions about the screening test, as well as health providers changing their husband and society. It is considered that the supposed receipt of social support encourages women to undertake routine cancer screenings, including the context of this area about belief and social norm. African American and other studies have discovered a positive correlation between subjective views of support for breast and cervical cancer screening (e.g., having supportive friends or family, including husband) and actual cancer screening behavior. On the other hand, persons who get social support may not regard it as beneficial, which may result in negative health implications such as psychological stress (Heaney & Israel, 2008; Mouttapa et al., 2016). Another factor that discouraged women from screening was a lack of husband support (Ampofo, Adumatta, Owusu, & Awuviry-Newton, 2020). A comprehensive review presented that the living experiences of family caregiver of women with gynecological cancer indicated that caregivers endure disturbance of daily routines, lifestyle, roles, physical closeness, and plans. Male partners' experiences caring for their wives/partners with breast and gynecological cancer represented that men prefer to minimize disturbances, focus on duties, and keep tension to themselves, which is viewed as being in line with masculinity, i.e. being the stronger person (Teskereci & Kulakaç, 2018). Men claimed that going through the cervical cancer journey with their partner is life-altering. Reorientation, change of life plans, intense care and support of partners, and increased practical obligations in their connections with women, the men mention a sense of interdependence and how the relationships have changed, notably in sexual terms. These findings ring true for hegemonic and compassionate masculinities alike (Oldertrøen Solli, de Boer, Nyheim Solbrække, & Thoresen, 2019). Possible explanations for these findings include the fact that most women believe they do not exhibit disease-related signs and symptoms and hence

do not view screening as critical. As a result, there may be a shortage of time to attend or even seek out facilities for screening (Ampofo et al., 2020). Consequently, promoting the social support and husband support are potentially effective strategies for improving screening test as well as mortality in the future and needed.

The outcomes of a logistic regression analysis strongly identified women's motivation to affect a cervical cancer screening. In line with study in China, it is shown that motivating also strongly related with cervical cancer screening and suggested that motivation can be utilized to policy standpoint into cervical cancer screening behaviors among Chinese women, with an emphasis on disease knowledge, certain demographic variables with screening test. These findings, also confirmed with that, can be used to build future intervention programs (Bai et al., 2018). Moreover, our research is consistent with the Fogg Conduct Model (FBM), which asserts that human behavior is motivated. Additionally, FBM states that a person will engage in the target behavior if he or she has adequate desire, the ability to engage in the action, and an effective trigger to engage in the action (Beilock, Feltz, & Pivarnik, 2001). Currently, the motivation can improve the behaviors to positive cervical cancer screening.

In general, our findings indicated that the HBM constructs is a viable approach for investigating cervical cancer screening among Indonesian women. Additionally, our findings highlighted the critical nature of healthcare systems and practices that engagement perceived susceptibility, barriers, benefits, severity, self-efficacy, and threat to cervical screening for Indonesian women. Remarkably, it is vital to understand HBM constructs about cervical cancer and screening in order to develop and implement culturally appropriate screening programs (Lee, Roh, Jun, Goins, & McKinley, 2020). The similar study shown a statistically significant favorable effect of perceived susceptibility on screening utilization. Women's low levels of perceived susceptibility contributed to their negative attitudes with low levels of cervical cancer screening test, which indicated that women who had low perceived susceptibility didn't really believe they were at risk of cervical cancer and also did not need the screening test (Sunarta, Sulaeman, & Budihastuti, 2019).

The findings confirmed those of a prior study, which indicated a positive correlation between perceived severity and screening use. Additionally, previous study demonstrated that for women with a high perceived severity, it would result in a 0.11 times prevent in screening test compared to women with a low perceived severity (Sunarta et al., 2019). If someone perceives the severity of an illness, they will seek treatment and prevention. Women's perceptions of the severity of cervical cancer were formed by their experiences with the pain symptoms. In line with our study, the perceived benefits were a predictor of cervical cancer screening behavior in both univariate and multivariate models. In the final model, which produced more accurate results, perceived benefits were the best predictor of women receiving a screening test (Babazadeh et al., 2019). Perceived barriers and perceived severity were found to be predictive of cervical cancer screening successful test in Hope et al study (Hope, Moss, Redman, & Sherman, 2017). Interestingly, both perceived threats, and perceived self-efficacy was the greatest factor of participants' screening cervical cancer test adherence. A previous study also established correlations between the HBM's theoretical constructs and self-efficacy. The results of Generalized Linear Modelling confirmed the theoretical associations between self-efficacy perceived threats with cervical cancer screening behavior. Women with a stronger sense of self-efficacy and low level of perceived threats were more likely to have had a screening test than those with a lower sense of self-efficacy and high perceived treat (De Peralta, Holaday, & McDonell, 2015). This implies that encouraging HBM construct should be explored in strategical investigation.

Interestingly, our findings shown that intention associated with cervical cancer screening both multivariate and bivariate analysis, which indicated strong predictor to determine behavioral cervical cancer screening test in our population. This finding is congruent with a study conducted among Latinos. Perceived behavioral control was the largest predictor of intentions to get screened for cervical cancer, followed by subjective norms to be screened (Roncancio et al., 2015). According to a prior study, women's intention to utilize cervical cancer screening is primarily influenced by perceived behavioral control, followed by subjective norms on cervical cancer screening (Abamecha, Tena, & Kiros, 2019). This assesses an intervention using the paradigm of implementation intentions shown that women recruited at England medical practice completed assessments of the theory of planned behavior variables before being induced to establish the implementation intentions identifying when, where, and how they would schedule the appointment. The results indicate that the theory of planned behavior factors and prior delayed behavior accurately predicted attendance. Despite similar motivation to attend, those who developed implementation intentions were much more likely to attend screening than controls. Additionally, evidence indicates that implementation objectives undermined the connection between antecedent delay and subsequent participation (Sheeran & Orbell, 2000).

Limitations

As a limitation, the study could not consider other variables like birth control pills consumption, and parity frequency as predictors of the behavioral intention. The study was performed no attempt to establish causal relationships between these psychographic factors through an experimental

approach. Additionally, the social desirability bias may impair the data's accuracy by influencing individuals' attitudes and intentions.

Conclusion

The knowledge, husband support, social support, both external and internal motivation, all domains of health belief model, as well as the intention to uptake screening were found strongly associated with behavioural to uptake cervical cancer screening. Our findings approaches may contribute in the earlier detection of cervical cancer and declining of cervical cancer-related mortality rates.

Acknowledgment

We would like to express our gratitude to all of the participants and Universitas Airlangga Ethical Committee for suggestion and approve ethical clearances our study, and to those who assisted us with data collection.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article

References

Abamecha, F., Tena, A., & Kiros, G. (2019). Psychographic predictors of intention to use cervical cancer screening services among women attending maternal and child health services in Southern Ethiopia: The theory of planned behavior (TPB) perspective. *BMC Public Health, 19*(1), 1-9. https://doi.org/10.1186/s12889-019-6745-x

Afsah, Y., Astuti, Y., Azizah, S., & Muflihin, B. (2019). Javanese women's perception of husband's support in women reproductive health. *Advances in in Health and Sciences Research, 15,* 192-196. https://doi.org/10.2991/icosihsn-19.2019.42

Aguinis, H., & Harden, E. E. (2010). Sample size rules of thumb: Evaluating three common practices. In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends: Doctrine, verity and fable in the organizational and social sciences* (pp. 267–360). Routledge/Taylor & Francis Group

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Ampofo, A. G., Adumatta, A. D., Owusu, E., & Awuviry-Newton, K. (2020). A cross-sectional study of barriers to cervical cancer screening uptake in Ghana: An application of the health belief model. *PloS One, 15*(4), e0231459-e0231475. https://doi.org/10.1371/journal.pone.0231459

Arbyn, M., Weiderpass, E., Bruni, L., de Sanjosé, S., Saraiya, M., Ferlay, J., & Bray, F. (2020). Estimates of incidence and mortality of cervical cancer in 2018: A worldwide analysis. *The Lancet Global Health, 8*(2), e191-e203. https://doi.org/10.1016/S2214-109X(19)30482-6

Babazadeh, T., Ghaffari-Fam, S., Oliaei, S., Sarbazi, E., Shirdel, A., Mostafa-Gharabaghi, P., & Azizi, H. (2019). Predictors of Pap smear screening behavior among rural women in Tabriz, Iran: An application of health belief model. *International Journal of Cancer Management, 12*(5). e87246-e87254. https://doi.org/10.5812/ijcm.87246

Bai, Y., Liu, Q., Chen, X., Gao, Y., Gong, H., Tan, X., . . . Xiang, Q. (2018). Protection motivation theory in predicting intention to receive cervical cancer screening in rural Chinese women. *Psycho-oncology, 27*(2), 442-449. https://doi.org/10.1002/pon.4510

Bayu, H., Berhe, Y., Mulat, A., & Alemu, A. (2016). Cervical cancer screening service uptake and associated factors among age eligible women in Mekelle Zone, Northern Ethiopia, 2015: a community based study using health belief model. *PloS One, 11*(3), e0149908-e0149921. https://doi.org/10.1371/journal.pone.0149908

Beilock, S. L., Feltz, D. L., & Pivarnik, J. M. (2001). Training patterns of athletes during pregnancy and postpartum. *Research Quarterly for Exercise and Sport, 72*(1), 39-46. https://doi.org/10.1080/02701367.2001.10608930

Champion, V. L., & Skinner, C. S. (2008). The health belief model. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 45–65). Jossey-Bass.

Cohen, S., & Lichtenstein, E. (1990). Partner behaviors that support quitting smoking. *Journal of Consulting and Clinical Psychology, 58*(3), 304-309. https://doi.org/10.1037/0022-006X.58.3.304

Daryani, S., Shojaeezadeh, D., Batebi, A., Charati, J. Y., & Naghibi, A. (2016). The effect of education based on a health belief model in women's practice with regard to the Pap smear test. *Journal of Cancer Policy, 8,* 51-56. https://doi.org/10.1016/j.jcpo.2015.11.001

De Peralta, A. M., Holaday, B., & McDonell, J. R. (2015). Factors affecting Hispanic women's participation in screening for cervical cancer. *Journal of Immigrant and Minority Health, 17*(3), 684-695. https://doi.org/10.1007/s10903-014-9997-7

DeSantis, C. E., Bray, F., Ferlay, J., Lortet-Tieulent, J., Anderson, B. O., & Jemal, A. (2015). International variation in female breast cancer incidence and mortality

rates. *Cancer Epidemiology and Prevention Biomarkers, 24*(10), 1495-1506. https://doi.org/10.1158/1055-9965.EPI-15-0535

Ebu, N. I., Mupepi, S. C., Siakwa, M. P., & Sampselle, C. M. (2015). Knowledge, practice, and barriers toward cervical cancer screening in Elmina, Southern Ghana. *International Journal of Women's Health, 7*(1), 31-39. https://doi.org/10.2147/IJWH.S71797

Endarti, D., Satibi, S. A. K., Farida, M. A., Rahmawanti, Y., & Andriani, T. (2018). Knowledge, perception, and acceptance of HPV vaccination and screening for cervical cancer among women in Yogyakarta Province, Indonesia. *Asian Pacific Journal of Cancer Prevention: APJCP, 19*(4), 1105–1111. https://doi.org/10.22034/APJCP.2018.19.4.1105

Greibe Andersen, J., Shrestha, A. D., Gyawali, B., Neupane, D., & Kallestrup, P. (2020). Barriers and facilitators to cervical cancer screening uptake among women in Nepal–a qualitative study. *Women & Health, 60*(9), 963-974. https://doi.org/10.1080/03630242.2020.1781742

Gu, C., Chan, C. W., He, G.-P., Choi, K., & Yang, S.-B. (2013). Chinese women's motivation to receive future screening: the role of social-demographic factors, knowledge and risk perception of cervical cancer. *European Journal of Oncology Nursing, 17*(2), 154-161. https://doi.org/10.1016/j.ejon.2012.04.005

Heaney, C. A., & Israel, B. A. (2008). Social networks and social support. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 189–210). Jossey-Bass.

Hope, K. A., Moss, E., Redman, C. W., & Sherman, S. M. (2017). Psycho-social influences upon older women's decision to attend cervical screening: A review of current evidence. *Preventive Medicine, 101,* 60-66. https://doi.org/10.1016/j.ypmed.2017.05.002

Jaspers, L., Budiningsih, S., Wolterbeek, R., Henderson, F., & Peters, A. (2011). Parental acceptance of human papillomavirus (HPV) vaccination in Indonesia: A cross-sectional study. *Vaccine, 29*(44), 7785-7793. https://doi.org/10.1016/j.vaccine.2011.07.107

Kassie, A. M., Abate, B. B., Kassaw, M. W., Aragie, T. G., Geleta, B. A., & Shiferaw, W. S. (2020). Impact of knowledge and attitude on the utilization rate of cervical cancer screening tests among Ethiopian women: A systematic review and meta-analysis. *PloS One, 15*(12), e0239927-e0239949. https://doi.org/10.1371/journal.pone.0239927

Kementerian Kesehatan. (2017). *Data dan Informasi Profil Kesehatan Indonesia 2016.* Kementerian Kesehatan Republik Indonesia.

Lee, Y.-S., Roh, S., Jun, J. S., Goins, R. T., & McKinley, C. E. (2020). Cervical cancer screening behaviors among American Indian women: Cervical cancer literacy and health belief model. *Journal of Ethnic & Cultural Diversity in Social Work*, *30*(5), 413-429. https://doi.org/10.1080/15313204.2020.1730285

Mouttapa, M., Park Tanjasiri, S., Wu Weiss, J., Sablan-Santos, L., DeGuzman Lacsamana, J., Quitugua, L., . . . Tui'one May, V. (2016). Associations between women's perception of their husbands'/partners' social support and pap screening in Pacific Islander communities. *Asia Pacific Journal of Public Health, 28*(1), 61-71. https://doi.org/10.1177/1010539515613412

Muhith, A., Winarti, E., Perdana, S., Haryuni, S., Rahayu, K., & Mallongi, A. (2020). Internal locus of control as a driving factor of early detaction behavior of servical cancer by inspection visual of acetic acid method. *Open Access Maced J Med Sci. 8*(E): 113-116. https://doi.org/10.3889/oamjms.2020.4341

Ogilvie, G. S., Smith, L. W., van Niekerk, D., Khurshed, F., Pedersen, H. N., Taylor, D., . . . Franco, E. L. (2016). Correlates of women's intentions to be screened for human papillomavirus for cervical cancer screening with an extended interval. *BMC Public Health, 16*(1), 1-8. https://doi.org/10.1186/s12889-016-2865-8

Oldertrøen Solli, K., de Boer, M., Nyheim Solbrække, K., & Thoresen, L. (2019). Male partners' experiences of caregiving for women with cervical cancer—a qualitative study. *Journal of Clinical Nursing, 28*(5-6), 987-996. https://doi.org/10.1111/jocn.14688

Rahayu, D. S., & Ochoa, M. (2015). Cervical cancer awareness: an information dissemination campaign in indonesia. *Jurnal Keperawatan Padjadjaran, 3*(1). https://doi.org/10.24198/jkp.v3i1.97

Reiss, S. (2012). Intrinsic and extrinsic motivation. *Teaching of Psychology, 39*(2), 152-156. https://doi.org/10.1111/1467-937X.00253

Rias, Y. A., Gordon, C. J., Niu, S. F., Wiratama, B. S., Chang, C. W., & Tsai, H. T. (2020). Secondhand smoke correlates with elevated neutrophil-lymphocyte ratio and has a synergistic effect with physical inactivity on increasing susceptibility to type 2 diabetes mellitus: A community-based case control study. *International Journal of Environmental Research and Public Health, 17*(16), 5696-5617. https://doi.org/10.3390/ijerph17165696

Rias, Y. A., Kurniasari, M. D., Traynor, V., Niu, S. F., Wiratama, B. S., Chang, C. W., & Tsai, H. T. (2020). Synergistic effect of low neutrophil–lymphocyte ratio with physical activity on quality of life in type 2 diabetes mellitus: A community-based study. *Biological Research for Nursing, 22*(3), 378-387. https://doi.org/10.1177/1099800420924126

Roncancio, A. M., Ward, K. K., Sanchez, I. A., Cano, M. A., Byrd, T. L., Vernon, S. W., . . .

