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## OBSTACLE OF HANDLING COVID-19 OUTBREAK AMONG PRIMARY HEALTH CARE NURSES IN INDONESIA

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### ABSTRACT

The rise in COVID-19 cases and fatalities indicates that nurses working in primary health care face certain challenges in administering treatment and preventative measures. Identify the obstacles faced by the nurses of primary health care in their efforts to conduct prevention and treatment of the COVID-19 outbreak in Bandung, Indonesia. Correlational descriptive quantitative design with a survey approach was employed in this research. Total sampling was used to collect 120 nurses that made up the study's sample. The findings showed that nurses experienced high obstacles 58 nurses (48.3%) in carrying out tracing tasks, 61 nurses (50.8%) in implementing monitoring tasks, 34 nurses (28.3%) in carrying out education and counseling tasks, and 60 nurses in the duty of referral selection. Multivariate analysis indicated nurses' updating knowledge of monitoring task difficulties is the most crucial determinant with a p-value ( $p = 0.038$ ). In carrying out nursing duties during the pandemic, updating knowledge is very useful for breaking the chain of transmission and handling pandemics in general. Nurses at PHC should improve their knowledge and handling skills related to the pandemic by attending training and seminars related to handling the COVID-19 outbreak.

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## 1. INTRODUCTION

The COVID-19 pandemic is a new problem for Indonesian society. When the COVID-19 outbreak was first declared a national disaster, the number of cases reached 4,557 and 399 people died from COVID-19 (Syarifah, 2020). Then in October 2021, the cases increased to 410,088 and 13,768 people died from COVID-19 (Moerti, 2020). Beginning in 2021, there were still 751,270 cases, and 22,329 people died as a result (Katriana, 2021). As of August 10, 2021, there were 3,718,821 COVID-19 cases in Indonesia, with a 110,619 death rate (Bramasta, 2021).

Health professionals assigned to handle COVID-19 cases also saw an increase in caseload. The COVID-19 pandemic, according to the International Council of Nurses (ICN), has killed more than 260 nurses and infected at least 90,000 other healthcare workers as of May 2020 (Kenny, 2020). In Indonesia, 253 health professionals died from COVID-19 from March to October 2020 (Perwitasari, 2020), and by May 2021, 1,245 health workers had perished (Jayani, 2021), even though at the end of 2020, the death rate of health workers had only reached 507 (Rizal, 2020). In the same period, there were approximately 12,400 positive cases and 895 fatalities, including 55 healthcare workers. This indicates that 6-7 medical staff (55/895) died for every 100 fatalities (Irwandy, 2020).

The increase in the number of cases and deaths due to COVID-19 has undoubtedly put PHC nurses as the frontline in handling the COVID-19 patients, both in service and functional role of a nurse, and faced many obstacles. (Al Thobaity & Alshammari, 2020) pointed out that identifying the challenges a nurse faced during the COVID-19 pandemic will help them in carrying out their responsibilities properly, optimizing their capacity to save the lives of others as well as their own.

A nurse has the task of tracing, monitoring, providing knowledge and counseling as well as selecting patients for referral (Sharma et al., 2020). The increase in the number of COVID-19 cases depends on the mobility of population (Jayaweera et al., 2020), such as migrant receiving cities in India turning into community transmission hotspots until they were unable to identify the source of infection (Singh & Mishra, 2020). In addition to its large population, ease of travel, level of education, and underdeveloped reporting and tracking system, Indonesia, which continues to receive outside immigrants, will undoubtedly experience the same impact. It is even possible that Indonesia will see a considerable increase in the number of cases (Suriyani, 2021).

In order to adjust handling methods when an emergency occurs, pre-hospital actions such as close contact tracing, monitoring clinical deterioration, education & counseling, and referral selection are carried out by nurses as part of their duty in preventing and managing the COVID-19 outbreak (Saberian et al., 2020). As a result of the above explanation, the researcher felt the need to identify the obstacle factors that a nurse