Fernandez, M. E. (2015). Using the theory of planned behavior to understand cervical cancer screening among Latinas. *Health Education & Behavior, 42*(5), 621-626. https://doi.org/10.1177/1090198115571364

Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the health belief model. *Health Education Quarterly, 15*(2), 175-183. https://doi.org/10.1177/109019818801500203

Sheeran, P., & Orbell, S. (2000). Using implementation intentions to increase attendance for cervical cancer screening. *Health Psychology, 19*(3), 283-289. https://psycnet.apa.org/buy/2000-03769-009

Spagnoletti, B. R. M., Bennett, L. R., Wahdi, A. E., Wilopo, S. A., & Keenan, C. A. (2019). A qualitative study of parental knowledge and perceptions of human papillomavirus and cervical cancer prevention in rural central Java, Indonesia: Understanding community readiness for prevention interventions. *Asian Pacific Journal of Cancer Prevention: APJCP, 20*(8), 2429–2434. https://doi.org/10.31557/APJCP.2019.20.8.2429

Sunarta, E. A., Sulaeman, E. S., & Budihastuti, U. R. (2019). Path analysis on the determinants of visual inspection acetic acid utilization on early detection of cervical cancer: application of health belief model theory. *Journal of Health Promotion and Behavior, 4*(1), 32-42. https://doi.org/10.26911/thejhpb.2019.04.01.04

Teskereci, G., & Kulakaç, O. (2018). Life experiences of caregivers of women with gynaecological cancer: A mixed-methods systematic review. *European Journal of Cancer Care, 27*(1), e12456-e12473. https://doi.org/10.1111/ecc.12456

Waller, J., Ostini, R., Marlow, L. A., McCaffery, K., & Zimet, G. (2013). Validation of a measure of knowledge about human papillomavirus (HPV) using item response theory and classical test theory. *Preventive Medicine, 56*(1), 35-40. https://doi.org/10.1016/j.ypmed.2012.10.028

Weng, Q., Jiang, J., Haji, F. M., Nondo, L. H., & Zhou, H. (2020). Women's knowledge of and attitudes toward cervical cancer and cervical cancer screening in Zanzibar, Tanzania: a cross-sectional study. *BMC Cancer, 20*(1), 63-75. https://doi.org/10.1186/s12885-020-6528-x

Zare, M., Ghodsbin, F., Jahanbin, I., Ariafar, A., Keshavarzi, S., & Izadi, T. (2016). The effect of health belief model-based education on knowledge and prostate cancer screening behaviors: a randomized controlled trial. *International Journal of Community Based Nursing and Midwifery, 4*(1), 57-68. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4709816/

Fear of Covid-19 Related Factors among Females in Indonesia: An Online Survey

Roxsana Devi Tumanggor[1*], Intan Imaroh[2], Andrew Cashin[3]

[1*]Faculty of Nursing, Community and Psychiatric Nursing Department, Universitas Sumatera Utara, Medan, Indonesia
[2]Faculty of Public Health, Statistics and Populations Department, Universitas Sumatera Utara, Medan, Indonesia
[3]School of Health and Human Sciences, Faculty of Health, Southern Cross University, East Lismore NSW, Australia

Abstract

Background: The COVID-19 pandemic is a highly infectious flu outbreak which spread rapidly around the world. COVID-19 outbreak caused panic and is predicted to increase the prevalence of mental illnesses such as depression and anxiety disorder . Along with increased anxiety and decreased mood, increased fear has been detected.
Purpose: To analyze the fear of COVID-19 related factors and measure the level of fear among women in Indonesia.
Methods: This is a cross-sectional study with 242 women who was implemented using the fear of COVID-19 instrument. A convenience sample was utilized and was recruited via an online WhatsApp through personal text to the potential respondents. The respondents stated their agreement to participate on the Google form before proceeding to fill in the data and answer the instrument items. The analysis was carried out to obtain the frequency distribution, mean and P-value. The mean score of each instrument item and the overall items were calculated and compared based on demographic data using t-test for two variables and analysis of variance (ANOVA) for three or more variables. Furthermore, the scores obtained were categorized into low and high fear levels based on the overall mean, where scores from 0-17 were categorized as low-level fear and 18-35 as high-level fear.
Results: The results showed that 90.9% of the respondents were within the age range of 15–25 years, with the majority being students. Based on the results of statistical tests, it was discovered that question 3 (Q3) and question 4 (Q4) were the two items that affected the level of women's fear to COVID-19. Furthermore, the results of statistical tests using ANOVA showed that occupation (P-Value of 0.01) and age (P-Value of 0.004) has a significant effect on the fear of COVID-19. In addition, based on the overall score calculation showed that 72.3% samples have high-level fear and 27.7% has low-level fear. Based on the results of this study, it was discovered that women's age and occupation influence the level of fear to COVID-19.
Conclusion: This study highlighted the significance of pandemic related fear and can inform the development of future women's health studies.

Keywords: fear of covid-19; female; cross sectional study; online survey; indonesia; covid-19 scale.

Introduction

The CoronavirusDisease (COVID-19) is caused by a virus that was discovered in China at the end of 2019 and has rapidly spread throughout the world including Indonesia. Lockdowns were imposed in many countries to control the spread of the virus. People had to stay at home, to learn and work online because the space for movement and direct interaction was often limited. Many individuals all over the world were affected in various aspects, ranging from socio-economic (Nicola et al., 2020), to mental disorder symptoms (Cullen et al., 2020).

Studies have shown that some people experienced anxiety, depression and sleep problems during the COVID-19 pandemic (Y. Huang & Zhao,

Jurnal Keperawatan Padjadjaran (JKP)

Volume 9(3), 216-223

https://doi.org/10.24198/jkp.v9i3.1875

Article Info

Received : November 04, 2021
Revised : December 07, 2021
Accepted : December 14, 2021
Published : December 29, 2021

Corresponding author

Roxsana Devi Tumanggor
Faculty of Nursing, Community and Psychiatric Nursing Department, Universitas Sumatera Utara, Medan, Indonesia, 20524, Phone: 6281910819799 , E-mail: roxsana.tumanggor@usu.ac.id

Citation

Tumanggor, R.D., Imaroh, I., & Cashin, A. (2021). Fear of Covid-19 Related Factors among Females in Indonesia: An Online Survey. *Jurnal Keperawatan Padjadjaran, 9*(3), 216–223. https://doi.org/10.24198/jkp.v9i3.1875

Website

http://jkp.fkep.unpad.ac.id/index.php/jkp

E-ISSN: 2442-7276
P-ISSN: 2338-5324

2020). In addition, social restraint associated with the response to the COVID-19 pandemic has led to feelings of loneliness, fear, anger and depression in some cases (Xiang et al., 2020).This is certainly an issue of concern, as the increase in anxiety, for example, has been as high as a 50%.

Fear is a subjective human response to an uncertain threat (Mikkola et al., 2017). It is associated with physiological symptoms such as sleep disturbances and psychological symptoms such as feeling threatened, worry related to impending of death etc. As a normal response to a danger stimulus, some people have shown the symptoms of fear during the COVID-19 pandemic. Research has identified that fear of COVID-19 is strongly related to the media exposure (Mertens et al., 2020). The use of social media, the search for more information about COVID-19 and regular checks of professional websites increase the individual's fear of COVID-19. It is a situation in which the media plays an important role in inducing people's worry and creates a threatening stimuli for those who are suffering from fear and anxiety symptoms (Lissek et al., 2006). Obviously, the fear and anxiety related to COVID-19 were found to have increased in the early 2020 (Mertens et al., 2020), and to affect people from various groups, both men and women.

Research has identified that fear was frequently the initial psychological distress experienced in the early pandemic outbreak in 2020 (Cullen et al., 2020). Some specific characteristics have been found to be associated with increased fear of COVID-19, such as gender, age and media exposure (Garfin et al., 2020). Research has identified that being female has been associated with increased feelings of fear during pandemic (Broche-Pérez Y et al., 2020), as well as identifying increased symptoms of anxiety and depression in women as compared to men (Rossi et al., 2020).This was contributed by factors such as the nature of women's work and the risk of exposure that is directly affected by COVID-19. The deterioration of the financial sector is impacting women more directly, online learning and the impact of lockdowns (Nicola et al., 2020). The significance of the identified fear responses experienced the need to explore it further.

Several studies have been attempted to provide specific measurements to describe fear (Lebel et al., 2020). Specifically related to COVID-19, a fear of COVID-19 instrument has been developed (Ahorsu et al., 2020) to measure the fear due to COVID-19 and has been tested on various populations in many countries, such as Malaysia, Eastern Europe and Turkey (Pang et al., 2020; Reznik et al., 2020; Satici et al., 2020). The studies found that the instrument of fear of COVID-19 is considered valid with the range from 0.75 to 0.9 in these three countries.

Research conducted by (Doshi et al, 2020) showed that women have shown a higher level of fear of COVID-19 compared to men. This study was conducted in Indian population with 1499 participants that consisted of males and females. Seven items of fear of COVID-19 were utilized (Ahorsu et al., 2020), and comparison was made across six variables of participant characteristics, that included age, gender, marital status, educational background, health care worker status and state of residence. The results revealed that gender and the status of being health care professionals had significance. On the level of fear, females showed higher fear levels as compared to males. It is important to assess the level of fear of COVID-19 as well as the contributing factors, in order to form the basis of planning specific interventions based on certain characteristics (Tracy et al., 2011). Broche-Pérez Y et al., (2020) , using the fear of COVID-19 instrument, researched 772 Cuban participants which consisted of 569 females and 203 males. The participant's characteristics were compared to the instrument's items and identified that females experienced fear of COVID-19 three times more as compared to men. Both studies that used the fear of COVID-19 tool and compared the findings from males and females identified that being a female was associated with a higher fear of COVID-19. Another study related to mental health issues during COVID-19 pandemic identified that there was a difference in outcomes across psychological issues between males and females (Pieh et al., 2020). Females were found to be more vulnerable, to suffer from more sleep problems, anxiety and depression symptoms during the pandemic. These two researches involved both sexes as the research samples and showed that women experienced fear of COVID-19 more compared to men. Therefore, it is needed to conduct a research to analyze the fear of COVID-19 related factors and measure the level of fear among women in Indonesia, since there is no research conducted to measure fear of COVID-19 in Indonesia and the research focusing on women as one of the affected groups during pandemic according to some studies.

Methods

A This was a research with a cross-sectional study, with the aim of describing the level of women's fear and analyzing the contributing factors using the fear of COVID-19 instrument, which has been proven to be reliable and valid in assessing the level of fear of the general population (Conti et al., 2020). Data collection was carried out by distributing the fear of COVID-19 instrument online, which comprised of 7 questions (Ahorsu et al., 2020). The instrument passed the validity test with 0.66 to 0.74 and reliability test with 0.82. The authors conducted validity and reliability test with Indonesian instrument. According to the validity test, it is found that ri > rt based on the significance test 0.05, meaning that all items was valid. The reliability test showed that the value of Cronbach Alpha was 0.754, meaning all items was reliable. Using the convenience sampling method, a total of 242 women from all regions of Medan,

Table 1. Respondent's Characteristics

Demographics	n (%)
Age	
15-25	220 (90.9)
26-35	15 (6.2)
36-45	5 (2.1)
46-55	2 (0.8)
Occupation	
Student/College Student	179 (74)
Unemployment	8 (3.3)
Nurse	22 (9.1)
Lecturer/Teacher	12 (5,0)
Employee/Freelance	13 (5.4)
Nun	2 (0.8)
Housewife	3 (1.2)
Civil servants	3 (1.2)
The ClosestPersonAffected by COVID-19	
Present	51 (21.1)
Absent	191 (78.9)
Comorbidities	
Present	27 (11.2)
Absent	215 (88.8)
Fear of COVID-19	
Low	67 (27.7)
High	175 (72.3)

Table 2. Fear of COVID-19 Instrument Question Items

No	Question Items	Strongly Disagree (1)	Disagree (2)	Less Dis-agree (3)	Agree (4)	Strongly agree (5)
Q1	I am most afraid of the COVID-19 virus	8 (3,3)	21 (8.7)	48 (19.8)	100 (41,3)	65 (26.9)
Q2	I feel uncomfortable when thinking about the COVID-19 virus	10 (4.1)	24 (9.9)	34 (14.0)	124 (51.2)	50 (20.7)
Q3	My hands become moist when I think of the COVID-19 virus	24 (9.9)	150 (62.0)	44 (18.2)	22 (9.1)	2 (0.8)
Q4	I am afraid to die of the COVID-19 virus	19 (7.9)	57 (23.6)	57 (23.6)	78 (32.2)	31 (12.8)
Q5	I get nervous when I watch news and stories about the COVID-19 virus on social media	22 (9.1)	80 (33.1)	74 (30.6)	55 (22.7)	11 (4.5)
Q6	I could not sleep because I was worried about the COVID-19 virus	42 (17.4)	114 (47.1)	61 (25.2)	23 (9.5)	2 (0.8)
Q7	My heart flutters when I think of the COVID-19 virus	34 (14.0)	96 (39.7)	67 (27.7)	38 (15.7)	7 (2.9)

Table 3. Average Mean Scores on Demographic Data

Variable	n		p Value	Mean ± SD	p Value
	Low	High			
Age					
15-25	60 (27.3)	160 (72.7)	0.025*	20.83 ± 4.955	0.093
26-35	2 (13.3)	13 (86.7)		20.13 ± 3.482	
36-45	4 (80.0)	1 (20.0)		15.60 ± 2.966	
46-55	1 (50.0)	1 (50.0)		18.00 ± 1.414	
>56	-	-			
Occupation					
Student	52 (29.1)	12 (70.9)	0.231	20.91 ± 5.122	0.269
Unemployment	3 (37.5)	5 (62.5)		21.50 ± 5.292	
Nurse	4 (18.2)	18 (81.8)		21.14 ± 3.550	
Lecturer / Teacher	1 (8.3)	11 (91.7)		20.17 ± 2.918	
Employees	3 (23.1)	10 (76.9)		18.15 ± 4.337	
Nun	0	2 (100)		19.00 ± 0.001	
Housewife	2 (66,7)	1 (33.3)		18.67 ± 4.726	
Civil servants	2 (66,7)	1 (33.3)		15.33 ± 4.041	
The closest person affected by COVID-19					
Present	16 (31.4)	35 (68.6)	0.597	51 ± 20.69	0.956
Absent	51 (26.7)	140 (73.3)		191 ± 20.64	
Comorbidities					
Present	6 (22.2)	21 (77.8)	0.649	21.96 ± 5.523	0.139
Absent	61 (28.4)	154 (71.6)		20.49 ± 4.781	

Indonesia, were recruited as respondents for this study. The survey was promoted through WhatsApp and text all the potential research samples on November 2020.

The shared link was distributed along with the message that contained the research title, the name of the researchers and the criteria for women eligible to participate. The questionnaire consisted of three parts, namely approval to participate, demographic data, and the fear of COVID-19 instrument.

Subsequently, data analysis was carried out using Statistical Package for the Social Sciences (SPSS) version 23 (Dunn et al., 2017). The mean scores of each item and overall items were calculated and compared based on demographic data using a t-test for two variables and analysis of variance (ANOVA) for three or more variables. Furthermore, the scores obtained were categorized into low and high fear levels based on the overall mean, where scores from 0–17 were categorized as low-level fear and 18–35 as high-level fear since the total score was 35. Therefore, the authors divided the score into two categories (Hastono, 2016).

The respondents stated their agreement terms and consent to participate by ticking the agreement terms and conditions in Google form before proceeding to the survey's main instruments. Informed consent was obtained electronically from all participants. This study passed the ethical approval from the Ethic Committee of Universitas Sumatera Utara with reference number 728/KEP/USU/2020 on November, 24.

Results

Based on the results obtained, it was identified that most of the subjects were within the age range of 15–25 years (90.9%) and 74% were students. The number of respondents with comorbidities was only 11.2% and almost a quarter of them knew other infected individuals. Moreover, the fear level among the female shows that most of the respondents had high fear level (72.3%) and 27.7% has low level fear as shown in table 1.

Table 2 shows the detailed question items on the fear of COVID-19 instrument. It is seen that the subjects agreed on over 30% of the items, but disagreed on most of the items, ranging from 30% to 60%. From a total of 242 respondents, Q1 shows that most participants agreed (41%) and strongly agreed (26.9%) on the statement of fear of the COVID-19 virus. Furthermore, it is seen from Q2, where 51.2% of the subjects agreed that they feel uncomfortable when thinking about the COVID-19 virus and 32.2% expressed fear of dying from COVID-19. However, on other question items such as in Q3, 62% disagreed on having moist hands when thinking about COVID-19 and 1% stated that

Table 4. Comparison between the Mean Score of Instrument Items and Demographic Data

Demography	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Age							
15-25	3.79 ± 1.061	3.74 ± 1.044	2.29 ± 0.792	3.27 ± 1.141	2.84 ± 1.037	2.33 ± 0.898	2.57 ± 1.020
26-35	4.13 ± 0.640	3.93 ± 0.884	2.20 ± 0.676	2.80 ± 1.014	2.67 ± 0.976	2.07 ± 0.884	2.33 ± 0.900
36-45	3.00 ± 0.707	3.40 ± 0.894	1.80 ± 0.447	1.40 ± 0.584	2.20 ± 0.837	1.80 ± 0.447	2.00 ± 0.707
46-55	4.00 ± 0.001	4.00 ± 0.001	4.00 ± 1.414	1.50 ± 0.707	1.50 ± 0.707	1.50 ± 0.707	1.50 ± 0.707
>56	-	-	-	-	-	-	-
p Value	0.202	0.753	0.010*	0.001*	0.143	0.223	0.222
Occupation							
Student	3.82 ± 1.066	3.73 ± 1.063	2.30 ± 0.805	3.28 ± 1.167	2.89 ± 1.070	2.31 ± 0.932	2.58 ± 1.054
Unemployment	4.00 ± 1.069	3.88 ± 1.246	2.63 ± 0.744	3.38 ± 1.302	2.63 ± 1.061	2.38 ± 0.744	2.63 ± 0.916
Nurse	3.86 ± 0.834	3.86 ± 0.774	2.27 ± 0.827	3.27 ± 1.032	2.68 ± 0.780	2.50 ± 0.740	2.68 ± 0.945
Lecturer / Teacher	3.58 ± 0.900	3.92 ± 0.669	2.67 ± 0.888	2.58 ± 0.793	2.67 ± 1.073	2.33 ± 0.888	2.42 ± 0.900
Employees	3.54 ± 1.127	3.77 ± 1.166	1.85 ± 0.555	2.69 ± 1.109	2.38 ± 0.961	1.85 ± 0.689	2.08 ± 0.760
Nun	4.50 ± 0.707	2.50 ± 0.707	2.00 ± 0.001	4.00 ± 0.001	2.50 ± 0.707	1.50 ± 0.707	2.00 ± 0.001
Housewife	3.67 ± 1.155	3.33 ± 1.155	2.33 ± 0.557	2.33 ± 0.577	2.33 ± 0.577	2,33 ± 0.577	2.33 ± 0.577
Civil servants	3.00 ± 1.000	3.67 ± 0.557	1.67 ± 0.577	1.00 ± 0.001	2.33 ± 1.155	1.67 ± 0.577	2.00 ± 1.000
p Value	0.719	0.758	0.176	0.004*	0.604	0.364	0.644
The closest person affected by COVID-19							
Present	3.90 ± 0.922	3.86 ± 0.895	2.37 ± 0.937	3.29 ± 1.316	2.80 ± 1.,265	2.12 ± 1.032	2.33 ± 1.211
Absent	3.77 ± 1.066	3.71 ± 1.059	2.27 ± 0.759	3.16 ± 1.122	2.81 ± 0.967	2.34 ± 0.849	2.59 ± 0.946
p Value	0.419	0.353	0.403	0.456	0.988	0.114	0.105
Comorbidities							
Present	3.90 ± 0.922	3.86 ± 0.895	2.37 ± 0.937	3.29 ± 1.316	2.80 ± 1.265	2.12 ± 1.032	2.33 ± 1.211
Absent	3.77 ± 1.066	3.71 ± 1.059	2.27 ± 0.759	3.16 ± 1.122	2.81 ± 0.967	2.34 ± 0.849	2.59 ± 0.946
p Value	0.419	0.353	0.403	0.456	0.988	0.114	0.105

**p Value < 0.05 statistically significant*

they strongly agree with the psychological condition of having moist hands. In addition, on item Q5, 33.1% stated that they did not feel nervous when watching news about COVID-19, 47. 1% did not experience sleep disturbances and 39.7% did not feel any heart palpitations when thinking about COVID-19.

Based on the statistical analysis presented in table 3, it was discovered that the P value obtained was < 0.05 from the overall mean score for each variable in the demographic data. This shows that the age of the respondents significantly influenced their fear of COVID-19. Females 15–25 years of age experienced the highest levels of mean fear.

Table 4 shows the comparison between instrument question items with four demographic data variables, which included age, occupation,

comorbidities and the presence or absence of the closest individual with COVID-19. The P-value 0.05 obtained from items Q3 and Q4 indicate a significant relationship between both items and the age variable. Furthermore, there was a significant relationship between Q4 and the occupation variable.

Discussion

The results obtained in this study indicate that most of the respondents were within a young age range (15–25 years) and were students. Furthermore, from the analysis, it was discovered that age had a significant effect on women's fear of COVID-19, with younger women experiencing higher levels of mean fear. This is consistent with past findings, during the COVID-19 pandemic, where females were proven to be a gender group that experienced high levels of fear of the virus (Doshi, 2020). However, statistically the mortality rate due to COVID-19 is dominated by men (Williamson et al., 2020), the COVID-19 infection rate for both genders showed the same percentage. Given the level of fear identified, women's health should remain a priority during the COVID-19 pandemic, both physically and mentally, despite less relative risk of mortality. Pregnant women are at risk of being infected with COVID-19 (C. Huang et al., 2020), and further studies to explore fear levels in this group are indicated, given that this study identified relatively higher fear levels in the population of younger women.

Mentally, several factors contribute to causing psychological pressure due to the weak position of women in the industrial sector, including the conflicting roles at times of being the main breadwinners and becoming household caregivers (Gausman & Langer, 2020). Indirectly, these factors cause high levels of base distress, and may affect susceptibility to the experience of greater fear of COVID-19. Furthermore, this disease has shown to infect individuals with certain immune conditions and individuals that are easily depressed psychologically are more prone to decreased immunity compared to those who are not easily depressed (Zhang et al, 2020).

In this study, it was identified that the questions related to having moist hands when thinking about the COVID-19 virus and fear of death from the virus had a significant relationship with mean age. For those in the age range 46–55, fear of the virus and discomfort thinking about it had significant resonance. Fear is an individual human response that usually occurs throughout life, because the human brain processes stressors as a stimulus, which causes stress and fear (Maeng, L & Milad, 2015). Fear has escalated as a concrete threat as existed since the COVID-19 pandemic was declared as a world health problem. This fear was increasingly awakened due to the new nature of the virus, which at the time of the study had no developed vaccine. Fear included a focus on the socio-economic impact due to social distancing requirements which caused many businesses to close and massive layoffs (Nicola et al., 2020).

In addition, according to the analysis of the overall mean score, showing that 72.3% samples had high-level fear and 27.7% has low-level fear, fear is a significant issue among females in Medan, Indonesia. This research result is consistent with other studies that have identified that women revealed high levels of fear, which in other studies represented higher levels compared to men during the COVID-19 outbreaks (Gausman & Langer, 2020; Labrague & de los Santos, 2020; Rajkumar, 2020; Reznik et al., 2020; Williamson et al., 2020).

Effect of Women's Age on Fear of COVID-19

According to the data, this study showed that women's age has an impact on their fear response to COVID-19 infection. Studies have shown that there is a link between age and the fear of being infected with certain diseases, leading to death in young women (Fitzpatrick et al., 2020). Consistent with the finding that identified greater mean fear among the younger women in this study, being a student had a significant relationship with experiencing higher mean fear. Therefore, being student and young are factors considered to be vulnerability factors to the fear of COVID-19. In addition, old age has shown to have a significant effect on the ease of infection (Pan et al., 2020), with a higher mortality rate in men. Therefore, old age is one of the biggest risk factors for the vulnerability of being infected with COVID-19 in both men and women. This may explain the identified fear of the virus in the older group and discomfort when thinking about the virus. This has implications as discomfort thinking about the virus may lead to denial and lower rates of participation in preventive measures.

Limitations

The age of the sample and the disproportionate number of participants who were identified as students may have been related to the online survey method. Further study is indicated using different surveying methods to balance these limitations.

Conclusion

The findings of this study identified that there was a significant relationship between age and occupation with the fear of COVID-19 in women. However, a total of 242 respondents filled out the online survey, the results cannot be used as a general reference for the entire population of women in Medan. Therefore, further and in-depth studies are needed to obtain more information about the factors that influence women's fear of the life-threatening pandemic outbreak. In addition, these results provided an overview of the importance of specific women's health-based interventions focused on mental wellbeing. Furthermore, Indonesia's national health policy still targets women's health at the level of mothers and children clinically, not those with any sign of acute or chronic illnesses as described in the

fear of COVID-19 instrument. This requires further consideration.

References

Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The fear of COVID-19 scale: Development and initial validation. *International Journal of Mental Health and Addiction*, 1–9. https://doi.org/10.1007/s11469-020-00270-8

Broche-Pérez Y, Fernández-Fleites Z, Jiménez-Puig E, Fernández-Castillo E, & Rodríguez-Martin B. (2020). Gender and Fear of COVID-19 in a Cuban Population Sample. International Journal of Mental Health and Addiction [revista en Internet] 2020 [acceso 11 de octubre de 2020]; (1): 1-9. *International Journal of Mental Health and Addiction, 1,* 1–9. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7292241/pdf/11469_2020_Article_343.pdf

Conti, A., Clari, M., Arese, S., Bandini, B., Cavallaro, L., Mozzone, S., Vellone, E., Frigerio, S., & Campagna, S. (2020). Validation and psychometric evaluation of the Italian version of the Spinal Cord Injury Secondary Conditions Scale. *Spinal Cord, 58*(4), 496–503. https://doi.org/10.1038/s41393-019-0384-z

Cullen, W., Gulati, G., & Kelly, B. D. (2020). Mental health in the COVID-19 pandemic. *QJM : Monthly Journal of the Association of Physicians, 113*(5), 311–312. https://doi.org/10.1093/qjmed/hcaa110

Doshi, D., Karunakar, P., Sukhabogi, J. R., Prasanna, J. S., & Mahajan, S. V. (2020). Assessing Coronavirus fear in Indian population using the fear of COVID-19 scale. *International Journal of Mental Health and Addiction, 19*(6), 2383–2391. https://doi.org/10.1007/s11469-020-00332-x

Dunn, P. K., Carey, M. D., Farrar, M. B., Richardson, A. M., & McDonald, C. (2017). Introductory statistics textbooks and the GAISE recommendations. *American Statistician, 71*(4), 326–335. https://doi.org/10.1080/00031305.2016.1251972

Fitzpatrick, K. M., Harris, C., & Drawve, G. (2020). Living in the midst of fear: Depressive symptomatology among US adults during the COVID-19 pandemic. *Depression and Anxiety, 37*(10), 957–964. https://doi.org/10.1002/da.23080

Garfin, D. R., Silver, R. C., & Holman, E. A. (2020). The novel coronavirus (COVID-2019) outbreak: Amplification of public health consequences by media exposure. *Health Psychology, 39*(5), 355–357. https://doi.org/10.1037/hea0000875

Gausman, J., & Langer, A. (2020). Sex and gender disparities in the COVID-19 pandemic. *Journal of Women's Health, 29*(4), 465–466. https://doi.org/10.1089/jwh.2020.8472

Hastono, S. P. (2016). *Analisa Data Bidang Kesehatan.* Rajawali Pers.

Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., Zhang, L., Fan, G., Xu, J., Gu, X., Cheng, Z., Yu, T., Xia, J., Wei, Y., Wu, W., Xie, X., Yin, W., Li, H., Liu, M., … Cao, B. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet, 395*(10223), 497–506. https://doi.org/10.1016/S0140-6736(20)30183-5

Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: A web-based cross-sectional survey. *Psychiatry research, 288*. https://doi.org/10.1016/j.psychres.2020.112954

Ifdil, I., Fadli, R. P., Suranata, K., Zola, N., & Ardi, Z. (2020). Online mental health services in Indonesia during the COVID-19 outbreak. *Asian Journal of Psychiatry, 51*. https://doi.org/10.1016/j.ajp.2020.102153

Labrague, L. J., & de los Santos, J. (2020). Fear of COVID-19, psychological distress, work satisfaction and turnover intention among frontline nurses. *Journal of Nursing Management,* 1–18. https://doi.org/10.1111/jonm.13168

Lebel, S., Mutsaers, B., Tomei, C., Leclair, C. S., Jones, G., Petricone-Westwood, D., Rutkowski, N., Ta, V., Trudel, G., Laflamme, S. Z., Lavigne, A. A., & Dinkel, A. (2020). Health anxiety and illness-related fears across diverse chronic illnesses: A systematic review on conceptualization, measurement, prevalence, course, and correlates. *In PLoS ONE 15*,(7). https://doi.org/10.1371/journal.pone.0234124

Lissek, S., Pine, D. S., & Grillon, C. (2006). The strong situation: A potential impediment to studying the psychobiology and pharmacology of anxiety disorders. *Biological Psychology, 72*(3), 265–270. https://doi.org/10.1016/j.biopsycho.2005.11.004

Maeng, L & Milad, M. (2015). Sex differences in anxiety disorders: interactions between fear, stress, and gonadal hormones. *Hormones and Behavior,* 106–117. https://doi.org/10.1016/j.yhbeh.2015.04.002.Sex

Mertens, G., Gerritsen, L., Duijndam, S., Salemink, E., & Engelhard, I. M. (2020). Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. *Journal of Anxiety Disorders, 74*. https://doi.org/10.1016/j.janxdis.2020.102258

Mikkola, R., Huhtala, H., & Paavilainen, E. (2017). Work-related fear and the threats of fear among emergency department nursing staff and physicians in Finland. *Journal of Clinical Nursing, 26(*19–20), 2953–2963. https://doi.org/10.1111/jocn.13633

Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M., & Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review.

International Journal of Surgery, 78, 185–193. https://doi.org/10.1016/j.ijsu.2020.04.018

Pan, L., Mu, M., Yang, P., Sun, Y., Wang, R., Yan, J., Li, P., Hu, B., Wang, J., Hu, C., Jin, Y., Niu, X., Ping, R., Du, Y., Li, T., Xu, G., Hu, Q., & Tu, L. (2020). Clinical characteristics of COVID-19 patients with digestive symptoms in Hubei, China: A descriptive, cross-sectional, multicenter study. *American Journal of Gastroenterology, 115*(5), 766–773. https://doi.org/10.14309/ajg.0000000000000620

Pang, N. T. P., Kamu, A., Hambali, N. L. B., Mun, H. C., Kassim, M. A., Mohamed, N. H., Ayu, F., Rahim, S. S. S. A., Omar, A., & Jeffree, M. S. (2020). Malay Version of the Fear of COVID-19 Scale: Validity and Reliability. *International Journal of Mental Health and Addiction, 20.* https://doi.org/10.1007/s11469-020-00355-4

Pieh, C., Budimir, S., & Probst, T. (2020). The effect of age, gender, income, work, and physical activity on mental health during coronavirus disease (COVID-19) lockdown in Austria. *Journal of Psychosomatic Research, 136*. https://doi.org/10.1016/j.jpsychores.2020.110186

Rajkumar R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry, 52*. https://doi.org/10.1016/j.ajp.2020.102066

Reznik, A., Gritsenko, V., Konstantinov, V., Khamenka, N., & Isralowitz, R. (2020). COVID-19 fear in Eastern Europe: Validation of the fear of COVID-19 scale. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-020-00283-3

Rossi, R., Socci, V., Talevi, D., Mensi, S., Niolu, C., Pacitti, F., Marco, A. Di, Rossi, A., Siracusano, A., & Lorenzo, G. Di. (2020). COVID-19 pandemic and lockdown measures impact on mental health among the general population in Italy. *An N=18147 web-based survey. MedRxiv.* https://doi.org/10.1101/2020.04.09.20057802

Satici, B., Gocet-Tekin, E., Deniz, M. E., & Satici, S. A. (2020). Adaptation of the fear of COVID-19 scale: Its association with psychological distress and life satisfaction in Turkey. *International Journal of Mental Health and Addiction 19*, 1980-1988. https://doi.org/10.1007/s11469-020-00294-0

Tracy, M., Norris, F. H., & Galea, S. (2011). Differences in the determinants of posttraumatic stress disorder and depression after a mass traumatic event. *Depression and Anxiety, 28*(8), 666–675. https://doi.org/10.1002/da.20838

Williamson, E. J., Walker, A. J., Bhaskaran, K., Bacon, S., Bates, C., Morton, C. E., Curtis, H. J., Mehrkar, A., Evans, D., Inglesby, P., Cockburn, J., McDonald, H. I., MacKenna, B., Tomlinson, L., Douglas, I. J., Rentsch, C. T., Mathur, R., Wong, A. Y. S., Grieve, R., … Goldacre, B. (2020). Factors associated with COVID-19-related death using OpenSAFELY. *Nature, 584*(7821), 430–436. https://doi.org/10.1038/s41586-020-2521-4

Xiang, Y. T., Yang, Y., Li, W., Zhang, L., Zhang, Q., Cheung, T., & Ng, C. H. (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The Lancet Psychiatry, 7*(3), 228–229. https://doi.org/10.1016/S2215-0366(20)30046-8

Zhang, J., Lu, H., Zeng, H., Zhang, S., Du, Q., Jiang, T., & Du, B. (2020). The differential psychological distress of populations affected by the COVID-19 pandemic. *Brain, Behavior, and Immunity, 87*, 49–50. https://doi.org/10.1016/j.bbi.2020.04.031

Nurses' Communicating with Patients in Peripheral and Border Areas in Indonesia: A Phenomenology Study

Petrus Kanisius Siga Tage*, Herliana Monika Azi Djogo, Yulia M.K. Letor, Maria Yoanita Bina, Rahmawati Rahmawati

Department of Nursing, Health Sciences Faculty, Universitas Citra Bangsa Kayu Putih, Oebobo, Kupang East Nusa Tenggara, Indonesia

Abstract

Background: Communication is an important part of nursing care. However, Indonesian nurses still feel communication problems due to cultural and linguistic differences, especially in peripheral and border areas.
Purpose: This study explores the communication experience of nurses when providing services to patients in three peripheries and two border areas of Indonesia.
Methods: A phenomenological approach is used in this study. The purposive sampling technique was used to recruit 22 nurses in Indonesia's periphery and border areas to be involved in the study. The data collection process was carried out from August to October 2021. Data were collected through interviews using a semistructured questionnaire, and verbatim transcripts of audio-recorded interviews were analyzed using thematic analysis.
Results: This research resulted in four important themes, specifically: (1) difficulty in communicating, (2) emotional distress, (3) conflict and understanding, (4) lack of support for competency development.
Conclusion: The findings of this study increase the scientific understanding of the communication barriers of nurses in the culturally diverse periphery and border areas. The barriers encountered can be used by nursing managers to construct ineffective nurse communication problem-solving interventions. The main emphasis on solving communication problems should include continuing education and training support so that nurses' communication competence can be improved and applied in the service area based on the cultural and linguistic conditions of the patient.

Keywords: border; communication; cultural; nurse; peripheral; qualitative studies.

OPEN ACCESS

Jurnal Keperawatan Padjadjaran (JKP)

Volume 9(3), 224-231

https://doi.org/10.24198/jkp.v9i3.1931

Article Info

Received : November 26, 2021
Revised : December 19, 2021
Accepted : December 23, 2021
Published : December 29, 2021

Corresponding author

Petrus Kanisius Siga Tage
Department of Nursing, Health Sciences Faculty, Universitas Citra Bangsa Kayu Putih, Oebobo, Kupang East Nusa Tenggara, Indonesia, Postal address: 85111, Phone: 6281281412044, E-mail: petruskanisiussigatage@ucb.ac.id

Citation

Tage, P.K.S., Djogo, H.M.A., Letor, Y.M.K., Bina, M.Y., & Rahmawati, R. (2021). Nurses' Communicating with Patients in Peripheral and Border Areas in Indonesia: A Phenomenology Study. *Jurnal Keperawatan Padjadjaran, 9*(3), 224–231. https://doi.org/10.24198/jkp.v9i3.1931

Website

http://jkp.fkep.unpad.ac.id/index.php/jkp

E-ISSN: 2442-7276
P-ISSN: 2338-5324

Introduction

Communication is an important element to improve the quality of nursing care (Tindle et al., 2020). Effective communication flow is a tool for assessing patient needs and providing appropriate physical care, emotional support, and correct knowledge transfer and information exchange (Mistraletti et al., 2019; Tetteh et al., 2020; Wune et al., 2020). Failure to communicate effectively is a potential obstacle to the nursing care process. Studies show that ineffective patient-nurse communication results in increased hospital admissions, waste of resources, patient dissatisfaction, and lack of self-confidence and stress for both the nurse and patient (Prip et al., 2019; Vermeir et al., 2018).

Ineffective communication in nursing services can be influenced by various factors such as differences in cultural values, experience levels, and individual personalities (Albagawi & Jones, 2016). Communication is more difficult when patients and nurses have different cultural and linguistic values (Brunton & Cook, 2018); thus, it can cause misunderstandings that can seriously impact the health and safety of the patient (Crawford et al., 2017). In the periphery of Indonesia, such as East Nusa Tenggara, which is directly

adjacent to Timor Leste, cultural and linguistic diversity is very high. Linguistically, the geographic area of this archipelago displays cultural diversity and is a meeting place for languages belonging to the Austronesian and Papuan families with the use of up to 400 languages (Klamer & Ewing, 2010).

The problem of communication barriers in the border areas of Indonesia and Timor Leste is related to the various languages that affect communication in society. There are at least five languages used, namely Tetun, Dawan, Indonesian, Portuguese, and English (Handoyo, 2011; Nahak, 2017; Taylor-Leech, 2009). Diverse cultures and languages will make it difficult for nurses to communicate in the nursing care process and potentially damage the quality of care. Therefore, this study was conducted to explore the problems related to communication between patients and nurses in the study area. Understanding nurses' experience is expected to be the basis for interventions to overcome communication barriers between nurses and patients.

This study aimed to reveal and describe the perceptions based on nurses' experiences in communicating with patients in Indonesia's periphery and border areas. This qualitative research focuses on answering the research question: "How is the experience of nurses communicating with patients from the periphery and border areas?"

Methods

This A phenomenological approach is used in this study. This research was conducted in the border areas of Indonesia and Timor Leste in the regions of Malaka, North Central Timor, and Atambua, while the outskirts include South Central Timor and Kupang Regency. The time of the study was from August to October 2021. Twenty-two participants who worked in border and periphery health facilities were selected using a purposive sampling technique. The inclusion criteria for selecting participants were nurses who had worked at least two years in their workplace when interviewed, nurses who were not on leave, and nurses who were not in a structural position and served patients directly. The saturation of the interview data was reached for the 22nd participant. The participant recruitment process is carried out by telephone. Informed consent was given verbally to participants before starting the interview process. Participants who agreed to be involved in the researchers were interviewed via the Zoom application. Ethical approval (No.021/UN2.F12.D/HKP 02.04/2021) was obtained from the ethics committee of the Faculty of Nursing, University of Indonesia.

Data collection

Data was collected through semistructured in-depth interviews. Participants determined the time of the interview. Each participant was interviewed for 60 minutes. Two researchers conducted the interview process. The first researcher interviewed the first 12 participants, while the second researcher interviewed the remaining 10 participants. Interviews were conducted twice to ensure the correctness of the data submitted by the participants, the depth of the data, and to ensure that no data was missed during the interview process. At the end of the interview session, the two researchers discussed to ensure that the data met the desired research objectives. In the interview, when the researchers began to hear the same comments repeatedly, and data replication occured, the researchers assumed that data saturation had been reached and they stopped collecting information, and began to analyze what had been collected. The entire interview process was recorded in audio and video using Zoom application and transcribed word for word. Question guides were used to explore participants' experiences, such as: What does communication mean to you?, How do you communicate with patients?, How do you respond when communicating with patients?, Do you experience communication barriers? The inclusion criteria set for the study participants were: nurses with a tenure of more than two years of not having a structural position and not on leave.

Data Analysis

To fulfill the research objectives, a thematic analysis approach was used in analyzing the data. The thematic analysis process follows several steps, such as (1) determining the initial code from the raw data, (2) looking for a suitable theme based on a set of codes that have been created, (3) reviewing theme suitability, (4) determining and naming the theme, and (5) producing the final report (Nowell et al., 2017). Efforts to ensure the validity of the data were carried out in several steps. Credibility was carried out by in-depth interviews twice by two researchers to participants at different times to obtain detailed information and ensure the truth of the data. Transferability was applied by writing down the findings in detail, clearly, systematically. Dependability was ensured through discussion and audit of data collected by five researchers, in turn, to find misinterpretations in the data. Confirmability is applied by keeping a diary related to the development of the research process, starting from determining the topic, methodology, data analysis, interpretation of results, and presenting conclusions.

Trustworthiness

Trustworthiness in this study was ensured through the steps suggested by Guba and Lincoln (1985), which included credibility, transferability, dependability, and confirmability (Denzin & Lincoln, 2017). Credibility was achieved through in-depth interviews with participants by conducting two interviews, always checking initial findings and interpretations of the original data, and five researchers conducting continuous discussions to understand the data obtained immediately after the interview. Improved data transferability was achieved using a qualitative sampling method and

Table 1. Demographic characteristics (n= 22)

Demographic characteristics	n	%
Sex		
Female	13	59
Male	9	40
Age (Years)		
25–35	6	27
36–45	7	31
46–55	5	22
56–65	4	18
Educational background		
3 Year Diploma	14	63
Bachelor of Nursing	8	36
Length of the service (years)		
2–10	11	50
11–20	6	27
>20	5	22
Marital status		
Single	8	36
Married	14	63
Cultural Origin		
Flores	3	13
Sumba	2	9
Timor	12	54
Alor	1	4
Sabu	2	9
Rote	2	9
Working Area		
Rural Area	10	45
Border Line	12	54
Comunication Training		
Yes	9	40
No	13	59

research design. The background of the research problem was based on previously published research and clearly defined the demographic data characteristics of the participants. Five researchers carry out dependability by jointly analyzing the data in a structured manner and interpreting the research results well so that they can make the same conclusions in the analysis. In addition, five researchers discussed, taking into account changes that might occur regarding the phenomenon under study as a result of a deeper understanding of the setting being studied. Confirmability was carried out through triangulation of researcher data, which included the use of several researchers during the interview process, keeping a diary related to research developments by determining topics, methodologies, data analysis, interpretation of results, and presenting conclusions and the research team met regularly to discuss interpretations, codes, and theme. Furthermore, decision-making at each study stage was documented for tracking and follow-up actions.

Results

Overview of the participants

There were 22 participants involved in this study. Maximum data variation in interviews was conducted by selecting participants from heterogeneous groups. The participants involved in this study were 13 women, and nine men. The average age of the participants was dominated by the age of 36–45 years as many as seven people The educational background of most participants

was three-year diploma as many as 14 people. The longest working period was 2–10 years with 11 participants. Most marital status is married to as many as 14 people. The cultural background of most of the participants was from Timor, as many as 12 people. 12 participants work on the border line, and 13 participants have not received communication training (Table 1).

Theme

Analysis of interview data resulted in several themes. The themes underlying nurses' experience in communicating with patients in rural areas and borderlines include 1) communication difficulties, 2) emotional stress, 3) conflict and understanding, and 4) lack of support for competency development.

Theme 1: Difficulty in Communicating

Communication difficulties became the first and most prominent theme that emerged from the results of the interviews. The focus of this theme is the failure to understand the content of the speech *"Most of our patients say something difficult for us to understand."* (P8). Language inability and failure to change communication techniques are sub-themes of communication difficulties.

Sub Theme 1: Not Proficient in Language

Participants uttered seriously about the communication difficulties they face when dealing with patients. One participant who had worked for four years from another island explained how he often met patients who had difficulty speaking Indonesian during work.

"I often have difficulty understanding the contents of what patients say because most of them use regional languages and cannot speak Indonesian." (P21)

Sub Theme 2: Failed to Change Style of Communication

When meeting patients who used a local language, they did not understand. Nurses approached the patient differently by communicating with their family or speaking slowly to the patient. However, this modified form of communication approach is considered a failure by almost all participants to solve the problem of communication barriers between nurse and patient.

"When we meet patients who cannot speak Indonesian, we try to speak slowly to them or use their families as a communication bridge. However, it still feels difficult because most of the patients' families cannot speak Indonesian" (P17).

Theme 2: Emotional Distress

Failure to establish communication with patients put nurses in a difficult state with a confused and unstable mind. Many of the participants in the study appeared to be disturbed by the emotional and psychological distress of their communication with patients. Stress occured because of an impulse of worry, fear, frustration, and helplessness. One participant expressed fear that when they were unable to communicate, they would give the wrong nursing intervention and injure the patient.

"Sometimes, I feel afraid when I will give action to patients because they do not convey the health conditions they feel due to language barriers" (P12). The effect of emotional distress when caring for patients who experience communication barriers is analyzed in the sub-themes below.

Sub Theme 1: Worry

Many participants expressed concerns about their ability to solve problems and the effects of their actions when patients could not understand the instructions they were given due to communication barriers. One of the diploma graduate participants who had worked for two years expressed his experience:

"I worry when patients fail to understand the explanation I give…. Sometimes I feel like they are fine, stable, and getting better, but I always wonder if they'll be okay when I come home. One of my patients once came home in good condition, but he died when he was home a week later. I was afraid it would happen again." (P6)

Sub Theme 2: Frustration

The inability to communicate during the care process can increase the nurse's frustration, especially when the nurse cannot grasp the patient's intentions. One participant in the study reported, "I don't know what I'm going to do." (P21). They expressed frustration at realizing their responsibility to care for sick patients.

"Maybe the emotions of anger and frustration go hand in hand. Several times we try to invite patients to communicate, but they seem confused, and I also don't get the message they convey." (P8)

Sub Theme 3: Helplessness

During the interview, most participants expressed helplessness and an inability to solve problems and achieve goals. Participants who cannot identify the problem the patient complained about may experience a more intense feeling of helplessness. They feel unable to provide their patients with what they need.

"We work in an area with an underdeveloped society, and although leaving this workplace is not easy, I also can't think of a better way to cope with the situation I experience in communicating with patients." (P11)

Theme 3: Conflict and Understanding

A person experiences stress when they do not have the ability or resources when faced with an external stressor or are concerned that they do not have sufficient resources to deal with a problem. "Because of bad communication, it is easy to get angry with *anyone at work."* (P5). Poor communication at work can increase stress and

pressure among nurses. This conflict, whether actual or perceived, is caused by conflicts between needs, values, and interests, which result in disagreements. A comprehensive study of the impact of this conflict on nurses is discussed below.

Sub-theme 1: Disagreements with the Patient's Family

Some participants reported disagreement about the appropriate approach to patient care and the treatment options used to treat patients who refused treatment due to communication failures. Additionally, participants said that disagreements about care between themselves and the patient's family often made the nurse's role more difficult. One of the participants who treated TB patients explained:

"We often have much disagreement about which treatment to give. For example, in managing TB cases, the patient's family does not accept drugs because of side effects. In their understanding, using drugs causes patients to get worse. And we get blamed by the patient's family about the treatment we give." (P4)

Sub-theme 2: Workload and Misunderstanding with Supervisor

Most of the participants reported that taking care of patients with language barriers made them work harder, which increased the workload. Participants explained that high workloads could change their relationship with the supervisor. Most of the misunderstandings between nurses and their supervisors occured because of their disproportionate workload.

"Sometimes, I disagree with my supervisor. They thought I could do everything myself when I took care of many patients and gave me extra tasks. They don't realize that it has affected me both mentally and physically." (P7)

Theme 4: Lack of Competency Development Support

As a result of cultural differences, nurses who serve patients with language barrier conditions need support for developing individual competencies to interact well while providing care to patients. Nurses who have adequate communication competence will find it easier to create a more appropriate approach to patients to improve the quality of care.

"If we want to go to school, it's like a donkey getting into a pinhole, and everything will be made difficult if we don't have an "Orang Dalam" (a term related to nepotism)." (P13). Specifically, the theme of the lack of support for competency development will be discussed into two sub-themes

Sub-theme 1: Not Equipped with Sufficient Knowledge

Participants in this study expressed that they were not equipped with adequate knowledge when dealing with communication problems in practice. One participant who had worked at a hospital for eight years said:

"It's been a long time since I was accepted to work here. I have never received training on communication techniques with patients from different cultures. I've been working based on experience." (P20)

Sub-theme 2: Difficult to get Permission to Continue education

Continuing education includes planned learning experiences that improve nurses' attitudes, skills, and knowledge. Changes that occur in nursing need to be responded through good education for nurses to increase the competence of nurses in the organization. When nurses find it difficult to continue their education, they will find it difficult to adapt to work demands, which affects work professionalism, including the ability of nurses to improve their form of communication with patients. One participant who has worked for 12 years expressed the experience:

"The opportunities for education (continuing education) are minimal; when they want to apply for permission to continue their education, a complicated bureaucracy will limit us. If you do not have kinship connections with government people, it is not easy for you to continue your education." (P13)

Discussion

The findings of this study provide information about nurses' experiences in communicating with patients of different cultures in the periphery and border areas of Indonesia. The communication problems faced by the participants were; communication difficulties, emotional distress, conflict, and tension, lack of support for competency development.

Nurses who interact with patients from different cultures and languages must face constant difficulties and continue to provide services to patients. Studies conducted (Emaliyawati et al., 2020) in West Java show that cultural and linguistic differences can hinder patient and nurse communication. The participants also expressed feelings of chaos and instability related to their situation. Any changes in an emotional state in their interactions with patients quickly affect their relationships with patients' families and their supervisors, and it leads to conflict. The situation experienced by participants tends to occur because efforts to improve through increasing communication competence do not go well.

Conditions that hinder communication between patients and nurses in health care facilities are cultural and linguistic factors (Ali & Watson, 2018; Kwame & Petrucka, 2020). This study found that the participants expressed difficulty communicating with patients who spoke the local language and could not speak Indonesian. This finding is similar to other reports, which explain that nurses experience communication problems when dealing with patients from different cultural and linguistic backgrounds

(Alshammari et al., 2019).

Communication difficulties can affect the emotional state of nurses, thereby quickly making their feelings seem chaotic and unstable. Participants expressed that they were worried about their condition because they failed to communicate effectively. Emotionally, the participants also expressed frustration due to failure to find the right solution to solve the patient's problem because of the obstruction of communication. Nurses' emotional disturbances generally occur due to the interaction process and the complexity of problems during the care process. Previous reports have found that working in difficult situations while caring for patients makes it easy for nurses to become emotionally stressed and handle their own emotions (Chan et al., 2019). Nurses need to be involved in emotions to construct their identity through relationships with themselves and patients. A nurse can use her emotions positively in the care process to improve the quality of care (Jiménez-Herrera et al., 2020).

The literature shows that conflicts between health care staff, patients, and families present burdens for individuals and the health care system, including fatigue, absenteeism, and higher employee turnover (M.-L. Wang & Tsai, 2014). The conflict has been defined as a multidimensional construction, which involves a process in which two or more people have different views (Johansen, 2012). Conflicts can occur vertically between staff and patients or horizontally between nurses and their superiors.

In this study, misunderstanding between nurses and family members about treatment was caused by a failure to understand messages. These findings are in line with previous studies reporting that communication affects the effectiveness of nursing interventions (including treatment collaboration) (Goldsmith et al., 2019). In a multicultural area with apparent cultural differences, it is easy to conflict between the nurse and the patient's family due to differences in views about treatment (Van Keer et al., 2020).

Apart from tensions with their families, this research confirms the conflict between participants and their superiors due to the increased workload. A high workload is reported as a stressor for nurses (Faremi et al., 2019). Specifically, the stress experienced by nurses if they are not handled or if they do not receive positive support from their superiors will trigger a conflict (Kokoroko & Sanda, 2019). When conflicts arise, nurses must utilize various social support channels and adopt appropriate coping tactics. Besides, nursing managers need to provide specific and clear supportive measures such as enabling flexible vacation arrangements that help nurses better balance life and work responsibilities or stay happy with what they are doing (M.-L. Wang & Tsai, 2014). The organization of nurses' healthcare facilities needs to create a more friendly communication environment to adopt constructive interpersonal conflict management strategies (Chang et al., 2017).

The fourth theme identified in this study is the participant's expression of the lack of support for competency development. Nurses' communication skills are considered factors that influence nurse-patient relationships, especially for the effectiveness of interactions between different cultures (Chung-Yan Chan & Sy, 2016). Nurses who are not equipped with adequate communication knowledge will experience problems in their services. The study conducted by (Park et al., 2015) showed that nurses who regularly contact people from diverse backgrounds and have low communication skills have poor job satisfaction. Organizations need to provide an excellent system to increase nurses' knowledge of competencies. The best skills training and continuing education of nurses' inappropriate communication techniques will enable them to respond adequately and humanely to any condition complained of by patients.

Participants in this study also expressed their difficulties in continuing their education to a higher level because of the lack of support from the government. A good education will help improving nurse communication skills. Studies show educational interventions affect improving nurse competence (Gutiérrez-Puertas et al., 2020; Kerr et al., 2020). Governments and administrators of service facilities where nurses work need to think about the availability of educational programs within the geographic reach of students, the amount of time and money investment required to complete education, and consider future job prospects, potential income, and possible job satisfaction. It may also be considered for female nurses who wish to combine childcare with work. There is a strong relationship between quality nursing education and health outcomes. Therefore, nursing education is a fundamental component in health care reform, especially in peripheral and border areas. Quality nursing education enables nurses to become credible players in the future domestic and global health care labor market (C. C. Wang et al., 2016).

The limitations of this study include the small sample size and the limited number of nurses participating in a similar geographic area, namely on the mainland of the island of Timor. The scope of the research should be broadened to capture the more significant problem of nurse communication. Given the vast geographical conditions of the Indonesian archipelago and diverse cultural and linguistic demographic conditions, the findings of this research problem may differ in each of the periphery and border areas of Indonesia.

Conclusion

The findings of this study lead to several experiences of communication with patients that are felt by nurses in the border and periphery areas of Indonesia, namely: difficulty in communicating, emotional distress, conflict and tensity, lack of support for competency development. Considering

the generalizability of these findings, administrators of health care facilities in the remote areas of Indonesia need to direct their interventions towards the development of targeted and sustainable nurse communication competencies. Besides, we recommend that the recruitment pattern of nurses should be based on the suitability of cultural backgrounds between nurses and patients to reduce communication gaps due to language and cultural differences in nursing services.

Acknowledgments

Special mention for the participants of this study who shared their time and experiences.

References

Albagawi, B. S., & Jones, L. K. (2016). Quantitative exploration of the barriers and facilitators to nurse-patient communication in Saudia Arabia. *Journal of Hospital Administration, 6*(1), 16. https://doi.org/10.5430/jha.v6n1p16

Ali, P. A., & Watson, R. (2018). Language barriers and their impact on provision of care to patients with limited English proficiency: Nurses' perspectives. *Journal of Clinical Nursing, 27*(5–6), e1152–e1160. https://doi.org/10.1111/jocn.14204

Alshammari, M., Duff, J., & Guilhermino, M. (2019). Barriers to nurse-patient communication in Saudi Arabia: An integrative review. *In BMC Nursing, 18*(61). https://doi.org/10.1186/s12912-019-0385-4

Brunton, M., & Cook, C. (2018). Dis/Integrating cultural difference in practice and communication: A qualitative study of host and migrant Registered Nurse perspectives from New Zealand. *International Journal of Nursing Studies, 83,* 18–24. https://doi.org/10.1016/j.ijnurstu.2018.04.005

Chan, E. A., Tsang, P. L., Ching, S. S. Y., Wong, F. Y., & Lam, W. (2019). Nurses' perspectives on their communication with patients in busy oncology wards: A qualitative study. *PLOS ONE, 14*(10). https://doi.org/10.1371/journal.pone.0224178

Chang, T. F., Chen, C. K., & Chen, M. J. (2017). A study of interpersonal conflict among operating room nurses. *Journal of Nursing Research, 25*(6), 400–410. https://doi.org/10.1097/JNR.0000000000000187

Chung-Yan Chan, J., & Sy, P. Y. (2016). The relationships among personality, intercultural communication, and cultural self-efficacy in nursing students. *Journal of Nursing Research, 24*(4), 286-290. https://doi.org/10.1097/jnr.0000000000000157

Crawford, T., Candlin, S., & Roger, P. (2017). New perspectives on understanding cultural diversity in nurse–patient communication. *Collegian, 24*(1), 63–69. https://doi.org/10.1016/j.colegn.2015.09.001

Denzin, N. K., & Lincoln, Y. S. (2017). *The Sage Handbook of Qualitative Research (5th ed.).* SAGE Publications.

Emaliyawati, E., Widiasih, R., Sutini, T., & Rahayu, U. (2020). Nurses' reflections on challenges and barriers of communication in the Intensive Care Unit: A phenomenology study. *Jurnal Keperawatan Padjadjaran, 8*(1), 65–73. https://doi.org/10.24198/JKP.V8I1.1190.G253

Faremi, F. A., Olatubi, M. I., Adeniyi, K. G., & Salau, O. R. (2019). Assessment of occupational related stress among nurses in two selected hospitals in a city in southwestern Nigeria. *International Journal of Africa Nursing Sciences, 10*, 68–73. https://doi.org/10.1016/j.ijans.2019.01.008

Goldsmith, J. V., Wittenberg, E., Terui, S., Kim, H., & Umi, S. (2019). Providing support for caregiver communication burden: Assessing the plain language planner resource as a nursing intervention. *Seminars in Oncology Nursing, 35*(4), 354–358. https://doi.org/10.1016/j.soncn.2019.06.007

Gutiérrez-Puertas, L., Márquez-Hernández, V. V., Gutiérrez-Puertas, V., Granados-Gámez, G., & Aguilera-Manrique, G. (2020). Educational interventions for nursing students to develop communication skills with patients: A systematic review. *International Journal of Environmental Research and Public Health, 17*(7), 2241. https://doi.org/10.3390/ijerph17072241

Handoyo, S. (2011). The State's geopolitics versus the local's concern, a case study on the land border between Indonesia and Timor-Leste in West Sector. In: Murgante, B., Gervasi, O., Iglesias, A., Taniar, D., Apduhan, B.O. (eds). *Lecture Notes in Computer Science, vol 6782.* Springer, Berlin, Heidelberg.

Jiménez-Herrera, M. F., Llauradó-Serra, M., Acebedo-Urdiales, S., Bazo-Hernández, L., Font-Jiménez, I., & Axelsson, C. (2020). Emotions and feelings in critical and emergency caring situations: A qualitative study. *BMC Nursing, 19*(1), 60. https://doi.org/10.1186/s12912-020-00438-6

Johansen, M. L. (2012). Keeping the peace. *Nursing Management (Springhouse), 43*(2), 50–54. https://doi.org/10.1097/01.NUMA.0000410920.90831.96

Kerr, D., Ostaszkiewicz, J., Dunning, T., & Martin, P. (2020). The effectiveness of training interventions on nurses' communication skills: A systematic review. *In Nurse Education Today, 89*. https://doi.org/10.1016/j.nedt.2020.104405

Klamer, M., & Ewing, M. C. (2010). The languages of East Nusantara: An introduction. *Australian National Universit.* https://doi.org/10.15144/PL-618

Kokoroko, E., & Sanda, M. A. (2019). Effect of workload on job stress of Ghanaian OPD nurses: The role of coworker support. *Safety and Health at Work, 10*(3), 341–346. https://doi.org/10.1016/j.shaw.2019.04.002

Kwame, A., & Petrucka, P. M. (2020). Communication in nurse-patient interaction in healthcare settings in sub-Saharan Africa: A scoping review. *In International Journal of Africa Nursing Sciences, 12*. https://doi.org/10.1016/j.ijans.2020.100198

Mistraletti, G., Mezzetti, A., Anania, S., Ionescu Maddalena, A., Del Negro, S., Giusti, G. D., Gili, A., Iacobone, E., Pulitanò, S. M., Conti, G., & Bocci, M. G. (2019). Improving communication toward ICU families to facilitate understanding and reduce stress. Protocol for a multicenter randomized and controlled Italian study. *Contemporary Clinical Trials, 86*. https://doi.org/10.1016/j.cct.2019.105847

Nahak, M. M. N. (2017). Language variation in the family of the community in the border of Timor Leste and Malaka regency. https://linguistik.fib.ui.ac.id/wp-content/uploads/sites/46/2018/01/141-149-IAV_Maria-Magdalena-Namok-Nahak.pdf

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis. *International Journal of Qualitative Methods, 16*(1). https://doi.org/10.1177/1609406917733847

Park, M. S., Jeoung, Y., Lee, H. K., & Sok, S. R. (2015). Relationships among communication competence, self-efficacy, and job satisfaction in Korean nurses working in the emergency medical center setting. *Journal of Nursing Research, 23*(2), 101-108. https://doi.org/10.1097/jnr.0000000000000059

Prip, A., Pii, K. H., Møller, K. A., Nielsen, D. L., Thorne, S. E., & Jarden, M. (2019). Observations of the communication practices between nurses and patients in an oncology outpatient clinic. *European Journal of Oncology Nursing, 40,* 120–125. https://doi.org/10.1016/j.ejon.2019.03.004

Taylor-Leech, K. (2009). The language situation in Timor-Leste. *10*(1), 1–68. https://doi.org/10.1080/14664200802339840

Tetteh, L., Aziato, L., Mensah, G. P., Vehviläinen-Julkunen, K., & Kwegyir-Afful, E. (2021). Burns pain management: The role of nurse-patient communication. *Burns : Journal of the International Society for Burn Injuries, 47*(6), 1416–1423. https://doi.org/10.1016/j.burns.2020.11.011

Tindle, K., David, A., Carlisle, S., Faircloth, B., Fields, J. M., Hayden, G., & Ku, B. (2020). Relationship of the Built Environment on Nursing Communication Patterns in the Emergency Department: A Task Performance and Analysis Time Study. *Journal of Emergency Nursing, 46*(4), 440–448. https://doi.org/10.1016/j.jen.2020.04.005

Van Keer, R. L., Deschepper, R., Huyghens, L., & Bilsen, J. (2020). Preventing Conflicts Between Nurses and Families of a Multi-ethnic Patient Population During Critical Medical Situations in a Hospital. *Journal of Transcultural Nursing, 31*(3), 250–256. https://doi.org/10.1177/1043659619859049

Vermeir, P., Blot, S., Degroote, S., Vandijck, D., Mariman, A., Vanacker, T., Peleman, R., Verhaeghe, R., & Vogelaers, D. (2018). Communication satisfaction and job satisfaction among critical care nurses and their impact on burnout and intention to leave: A questionnaire study. *Intensive and Critical Care Nursing, 48,* 21–27. https://doi.org/10.1016/j.iccn.2018.07.001

Wang, C. C., Whitehead, L., & Bayes, S. (2016). Nursing education in China: Meeting the global demand for quality healthcare. *International Journal of Nursing Sciences, 3*(1), 131–136). https://doi.org/10.1016/j.ijnss.2016.02.009

Wang, M.-L., & Tsai, L.-J. (2014). Work–Family Conflict and Job Performance in Nurses. *Journal of Nursing Research, 22*(3), 200–207. https://doi.org/10.1097/jnr.0000000000000040

Wune, G., Ayalew, Y., Hailu, A., & Gebretensaye, T. (2020). Nurses to Patients Communication and Barriers Perceived by Nurses at Tikur Anbessa Specilized Hospital, Addis Ababa, Ethiopia 2018. *International Journal of Africa Nursing Sciences, 12*. https://doi.org/10.1016/j.ijans.2020.100197

Bridging Innovation to Prevent Ventilator-Associated Pneumonia: A Descriptive Qualitative Study among Critical Care Nurses

Yulis Setiya Dewi[1*], Arina Qona'ah[1], Hidayat Arifin[2], Rifky Octavia Pradipta[1], Rosita Rosita[1], Lizy Sonia Benjamin[3]

[1*]Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia
[2]Department Medical Surgical Nursing, Faculty of Nursing, Universitas Padjadjaran, Indonesia
[3]College of Nursing, King Khalid University, Abha, Kingdom of Saudi Arabia

Abstract

Background: Ventilator-Associated Pneumonia (VAP) is still a concern for individuals who are dependent on a ventilator. It is envisaged that the growth of technology-based innovations would lead to the creation of remedies for the prevention of VAP.
Purpose: The purpose of this study was to learn more about ICU nurses' perspectives on nursing innovations to avoid VAP in patients who are on ventilators.
Methods: Throughout July and August of 2021, a descriptive qualitative research study was conducted. Through the use of the snowball sampling approach, a total of 30 critical care nurses were recruited. During the interview procedure, each participant had around 40 minutes of time for an in-depth interview using a semi-structured format. In order to analyse the findings of the interviews, the technique proposed by Colaizzi was used.
Results: The following four themes emerged: 1) Development of tools to prevent infection, 2) Innovation to monitor cuff tension, 3) Improvement of nurses' skills and knowledge in using technology, and 4) Nurses' burden in using technology.
Conclusion: Nurses may benefit from considering VAP management as a part of technology-based innovation strategy. Nurses have praised the invention for measuring and monitoring the ETT cuff as a source of optimism for future advancement.

Keywords: innovation; Ventilator-Associated Pneumonia; nurses; critical care; ventilator.

OPEN ACCESS

Jurnal Keperawatan Padjadjaran (JKP)

Volume 9(3), 232-239

https://doi.org/10.24198/jkp.v9i3.1923

Article Info

Received : November 20, 2021
Revised : December 16, 2021
Accepted : December 23, 2021
Published : December 29, 2021

Corresponding author

Yulis Setiya Dewi
Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia, Postal address: 60115, Phone: 62 83854006001, E-mail: yulis.sd@fkp.unair.ac.id

Citation

Dewi, Y.S., Qonaah, A., Arifin, H., Pradipta, R.O., Rosita., & Benjamin, L.S. (2021). Bridging Innovation to Prevent Ventilator-Associated Pneumonia:A Descriptive Qualitative Study among Critical Care Nurses. *Jurnal Keperawatan Padjadjaran, 9*(3), 232–239. https://doi.org/10.24198/jkp.v9i3.1923

Website

http://jkp.fkep.unpad.ac.id/index.php/jkp

E-ISSN: 2442-7276
P-ISSN: 2338-5324

Introduction

The increased risk of nosocomial infection is one of the issues confronted by patients treated in the intensive care unit (ICU) (Kózka et al., 2020), and one of them is Ventilator-Associated Pneumonia (VAP) in the lower respiratory tract. Because of the increasing morbidity caused by VAP, it is necessary to make comprehensive measures to address the problem. There are a variety of variables that contribute to VAP, including poor infection management and the transfer of microorganisms from the exterior environment to the internal environment (Bacterial Translocation) (Vance et al., 2010). VAP occurs in 5–40% of patients on invasive mechanical ventilation for more than two days (Atashi V Mahjobipoor H, Yazdannik A.Atashi, Vajihe, 2018). High rate of mortality is the most serious danger of this case, with VAP reaching 70 percent in some cases (Torres et al., 2017) and the incidence of VAP in the ICU is about 5-15% of total patients (Klompas et al., 2014). Proper VAP prophylaxis can shorten the length of a patient's hospital stay, cut treatment costs, and improve patient satisfaction (Samra et al., 2017).

Nurses have a crucial role in determining the overall quality of healthcare services (Koch et al., 2020). The abilities of nurses in nursing care, as

well as preventative actions, are extremely essential variables in reducing the likelihood of problems. It is necessary to provide complicated observation and therapy, as well as high-intensity intervention and constant monitoring in the intensive care unit (Vance et al., 2010). The goal of today's nursing care is to reduce the likelihood of problems such as bacterial translocation and micro aspiration in the airways.

Nursing innovations in the prevention of VAP in patients who are on ventilators need to be a concern (Osti et al., 2017). The majority of causes of VAP occurred due to environmental factors, nosocomial infections, and nurses (Divatia et al., 2020). In addition, given the sheer number of nurses' duties, the success of the Endotracheal Tube (ETT) is rarely performed well. It also causes VAP. For this reason, nursing innovations to detect the causes of VAP need to be developed. However, the innovation to prevent VAP that is easy to monitor is not yet to be developed in Indonesia. Thus, in this study, we explored nurses' perceptions of the incidence of VAP in ETT-fitted patients to bridge innovation. We focused on the ETT because it is directly connected to the patient's respiratory tract and is highly susceptible to VAP. For this reason, a qualitative approach was taken to explore the innovations needed by nurses in the ICU to prevent VAP among patients with ventilators.

Methods

Study design

This study used a descriptive qualitative design. This approach aims to explain all conditions and circumstances as they currently exist, including what is still occurring or being carried out at the time of the research (Polit & Beck, 2012).

Settings and Participants

The study was conducted in the Intensive Care Unit (ICU), Government and Educational Hospital in Surabaya, Indonesia. The data was taken from July to August 2021. The subjects were obtained using snowball sampling. We partnered with the Nurse Unit Manager (NUM) to gather participants with the inclusion criteria who were nurses in the ICU, worked more than one year and had clinical privileges to treat patients on ventilators from the hospital. Thirty participants were recruited using purposive sampling technique.

Ethical Consideration

We gained ethical permission from the Haji Surabaya Hospital Ethics Committee (No. 073/16/KOM.ETIK/2021) and the Universitas Airlangga Hospital Ethics Committee (No. 154/KEP/2021) of the Health Commission of Indonesia. Participants were asked to provide written agreement before taking part in the study, and they were not obliged to do so under duress. They had the option to withdraw from the research without providing a reason, with no ramifications for their health care, and they also had the option to refuse to answer any of the questions. The researchers also made every effort to safeguard their anonymity during the whole interview session. All of the data was deidentified throughout the transcription process, with individuals being identified by numbers such as P1, P2, and so on, rather than using their names.

Data Collection

To gather information from critical nurses, four researchers performed an in-depth interview. Three interviewers performed for each seven participants and one reviewer performed for nine participants. Because of the COVID-19 Pandemic in Indonesia, and because the highest incidence was expected in the middle of 2021, we conducted our interviews via online meeting using Zoom Application. The researchers were health-care professionals with competence in critical nursing and medical surgical nursing departments, as well as previous experience doing qualitative research in these fields. There was no personal link between any of the study participants and any member of the research team.

In order to participate in the study, we asked permission to record the Zoom conference without video and audio only, which was granted. All of the recorded interviews were preserved in the Zoom application and only the researcher able to access them in order to maintain confidentiality. A clinical nurse who worked in an intensive care unit provided insight for the interview questions, and the researcher used that insight to develop the interview guidelines. The information was gathered through an interview with four experts (one expert in the critical nursing department, one medical doctor with a specialization in intensive care, and two nursing managers in the hospitals) before it was sent to participants. We conducted interviews with three critical nurses in order to determine the validity and reliability of the substance of the questions. Following that, we noted which questions were difficult for participants to grasp and updated them accordingly.

Furthermore, each researchers provided an explanation of the research aims to participants. For example, *"How did you learn about VAP?"* and *"Can you tell me, what is your goal for innovation tools to prevent VAP?"* were among the questions asked during the interview process. *"Please tell us about your burden to employ innovation?"* was another question. A total of around 40 minutes was spent to interview each of the participants. The interview was conducted using Bahasa Indonesia. After the interview procedure was completed, all researchers conducted an overall interview online. The researcher then re-confirmed with the participants about any information that was still unclear and instructed them on how to obtain the proper information. The interview was triangulated in order to improve the quality of the data using interview investigator triangulation (Heath, 2015).

When the data set achieved saturation, the process of recruiting new participants came to an end.

Data Analysis

It was necessary to use Microsoft Word 365 to complete the transcribing and verbatim operations. Following that, the researchers coded and evaluated their findings with the help of the NVIVO 12 program (QSR International). A group discussion forum amongst the four researchers was organized in order to bring the perceptions of the four researchers closer together. As a result, they will have the same viewpoint and will be able to decide the theme of the investigation. The approach developed by Colaizzi was employed in the analysis of the interview findings. (1) Familiarization with the transcript, (2) identification of significant statements, (3) formulation of meanings, (4) clustering of themes, (5) development of detailed description, (6) production of the fundamental structure, and (7) seeking verification of the fundamental structure were the stages involved (Morrow et al., 2015). The researchers used the Standards for Reporting Qualitative Research to improve the quality and transparency of the study results and the reporting that went along with them (SRQR) (O'Brien et al., 2014). Trustworthiness used credibility, transferability, confirmability, and dependability (Korstjens & Moser, 2018; Lincoln & Guba, 1985).

Results

Demographic Study

From 30 critical care nurse participants, the average age is 31.8 years with the majority of female (80%). The work status of nurses is roughly the same between government servants and non-civil servants. Almost half (46.6%) of the total participants have education of diploma in nursing level and work in non-COVID-19 ICU rooms. On average, participants worked as nurses for 8.8 years and as critical nurses for 5.5 years (Table 1).

Constructed Themes

From this study, we got four major themes that describe innovations in patients with ventilators to prevent VAP. The four are 1) Development tools to prevent infection, 2) Tension cuff monitor innovation, 3) Improving nurse's skills and knowledge in using technology, and 4) Nurse's burden in technology use (Table 2).

Theme 1: Development tools to prevent infection

According to the findings of this study, nurses have high expectations for technology advancements in nursing interventions to prevent VAP. We get the theme of Development tools to avoid infection, which is supported by three categories: 1) Easy to use, implement, and maintain, 2) Connectedness, and 3) Real-time and digital-based applications.

Easy to use, implement, and maintain

In developing nursing innovations to prevent VAP, innovations that are easy to use, install, and maintain are the focus of attention for nurses. This is because nurses can use these innovations if there is a rotation or shift change of nurses. This is contained in the following statement:

"of course… current inventions must be simple

Tabel 1 Participants Characteristics (n = 30)

Characteristics	n (%)
Participants age (mean)	31.8 years
Gender	
Male	6 (20)
Female	24 (80)
Job status	
Civil servant	14 (46.6)
Non civil servant	16 (54.4)
Education Level	
Diploma in Nursing	14(46.6)
Bachelor/Professional in Nursing	15 (50)
Master in Nursing	1(43.3)
Workplace	
ICU Non-COVID-19	28(93.3)
ICU COVID-19	2(6.6)
Length of work	
As nurses	8.8 years
As critical nurses	5.5 years

Table 2. Themes distributions

Codes	Categories	Themes
Easy for maintenance	Easy to use, implement, and maintenance	Development tools to prevent infection
User friendly		
Easy to install		
Accessible	Connectedness	
Connected from device		
Updated data	Real-time and digital-based apps	
Smartphone		
App-based android or IOS		
Realtime access		
Accurate		
Smarter Alarm Systems		
Cuff ETT	Part of ETT	Tension cuff monitor innovation
Air Tension		
Patient choking	Bacterial translocation and micro aspiration	
ETT position moved		
New experience	New insight in nursing innovation	Improving nurse's skill and knowledge in using technology
Helpful		
Enhanced Diagnostic Devices		
Electronic Records		
Application use	Training	
Guidance		
Information exposure	Inability and limitation to use the apps	Nurse's burden in technology use
Out of date		
Tools	Equipment	
Smartphone		

to use, simple to execute, and simple to set up and maintain." (P4)

"Hopefully, this invention will be of assistance and will make the task of nurses easier. However, it should be simple to use. Because not all of the nurses in this room are able to utilize such a program" (P10).

Connectedness

We found that nurses with innovation can help nurses working in controlling and preventing VAP in patients on ventilators. Existing innovations must be easily accessible and can be connected with the nurse's devise. This makes monitoring easier. The statement can be seen below:

"I've been a nurse in the ICU for a long time, but haven't found any innovations that can help us work. Especially for infection control in patients who are on a ventilator, it is difficult. And if there is an application that can connect to my smartphone or ICU room smartphone, it will certainly be very helpful. So all health workers such as doctors and nurses can make their work easier…" (P14).

Real-time and digital-based apps

Application-based innovations on Android and smartphones are currently attracting a lot of attention. Not only common people, nurses who work in the room also expect existing innovations to make the work of nurses easier. Innovation can be used to help securing data, can be applied to smartphones, and it is based on Android or IOS which can provide information or alarms as well as disturbances to patients and most importantly the innovation must be accurate. This can be seen in the following sentences:

"if there is an application that can monitor or prevent VAP that can be accessed with a smartphone at any time it will definitely make our work in the ICU easier…" (P22)

"most importantly, it must be accurate… it's useless to have innovation but it's not accurate… or the results are unclear. And if it can be accessed from anywhere and anytime, it will definitely make the job easier..." (P4).

Theme 2: Tension cuff monitor and innovation

The nurse mentioned that there were frequent problems related to the ETT cuff. So that innovation is needed to carry out periodic and real-time monitoring. This theme is composed of two categories: 1) part of the ETT and 2) bacterial translocation and aspiration.

Part of Endo-Tracheal Tube

The nurse said that the ETT installed in the patient often experienced problems such as changing positions, and the ETT tension which was often not monitored. This is in the following sentence:

"In my opinion, what is often overlooked is the ETT cuff issue… even though it is very important. If the pressure is reduced, the ETT tube can move (up or down). But sometimes this is often forgotten…" (P9).

"Sometimes I forget that… often I miss checking the pressure in the ETT cuff. If there is an innovation that can help check it can be very helpful…" (P13).

Bacterial translocation and micro aspiration

In this study, we found that according to nurses, VAP could occur due to bacterial translocation and micro aspiration of fluids from the mouth. It can be characterized as the patient is choking and the ETT position changes due to reduced ETT cuff tension. This can be seen in the following sentences:

"In terms of cleanliness from nurses, we always maintain personal hygiene before patients such as washing hands and using PPE. We always take care of this to reduce nosocomial infections. But it seems, the VAP can occur due to the lack of ETT pressure. If the tension in the ETT cuff is not strong enough, then bacteria can enter from the mouth and go down (throat). The patient may also choke… Maybe that should be a concern too…" (P10).

Theme 3: Improving nurse's skill and knowledge in using technology

The improvement of nurses' skills and knowledge in the use of technology can be increased by very informative and helpful innovations. This theme is supported by two categories, namely 1) New insight in nursing innovation, and 2) Training,

New insight in nursing innovation

With new innovations in nursing interventions, it can help and provide new insights for nurses and provide new innovative experiences. Of course this can help and facilitate the work to prevent the occurrence of VAP. Not only that, existing innovations can also assist in establishing a diagnosis in the VAS and can assist in medical records. This statement can be seen below:

"It will definitely be a new experience for us… because previously there were no innovations used to prevent infection. If there is, it will definitely help our work and have a positive impact on patients" (P17).

"If the innovation can help establish a diagnosis related to infection, it would be great. And it can also be medical records related to infection data in the patient's progress record. And maybe the innovation or the device can be installed in the ETT hose maybe… because usually the ETT cuff often lacks tension" (P4)

Training

Training related to the use of innovations to be developed is very much needed. It aims to improve the ability of nurses to use and operate these innovations. This statement can be seen in the sentence below:

"But before that (innovation), we also need to be guided, given information regarding how to use it. So we can have the same understanding to use the application. Moreover, there are not only nurses in the ICU… there are doctors and nurses. So training for doctors and nurses is also important…" (P25).

Theme 4: Nurse's burden in technology use

In this study, we found that nurses have their own burdens when it comes to using technology-based innovations. This theme consists of two themes, namely 1) Inability and limitations to use the apps and 2) Equipment.

Inability and limitation to use the apps

The limitations and inability of nurses in using internal applications as innovations for the development of innovations in the prevention of VAP can be seen from the dissemination of information that is less and outdated in the use of technology. This can be seen in the following sentence:

"the burden is clear if you have to use innovation or application. I'm old… can't use a smartphone anymore. If other people say, I'm out of date. Unlike the young children. But I can learn… slowly… can't be fast like other people" (P28)

"When it comes to applications on smartphones, I'm already dizzy… I'm old… I don't understand. But if possible, the innovation must be easy to use" (P4)

Equipment

Nurses are worried about the equipment that will be used such as smartphones for the development of VAP prevention innovations. This can be seen in the following sentences:

"I'm confused.. my handphone is old… is it possible? If that's the case, then I think about it. what should I do? If I have to change my handphone, I have to spend more money. Not to mention I'm confused and can't use it" (P30).

Discussion

In According to the findings of this study, nurses must be more creative in their interventions. This study found that preparations must be made before innovation can be implemented in order to prevent VAP in patients on ventilators. The themes identified included the development of infection-prevention tools, innovation of tension cuff monitor, improving nurse skills and knowledge, and reducing the burden

on nurses when using technological advances.

The first theme identified by this research is the development of technologies to help people avoid becoming infected. Technology-based improvements that can undoubtedly ease the job of nurses in a variety of areas, from monitoring and assessment to the prevention of VAP, are now being developed (Huter et al., 2020; Powell-Cope et al., 2008). However, the most important thing to remember is that the innovations made must be precise and able to be assessed precisely. A user-friendly, easy to install, and maintain program would also be a very useful factor in this case (Huter et al., 2020). In prior research, it has been found that nursing innovation interventions improve the efficiency of nurses' work while also reducing the responsibilities placed on nurses' shoulders (Kerr et al., 2020; Kong, 2009). But it is also possible to lower the frequency of infection in a continual manner for both nurses and patients, thanks to technologies that are focused on infection control. A major concern should be that the innovations generated are in accordance with the needs and are suitable, and that they assist patients, nurses, and other health-care professionals.

The nurses who spoke about EBP in the condition of patients with ETT were the next topic discovered in this study, according to the findings. Micro aspiration and translocation from the mouth into the respiratory system have both been implicated in the development of VAP (Akbiyik et al., 2021; Fromentin et al., 2021). The case is due to the low voltage of the ETT cuff. As a result, it is necessary to develop an innovative method of monitoring the ETT cuff. According to previous study, the occurrence of VAP is not only caused by environmental and hygienic factors, but also as a result of nurses' failure to regulate and maintain the cleanliness of patients who have ETT implanted (Divatia et al., 2020; Haque et al., 2018). This is why the creation of this intervention may serve as a recommendation in the future, making it easier for nurses to regulate ETT cuff pressure and avoid VAP while also serving as a reminder to them in the present.

Furthermore, technology-based innovations can provide new insights for nurses, increase knowledge, and skills in providing nursing interventions. The results of previous studies indicate that with technology-based innovations as well as being innovative and application, it can increase the knowledge and skills of nurses (Asurakkody & Shin, 2018; Barchielli et al., 2021). However, with training related to the use of innovative technology that will be developed, nurses need to equalize perceptions and abilities in using these applications. This needs to be done because the health workers who will use the application are not only nurses, but also multidisciplinary health sciences.

However, nurses also conveyed the perceived burden of using technology-based innovation. This is due to the diversity of knowledge, abilities, and facilities owned by nurses. Previous research has stated that older aged nurses will experience limitations in following technological innovations in the implementation of nursing care (Pepito & Locsin, 2019). For this reason, training, information dissemination, and introduction of innovations are needed. Thus, generalization of knowledge can be achieved.

Strength and Limitation

This study provides information related to the development of technology-based innovations in handling VAP. Not only that, the research presents EBP-based information submitted by nurses for the development of technology-based innovations. However, the diversity of research areas can be done to obtain more comprehensive information and it is necessary to consider the innovation needs of nurses working in rural areas.

Conclusion

It is possible that the development of technology-based improvements in nursing interventions to treat VAP in patients on ventilators will be taken into account in the future. Input that is based on Evidence-Based Practice supplied by nurses for the development of improvements in monitoring Cuff ETT pressure to avoid VAP utilizing apps-based applications is a valuable contribution to the field. The findings of this study may be useful to nurses and other stakeholders in the development of novel innovation using technology to overcoming VAP difficulties in the future. It also becomes the suggestion and information for hospital and nursing manager to develop innovation to prevent VAP among patients with VAP.

Consent for publication

Not Applicable.

Availability of data and materials

The data sets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

None

Funding

Ministry of Education, Culture, Research, and Technology of Republic Indonesia, No. 275/UN3/2021.

References

Akbiyik, A., Hepçivici, Z., Eşer, I., Uyar, M., & Çetin, P. (2021). The effect of oropharyngeal aspiration before position change on reducing the incidence of ventilator- associated pneumonia. *European Journal of Clinical Microbiology & Infectious Diseases, 40*(3), 615–622. https://

doi.org/10.1007/s10096-019-03789-4

Asurakkody, T. A., & Shin, S. Y. (2018). Innovative behavior in nursing context: A concept analysis. *Asian Nursing Research, 12*(4), 237–244. https://doi.org/10.1016/j.anr.2018.11.003

Atashi, V., Yousefi, H., Mahjobipoor, H., & Yazdannik, A. (2018). The barriers to the prevention of ventilator-associated pneumonia from the perspective of critical care nurses: A qualitative descriptive study. *Journal of Clinical Nursing, 27*(5-6), e1161–e1170. https://doi.org/10.1111/jocn.14216

Barchielli, C., Marullo, C., Bonciani, M., & Vainieri, M. (2021). Nurses and the acceptance of innovations in technology-intensive contexts: the need for tailored management strategies. *BMC Health Services Research, 21*(639). https://doi.org/10.1186/s12913-021-06628-5

Divatia J.V., Pulinilkunnathil J.G., & Myatra S.N. (2020). Nosocomial Infections and Ventilator-Associated Pneumonia in Cancer Patients. In: Nates J., Price K. (eds) *Oncologic Critical Care* (pp. 1419-1439). Springer, Cham.

Fromentin, M., Ricard, J.-D., & Roux, D. (2021). Respiratory microbiome in mechanically ventilated patients: a narrative review. *Intensive Care Medicine, 47*(3), 292–306. https://doi.org/10.1007/s00134-020-06338-2

Haque, M., Sartelli, M., McKimm, J., & Abu Bakar, M. Bin. (2018). Health care-associated infections – an overview. *Infection and Drug Resistance, 11*, 2321–2333. https://doi.org/10.2147/IDR.S177247

Heath, L. (2015). Triangulation: Methodology. *International Encyclopedia of the Social & Behavioral Sciences*, 639–644. https://doi.org/10.1016/B978-0-08-097086-8.44059-6

Huter, K., Krick, T., Domhoff, D., Seibert, K., Wolf-Ostermann, K., & Rothgang, H. (2020). Effectiveness of digital technologies to support nursing care: Results of a scoping review. *Journal of Multidisciplinary Healthcare, 13,* 1905–1926. https://doi.org/10.2147/JMDH.S286193

Kerr, D., Ratcliff, J., Tabb, L., & Walter, R. (2020). Undergraduate nursing student perceptions of directed self-guidance in a learning laboratory: An educational strategy to enhance confidence and workplace readiness. *Nurse Education in Practice, 42*. https://doi.org/10.1016/j.nepr.2019.102669

Klompas, M., Branson, R., Eichenwald, E. C., Greene, L. R., Howell, M. D., Lee, G., Magill, S. S., Maragakis, L. L., Priebe, G. P., Speck, K., Yokoe, D. S., & Berenholtz, S. M. (2014). Strategies to prevent ventilator-associated pneumonia in acute care hospitals: 2014 update. *Infection Control & Hospital Epidemiology, 35*(8), 915–936. https://doi.org/10.1086/677144

Koch, P., Zilezinski, M., Schulte, K., Strametz, R., Nienhaus, A., & Raspe, M. (2020). How perceived quality of care and job satisfaction are associated with intention to leave the profession in young nurses and physicians. *International Journal of Environmental Research and Public Health, 17*(8), 1–12. https://doi.org/10.3390/ijerph17082714

Kong, J. (2009). Effect of digital problem-based learning cases on student learning outcomes in ophthalmology courses. *Archives of Ophthalmology, 127*(9), 1211-1214. https://doi.org/10.1001/archophthalmol.2009.110

Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice, 24*(1), 120–124. https://doi.org/10.1080/13814788.2017.1375092

Kózka, M., Sega, A., Wojnar-Gruszka, K., Tarnawska, A., & Gniadek, A. (2020). Risk factors of pneumonia associated with mechanical ventilation. *International Journal of Environmental Research and Public Health, 17*(2), 1–7. https://doi.org/10.3390/ijerph17020656

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry.* SAGE Publications.

Morrow, R., Rodriguez, A., & King, N. (2015). Colaizzi's descriptive phenomenological method. *In The Psychologist, 28(*8).

O'Brien, B. C., Harris, I. B., Beckman, T. J., Reed, D. A., & Cook, D. A. (2014). Standards for reporting qualitative research. *Academic Medicine, 89*(9), 1245–1251. https://doi.org/10.1097/ACM.0000000000000388

Osti, C., Wosti, D., Pandey, B., & Zhao, Q. (2017). Ventilator-associated pneumonia and role of nurses in its prevention. *JNMA; Journal of the Nepal Medical Association, 56*(208), 461–468. http://www.ncbi.nlm.nih.gov/pubmed/29453481

Pepito, J. A., & Locsin, R. (2019). Can nurses remain relevant in a technologically advanced future? *International Journal of Nursing Sciences, 6*(1), 106–110. https://doi.org/10.1016/j.ijnss.2018.09.013

Polit, D. F., & Beck, C. T. (2012). *Nursing research, generating and assessing evidence for nursing practice.* Wolters Kluwer Health.

Powell-Cope, G., Nelson, A. L., & Patterson, E. S. (2008). Patient care technology and safety. *in patient safety and quality: An evidence-based Handbook for Nurses*. http://www.ncbi.nlm.nih.gov/pubmed/21328784

Powell-Cope, G., Nelson, A. L., & Patterson, E. S. (2008). Patient Care Technology and Safety. In R. G. Hughes (Ed.), *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*. Agency for Healthcare Research and Quality.

Samra, S. R., Sherif, D. M., & Elokda, S. A. (2017). Impact of VAP bundle adherence among ventilated critically ill patients and its effectiveness in adult ICU. *Egyptian Journal of*

Chest Diseases and Tuberculosis, 66(1), 81–86. https://doi.org/10.1016/j.ejcdt.2016.08.010

Torres, A., Niederman, M. S., Chastre, J., Ewig, S., Fernandez-Vandellos, P., Hanberger, H., Kollef, M., Bassi, G. L., Luna, C. M., Martin-Loeches, I., Paiva, J. A., Read, R. C., Rigau, D., Timsit, J. F., Welte, T., & Wunderink, R. (2017). International ERS/ESICM/ESCMID/ALAT guidelines for the management of hospital-acquired pneumonia and ventilator-associated pneumonia. *European Respiratory Journal, 50*(3). https://doi.org/10.1183/13993003.00582-2017

Vance, G., Koczen-Doyle, D., Mcgee-Mccullough, D., Kuzma, A.M., Butler-Lebair, M. (2010). Nursing Care in the Intensive Care Unit Setting: The Role of the Nurse in the ICU. In: Criner, G., Barnette, R., D'Alonzo, G. (eds) *Critical Care Study Guide* (pp. 225–238*)*. Springer.

Stress Levels and High School Adolescents Coping Mechanism during the Covid-19 Pandemic

Mustika Sajida Maharani*[1]; Mustikasari Mustikasari[2]

[1*]Faculty of Nursing, Universitas Indonesia, Depok, Indonesia
[2]Departement of Psychiatric Nursing, Faculty of Nursing, Universitas Indonesia, Depok, Indonesia

Abstract

Background: Adolescents are prone to psychological disorders due to their personal nature that they cannot accept changes. It is further exacerbated by the Covid-19 pandemic situation which requires all activities to be carried out online from home.
Purpose: This study aims to determine the relationship between stress levels and coping mechanism in high school adolescents during the Covid-19 pandemic in Halim Jakarta.
Methods: Research design is a cross sectional used for adolescents aged 15-19 years at SMA Negeri 67 Jakarta and SMA Angkasa 1. 342 samples were selected by using the quota sampling method. The measurement of stress levels is done by distributing the Perceived Stress Scale (PSS) questionnaire, while the coping mechanism uses the Brief Cope questionnaire. The research results include the results of univariate analysis and bivariate analysis with the Chi Square test.
Results: The results of this study showed that there was a relationship between stress levels and coping mechanism (p value 0.017), dysfunctional coping strategies (p value 0.000) in high school adolescents during the Covid-19 pandemic. Furthermore, there is no relationship between stress levels and Emotion Focused Strategies (p value 0.703), and Problem Focused Strategies (p value 0.816) in high school adolescents during the Covid-19 pandemic. The female adolescents are more dominant than male adolescents. More respondents from class XII majoring in science are from SMA Negeri 67 Jakarta. There are still teenagers with severe stress during the Covid-19 pandemic. There is a relationhip between stress levels with coping mechanism and dysfunctional coping strategies. But the stress level has no relationship with Emotion Focused Strategies and Problem Focused Strategies.
Conclusion: The results of this study are expected to improve mental health services through routine mental health screening and providing counselling related to stress management in adolescents. Adolescents are also expected to solve problems by optimizing the use of coping mechanism (Emotion Focused Strategies, Problem Focused Strategies) appropriately and avoiding the use of dysfunctional coping strategies.

Keywords: adolescents; coping mechanism; covid-19; stress.

OPEN ACCESS

Jurnal Keperawatan Padjadjaran (JKP)

Volume 9(3), 240-246

https://doi.org/10.24198/jkp.v9i3.1678

Article Info

Received : July 22, 2021
Revised : November 26, 2021
Accepted : November 29, 2021
Published : December 29, 2021

Corresponding author

Mustika Sajida Maharani
Faculty of Nursing, Universitas Indonesia, Depok, Indonesia, Postal address: 16425, Phone: 62 87887042028, E-mail: mustika.sajida@ui.ac.id

Citation

Maharani, M.S., & Mustikasari, M. (2021). Stress Level and High School Adolescents Coping Mechanisn during the Covid-19 Pandemic. *Jurnal Keperawatan Padjadjaran, 9*(3), 240–246. https://doi.org/10.24198/jkp.v9i3.1678

Website

http://jkp.fkep.unpad.ac.id/index.php/jkp

E-ISSN: 2442-7276
P-ISSN: 2338-5324

Introduction

The Corona virus has been declared a pandemic by the WHO (World Health Organization) since March 9, 2020, and this virus has spread widely to all parts of the world (WHO, 2020). This virus is new and this disease was not known before the outbreak in Wuhan, China, in December 2019. The Covid-19 pandemic also caused psychosocial problems. Based on the research conducted, the prevalence of stress was 29.6%. The anxiety level was 31.9% and depression was 33.7% (Salari et al., 2020). Based on the data above, stress is one of the health issues that should not be ignored.

Adolescence is a period of transition from childhood to adulthood

Table 1. Average Distribution of High School Respondents During the Covid-19 Pandemic at Halim Jakarta Based on Adolescent Age at Halim in 2021 (N=342)

Characteristics of Respondents	Mean Median Mode	SD	Min-Max	CI 95%
Age	16.40 16 17	0.906	15–19	16.30–16.50

Table 2. Frequency Distribution of Respondents Based on Gender, Class, Major, and School Origin of High School Teenagers During the Covid-19 Pandemic at Halim Jakarta Based on Adolescent Age at Halim 2021 (N=342).

Characteristics of Respondents	Total	Percentage (%)
Gender		
Boy	117	34.2
Girl	225	65.8
Class		
X	92	26.9
XI	104	30.4
XII	146	42.7
Major		
IPA	217	36.5
IPS	125	63.5
School Origin		
SMAN 67 Jakarta	202	59.1
SMA Angkasa 1	140	40.9

Table 3. Distribution of Frequency Based on Stress Levels of High School Adolescents during the Covid-19 Pandemic in Halim Jakarta by Adolescent Age in Halim 2021 (N=342).

Variable	Total	Percentage (%)
Stress Level		
Mild	20	5.8
Moderate	216	63.2
Severe	106	31
Total	342	100

Table 4. Distribution of Average Respondents by Level of High School Adolescent Coping Mechanisms during the Covid-19 Pandemic in Halim Jakarta by Adolescent Age in Halim 2021 (N=342).

Variable		Total	Percentage (%)
Coping Mechanism	Less	36	10.5
	Good	306	89.5
Emotion Focused Strategies	Less	200	58.5
	Good	142	41.5
Problem Focused Strategies	Less	201	58.8
	Good	141	41.2
Dysfunctional Coping Strategies	Less	297	86.8
	Good	45	13.2

Table 5. The Relationship Between Stress Levels and Coping Mechanisms for High School Adolescent during the Covid-19 Pandemic in Halim Jakarta based on Adolescent Age in Halim 2021 (N=342).

Independent Variable	Dependent Variable															
	Coping Mechanism						Emotion						Problem					
	Good		Less		Total	P Value	Good		Less		Total	P Value	Good		Less		Total	P Value
	n	%	n	%			n	%	n	%			n	%	n	%		
Stress Level																		
Mild	20	100	0	0	20	0.017	9	45	11	55	20	0.703	8	40	12	60	20	0.816
Moderate	198	91.7	18	8.3	216		86	39.8	110	60.2	216		87	40.3	129	59.7	216	
Severe	88	83	18	17	106		47	44.3	59	55.7	106		46	43.4	60	56.6	106	
Total	306	100	36	100	342		142	100	200	100	342		141	100	201	100	342	

Independent Variable	Dependent Variable					
	Dysfunctional					
	Good		Less		Total	P Value
	n	%	n	%		
Stress Level						
Mild	10	50	10	50	20	0.000
Moderate	34	15.7	182	84.3	216	
Severe	1	0.9	105	99.1	106	
Total	45	13.2	297	86.8	342	

(Hockenberry & Wilson, 2015). Adolescents are vulnerable to psychological disorders because they have not been able to accept changes easily. Some of the changes caused by Covid-19 have an impact on all aspects such as the start of online classes, not being able to meet and play with friends, the routine of parents working from home. These changes can make teenagers become stressed (Ananda & Apsari, 2020). Adolescents also experience several things that cause stress including changes in learning methods. At first they learned face-to-face, but with conditions like this, the learning turned into distance learning (Ananda & Apsari, 2020). Based on a survey conducted by KPAI (Indonesian Child Protection Commission), as many as 79.9% of children experienced increased stress due to lack of interaction with the teacher and the teacher only gave heavy tasks, and 20.1% still thought that there was interaction in the learning process. The stress experienced by teenagers during the Covid-19 pandemic is classified as academic stress (Muslim, 2020). One of the causes of adolescent stress levels during the Covid-19 pandemic is because studying at home is difficult and the online learning system is becoming less effective.

Based on the researcher's preliminary study of 10 high school teenagers in Jakarta, it showed that during the Covid-19 pandemic, teenagers felt stressed due to the Distance Learning method. To deal with stress, teenagers do several things such as playing games, chatting with friends using social media, and exercising. The way that teenagers do to relieve stress is by implementing commonly used coping.

The results of the research conducted on high school students on the use of coping mechanism showed that 55.2% of respondents used adaptive coping mechanism and 44.8% of respondents used maladaptive coping mechanism. The maladaptive coping mechanism that has been used are consuming alcohol, smoking, fighting, and playing games. The adaptive coping mechanism used by adolescents, for example talking to other people, trying to solve existing problems, and also relaxation techniques (Mulyana, 2013). Diverting thoughts and doing other activities are some examples of ways to reduce stress. Reducing stress levels in online learning will also result in decreased coping mechanism (Fitriasari, Septianingrum, Budury, & Khamida, 2020). Based on this, the purpose of this study was to determine the relationship between stress levels and the coping mechanism of high school adolescents during the Covid-19 pandemic in Halim Jakarta.

Methods

The design of this research is a cross sectional (Notoatmodjo, 2010). The sample criteria are students between the ages of 15-19 years, and willing to become research respondents. Respondent selected by quota sampling with a sample of 342

respondents held on January 16-22 2021 in SMA Negeri 67 and SMA Angkasa 1 Halim Jakarta Timur. The questionnaire used: 1) the characteristics of the respondents, namely age, gender, school origin, major, and class made by the researcher himself, 2) the stress level (Perceived Stress Scale from Cohen (Cohen, 1983) consisting of 10 questions, and 3) the coping mechanism (Brief COPE from Carver (1997)) consisting of 28 questions. This questionnaire was originally in English, then the researcher translated this questionnaire into Indonesian with the help from a sworn translator. Data were collected through online media (Google Form). The analysis in this study used univariate analysis and bivariate analysis with chi-square test. This research has passed the ethics test Faculty of Nursing, Universitas Indonesia with Nomor: SK-03/UN2.F12.D1.2.1/ETHIC 2021.

Results

The results of this study include 1) respondent characteristics including age, gender, school origin, major, and class, 2) stress level, and 3) coping mechanism.

Characteristics of respondents

Next are the characteristics of other respondents as in table 1.

The average age obtained is 16.40 years, with the youngest age of 15 years and the oldest age of 19 years.

Table 2 shows the number of female respondents consisting of 225 adolescents. The number of respondents in class XII consists of 146 teenagers. The number of teenagers from the science department consists of 217 teenagers. The number of teenagers from SMA Negeri 67 Jakarta consists of 202 teenagers.

Stress Level

Table 3 shows that there are still teenagers who are under severe stress, with 31%.

Coping Mechanism

Table 4 shows that adolescents are good at using coping mechanisms (89.5%), emotion focused strategies (41.5%), and problem focused strategies (41.2%). Only 13.2% of teenagers are not good at using Dysfunctional Coping Strategies.

Coping Mechanism

Table 5 shows that there is a relationship between stress levels and coping mechanisms (p value = 0.017), Dysfunctional Coping Strategies (p value = 0.000) for high school adolescents during the Covid-19 pandemic. There is no relationship between stress levels and Emotion Focused Strategies (p value = 0.703), Problem Focused Strategies (p value = 0.816) for high school adolescents during the Covid-19 pandemic.

Discussion

Characteristics of respondents

Characteristics of the respondents consist of age, gender, school origin, major, and class. The age of the respondents is the average age of 16.4 years old. The respondent's age ranges from 15-19 years. Based on WHO, this age range is included in the category of middle (14-16 years old) and late teens (16-19 years old). Adolescence is a transition from childhood to adulthood. Adolescents have unstable emotions causing them to be unable to solve the problems they are facing, adolescents also do not have mature thoughts about the future (Rahmawati, Rohaedi, & Sumartini, 2019). Skills in dealing with stressors and the use of coping mechanisms are related to a person's age (Fitriasari et al., 2020). A person's ability to manage stress is accompanied by the development of the age (Suwartika, Nurdin, & Ruhmadi, 2014). Teenagers still have difficulty on accepting reality so they are easier to experience stress because they are not used to changes.

Female adolescent respondents are more dominant than boys. This is supported by the research that adolescent girls are more susceptible to stress than adolescent boys. This is because boys are easier to feel confident, independent, and able to become leaders, while girls are more emotionally oriented (Sharma & Kaur, 2011). Teenage girls are more prone to experiencing high levels of stress because girls experience puberty earlier than boys (Budiarti, 2013). The results of the study are in accordance with (Dapodikbud, 2020) which shows that there are more female students than male students. The respondents from science major are more dominant than social studies respondents. This is comparable to research conducted by Wulandari (2014) which obtained data that adolescents from the science department were more dominant than the social studies major. There is a significant difference in the level of anxiety between the science majors and the social studies majors (Krisnawati, 2011). The results of the study also stated that although there was a perception that the science department gave higher pressure than the social studies major, there was actually no significant difference in the level of stress between the two majors (Allred, Granger, & Hogstrom, 2013). The level of stress experienced by adolescents from the science department is caused by pressure to follow all lessons and difficulties in understanding lessons.

The majority of the respondents are from class XII, followed by class XI, and lastly is class X. According to a study, the characteristics of class XI students are able to adapt to the school environment and learning activities well and have plenty of time for self-exploration (Setiono, 2013). The majorities of class XI students already have good self-understanding, have a good sense of enthusiasm for learning, and have good relationships with their friends (Lestari, Sofah, & Putri, 2019). According

to a study, class XII students have a higher risk of experiencing psychosocial problems because the higher a person's education level causes the stress received from the burden of learning to increase also (Putri, 2014). The researcher assumes that the stress level experienced by teenagers is highest in class XII due to the high burden of learning to continue to college level.

The results showed that the majority of adolescent respondents came from SMA Negeri 67 Jakarta rather than from SMA Angkasa 1 Jakarta (Dapodikbud, 2020). This result is in accordance with the data held by Dapodikbud which shows that the number of students attending SMA Negeri 67 Jakarta is more than students attending SMA Angkasa 1 Jakarta. Public schools are schools run by the government, while private schools are usually run by a foundation. For the number of students, there are usually more students from public schools than students from private schools because the capacity of public schools is bigger than the capacity of private schools.

Stress Level

The data from the results of this study indicate that there are still teenagers who belong to the category of severe stress. Adolescents also experience several things that cause stress, including changes in learning methods. At first they learn with face-to-face learning, but this current condition has made the learning process turn into distance learning (Ananda & Apsari, 2020). Teenagers experience increased stress due to social restrictions that cause teens not to be able to spend time playing with their friends (Houston, 2020). The average teenagers experience moderate levels of stress during the pandemic due to difficulties on understanding online material and fears of being infected (Purba, 2020). Severe stress lasts several weeks to years, this stress begins to affect a person's mental and physical. The causes of stress experienced by adolescents include academic, individual relationships, peer problems, and life changes (Apriningtyas Budiyati & Oktavianto, 2020). Some of the difficulties experienced by adolescents are caused by the additional cost of the internet and a lack of understanding of technology (Purwanto et al., 2020). The level of stress experienced by adolescents can be caused by several things, including teenagers who have not been able to accept changes, some of the changes experienced by adolescents include changes in the way of learning to distance learning.

Coping Mechanism

The results of the study found that adolescents were able to use coping mechanisms but there were still some adolescents who had not been able to use coping mechanisms optimally. More than 50% of teenagers still use the Dysfunctional Coping Strategies mechanism. Teenagers are more dominant in using coping mechanisms of Emotion-focused strategy. The use of Dysfunctional Coping Strategies is caused by the severity of a stressor experienced. To overcome this, guidance and counselling services are needed for adolescents to tell about their feelings during learning and can use the focus group discussion method (Sary, 2011). The usual coping mechanism for adolescents is adaptive coping mechanisms, but there are some adolescents who use maladaptive coping mechanisms.

Effective problem solving requires the use of both functions of coping mechanisms to deal with the stress (Fitriasari et al., 2020). Most people use adaptive coping mechanisms such as watching television or watching movies, cleaning and tidying things up, keeping in touch with friends and family during a pandemic (Taylor et al., 2020). Teenagers are more likely to use problem-focused coping mechanisms to deal with stress (Raheel, 2014). Adolescents have begun to be able to determine the appropriate coping mechanisms to deal with the stressors they experience.

The coping mechanisms they use are very diverse. Adolescents usually use problem-focused coping mechanisms. Problem-focused coping is a strategy by making a change and taking action to deal with a situation. Emotion-focused coping focuses on actions to reduce emotional distress, commonly known as a defense mechanism, an attempt to eliminate feelings of anxiety (Lazarus & Folkman, 1984; Stuart, 2013). Dysfunctional coping strategies refer more to maladaptive coping and do not resolve the stress. Based on the researcher's analysis, the coping mechanism needs to be improved, namely the use of Problem-focused strategies and Emotion-focused strategies. Teenagers begin to find out about coping mechanisms from several online media sources, and reference sources. The use of dysfunctional coping strategies is not recommended because it tends to not solve the problem because the coping used is maladaptive.

The Relationship between Stress Level and Coping Mechanism

Based on the results of the study, there are still teenagers experiencing severe stress who have not used coping mechanisms optimally and use Dysfunctional Coping Strategies coping mechanisms. The results showed that there was a relation between stress levels with coping mechanisms and dysfunctional coping strategies. Stress level has no relationship with Emotion Focused Strategies and Problem Focused Strategies.

The results of this study are in accordance with the research and the data shows that respondents with high levels of stress have tried various coping mechanisms, including adaptive coping mechanisms such as using the internet to keep in touch with others through text messages, and creating routines (Taylor et al., 2020). Some ways to reduce stress are by doing other activities or sleeping. The decrease in stress levels in online learning will also be followed by the decrease in coping mechanisms

(Fitriasari et al., 2020).

The level of stress experienced by adolescents can be overcome if adolescents maximize the use of coping mechanisms. The use of coping mechanisms must be appropriate because there are coping mechanisms that do not cope with the stress experienced.

Conclusion

The characteristics of the respondents are mostly in the middle age category, with female adolescents more dominant than male adolescents. More respondents from class XII majoring in science are from SMA Negeri 67 Jakarta. There are still teenagers with severe stress during the Covid-19 pandemic. The number is not too large but it needs attention. Teenagers are able to use coping mechanism (Emotion Focused Strategies, Problem Focused Strategies) well but still not optimal and there are still some teenagers who use Dysfunctional Coping Strategies. There is a relationhip between stress levels with coping mechanism and dysfunctional coping strategies. However, the stress level has no relationship with Emotion Focused Strategies and Problem Focused Strategies. Adolescents are also able to use coping mechanism optimally but there are still some teenagers who have not maximized the use of coping mechanism.

It is hoped that through this research, the government will make regulations that emphasize policies on the community to care about mental health, especially the mental health of children and adolescents as well as creating guidebooks and optimizing the maximum use of coping mechanism (Emotion Focused Strategies, Problem Focused Strategies) in overcoming stress during the pandemic and avoiding the use of Dysfunctional Coping Strategies through the creation of educational content in social media. The government can also create a complaint post in each region to receive complaints from teenagers related to stress problems they experience and provide lessons related to optimizing coping mechanism.

Schools can conduct health promotions regarding stress management and optimize the use of coping mechanism for Problem Focused Strategies and Emotion Focused Strategies optimally during the pandemic through online seminars, and health promotion related to stress levels and use coping mechanism for Problem Focused Strategies and Emotion Focused Strategies optimally by using social media.

Nurses can provide health promotion in the form of counselling related to the selection of coping mechanism and stress management as well as conducting counselling related to the adolescent development process that can affect stress levels and how to optimize the use of pandemic coping mechanism (Emotion Focused Strategies, Problem Focused Strategies) and avoiding the use of Dysfunctional Coping Strategies which can be done by providing education to students as much as possible. Nurse can also educate the adolescents that these coping mechanisms are not recommended and help adolescents choose other coping mechanism such as by trying to share their thoughts. Nurses can also provide guidance and counselling to adolescents in accordance with the development of age who experience severe stress.

Teachers are expected to be a place for teenagers to share their thought and help the students during distance learning, so that teenagers who are experiencing stress can be given counselling and assistance. Teenagers begin to find out what activities they like to deal with stress. It is hoped that teenagers can also do stress management so that they can reduce stress levels.

The Researchers hope that the results of this study can be used for the development of nursing science, especially psychiatric nursing and can provide information about interventions related to stress levels experienced by adolescents during the Covid-19 pandemic and the selection of the use of appropriate coping mechanism and also maximizing the use of coping mechanism (Problem Focused Strategies dan Emotion Focused Strategies).

References

Allred, A., Granger, M., & Hogstrom, T. (2013, February 12). The Relationship Between Academic Major, Personality Type, and Stress In College Students. Retrieved January 22, 2021, from https://www.lakeforest.edu/news/the-relationship-between-academic-major-personality-type-and-stress-in-college-students

Ananda, S. S. D, & Apsari, N. N. (2020). Mengatasi Stress Pada Remaja Saat Pandemi Covid-19. *Prosiding Penelitian & Pengabdian Kepada Masyarakat,* 7(2), 248–256. https://doi.org/10.24198/jppm.v7i2.29050

Budiyati, G, A., & Oktavianto, E. (2020). Stres Dan Resiliensi Remaja Di Masa Pandemi Covid-19. *Husada Mahakam : Jurnal Kesehatan, 10*(2), 11–18. https://doi.org/10.35963/hmjk.v10i2.227

Budiarti, A. N. (2013,). *Hubungan asupan zat gizi mikro dan faktor lainnya dengan nilai stres pada remaja di SMA Negeri 68 Jakarta Pusat tahun 2013*. [Bachelor's Thesis, University of Indonesia]. Universitas Indonesia Library. Retrieved December 12, 2020, from https://lib.ui.ac.id/detail?id=20346768&lokasi=lokal

Carver C. S. (1997). You want to measure coping but your protocol's too long: consider the brief COPE. *International journal of behavioral medicine, 4*(1), 92–100. https://doi.org/10.1207/s15

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*(4), 385–396. https://doi.org/10.2307/2136404

Dapodikbud. (2020, February 4). Sekolah Kita. Retrieved February 4, 2021, from http://sekolah.data.kemdikbud.go.id/

Houston, F. (2020, October 9). Too young to be stressed: Adolescent mental health in the COVID-19 pandemic. Retrieved February 21, 2021, from https://www.uchicagomedicine.org/forefront/news/too-young-to-be-stressed-out-ingalls-behavioral-health-focuses-on-adolescents-too

Fitriasari, A., Septianingrum, Y., Budury, S., & Khamida, K. (2020). Stress pembelajaran online berhubungan dengan strategi koping mahasiswa selama pandemi covid-19. Jurnal Keperawatan. *Nursing Journal, 12*(4), 985–992. https://doi.org/10.32583/keperawatan.v12i4.1047

Hockenberry, M. J., & Wilson, D. (2015). *Wong's nursing care of infants and children 10th ed. Elsevier.*

Krisnawati, O. O. (2011). *Perbedaan Tingkat Kecemasan Siswa Kelas XI Antara Jurusan IPA dan IPS di SMA Negeri 1 Babadan Ponorogo. .* [Bachelor's Thesis,Universitas Muhammadiyah Surakarta]. UMS Library. Retrieved February 12, 2021, from http://eprints.ums.ac.id/14854/

Lazarus, R., & Folkman, S. (1984). *Stress, appraisal, and coping.* Springer Publishing Company.

Lestari, D. P., Sofah, R., & Putri, R. M. (2019). Tingkat kecerdasan emosi peserta didik kelas XI di SMA Negeri 15 Palembang. *Jurnal Konseling Komprehensif: Kajian Teori Dan Praktik Bimbingan Dan Konseling, 6*(1), 11–20. https://doi.org/10.36706/jkk.v6i1.8498

Mulyana. (2013). *Gambaran mekanisme koping remaja di SMAN 30 Jakarta.* [Bachelor's Thesis, University of Indonesia]. Universitas Indonesia Library. Retrieved February 21, 2021, from https://lib.ui.ac.id/abstrakpdf.jspdetail?id=20348475&lokasi=lokal

Muslim, M. (2020). Manajemen stress pada masa pandemi COVID-19 ". *Jurnal Manajemen Bisnis, 23*(2), 192–201. https://doi.org/10.55886/esensi.v23i2.205

Notoatmodjo, S. (2010). *Metodologi Penelitian Kesehatan.* Rineka Cipta.

Purba, S. A. B. (2020). *Tingkat stres pada siswa yang bersekolah dengan media daring di Madrasah Aliyah Negeri 2 Model Medan.* [Bachelor's Thesis, Universitas Sumatera Utara]. USU Repository. Retrieved February 28, from https://repositori.usu.ac.id/bitstream/handle/123456789/29092/161101111.pdf?sequence=1&isAllowed=y

Purwanto, A., Pramono, R., Asbari, M., Santoso, P. B., Wijayanti, L. M., Choi, C. H., & Putri, R. S. (2020). Studi eksploratif dampak pandemi COVID-19 terhadap proses pembelajaran online di Sekolah Dasar. *EduPsyCouns: Journal of Education, Psychology and Counseling, 2*(1), 1–12. https://ummaspul.e-journal.id/Edupsycouns/article/view/397

Putri, W. D. A. W. (2014). Prevalensi Stres Psikososial Dan Faktor - Faktor Yang Mempengaruhi Pada Siswa – Siswi Kelas XII Studi Pendidikan Ipa Dan Ips Sman 6 Denpasar. Stres Psikososial, (Prevalence of Psychosocial Stress and Factors Affecting Students in Class XII Science and Social Studies Education at Sman 6 Denpasar. *E-Jurnal Medika Udayana, 3*(11), 1–12.

Raheel H. (2014). Coping strategies for stress used by adolescent girls in Riyadh, Kingdom of Saudi Arabia. *Pakistan journal of medical sciences, 30*(5), 958–962. https://doi.org/10.12669/pjms.305.5014

Rahmawati, M. N., Rohaedi, S., & Sumartini, S. (2019). Tingkat stres dan indikator stres pada remaja yang melakukan pernikahan dini. *Jurnal Pendidikan Keperawatan Indonesia, 5*(1), 25–33. https://doi.org/10.17509/jpki.v5i1.11180

Salari, N., Hosseinian-Far, A., Jalali, R., Vaisi-Raygani, A., Rasoulpoor, S., Mohammadi, M., Khaledi-Paveh, B. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: A systematic review and meta-analysis. *Globalization and Health, 16*(1). https://doi.org/10.1186/s12992-020-00589-w

Sary, Y. K. (2011). *Perilaku Maladaptif Dalam Proses Pembelajaran Siswa Kelas Viii Sekolah Menengah Pertama Negeri 23 Pekanbaru.* [Bachelor's Thesis, State Islamic University of Sultasn Syarif Kasim]. Institutional Repository. Retrieved February 21, 2021, from https://repository.uin-suska.ac.id/433/

Setiono, S. E. (2013). *Hubungan antara religiusitas dengan kenakalan remaja pada siswa-siswi kelas XI SMK Negeri 2 Malang.* [Bachelor's Thesis, Universitas Islam Negeri Maulana Malik Ibrahim]. Universitas Islam Negeri Maulana Malik Ibrahim. Retrieved February 21, 2021 from http://etheses.uin-malang.ac.id/1722/

Sharma, M., & Kaur, G. (2011). Gender differences in Proscatination and Academic Stress among adolescents. *Indian Journal Of Social Science Resourches, 8*(1-2), 122–127. Retrieved February 21, 2021 from https://www.yumpu.com/en/document/read/30272531/gender-differences-in-procrastination-and-academic-stress-among-

Suwartika, I., Nurdin, A., & Ruhmadi, E. (2014). Analisis Faktor Yang Berhubungan Dengan Tingkat Stress Akademik Mahasiswa Reguler Program Studi D III Keperawatan Cirebon Poltekkes Kemenkes Tasikmalaya. *The Soedirman Journal of Nursing), 9*(3), 173–189. Retrieved from http://jks.fikes.unsoed.ac.id/index.php/jks/article/viewFile/612/337

Taylor, S., Landry, C. A., Paluszek, M. M., Fergus, T. A., McKay, D., & Asmundson, G. J. G.

(2020). Development and initial validation of the COVID Stress Scales. *Journal of Anxiety Disorders, 72*. https://doi.org/10.1016/j.janxdis.2020.102232

WHO. (2020). *Coronavirus disease (COVID-19) outbreak: Rights , roles and responsibilities of health workers, including key considerations for occupational safety*. World Health Organization.

Wulandari, R. (2014). *Gambaran tingkat stres akademik pada remaja di SMA Negeri 1 Depok.* [Bachelor's Thesis, University of Indonesia]. Universitas Indonesia Library. Retrieved February 21, 2021, from https://lib.ui.ac.id/detail.jsp?id=20388118#:~:text=Hasil%20penelitian%20didapatkan%20data%2051.6,mengenai%20stress%20akademik%20pada%20remaja.

p-ISSN : 2338-5324 e-ISSN: 2442-7276

Author Index

p-ISSN : 2338-5324 e-ISSN: 2442-7276

Subject Index

p-ISSN : 2338-5324 e-ISSN: 2442-7276

Advisory and Editorial Board expressed sincere appreciation to peer reviewer as follows:

Dr. Yulis Dewi
(Universitas Alrlangga)
Bih-O Lee, PhD
(Kaohsiung Medical University)
Restuning Widiasih, PhD
(Universitas Padjadjaran)
Irma Nurbaeti, PhD
(Universitas Islam Negeri Syarif Hidayatullah Jakarta)
Mohd Khairul Zul Hasymi Firdaus, PhD
(International Islamic University Malaysia)
Dr. Nita Fitria
(Universitas Padjadjaran)
Pratuma Rithpho, PhD
(Naresuan University)
Dr. Qorinah Adnani
(Universitas Padjadjaran)
Jenny Marlindawani Purba, PhD
(Universitas Sumatera Utara)
Iqbal Pramukti, PhD
(Universitas Padjadjaran)
Sirikanok Klankhajhon, PhD
(Naresuan University)
Yohanes Rias, PhD
(Institut Ilmu Kesehatan Bhakti Wiyata Kediri)
Professor Ah Yusuf
(Universitas Airlangga)
Efri Widianti
(Universitas Padjadjaran)
Professor Lilibeth Al-Kofahy
(Sam Houston State University)
Bayhakki, PhD
(Universitas Riau)
Saldy Yusuf, PhD
(Universitas Hasanuddin)
Muhammad Arsyad Subu, PhD
(University of Sharjah)
Titis Kurniawan
(Universitas Padjadjaran)

Thanks to the excellent cooperation for supporting Jurnal Keperawatan Padjadjaran

Editor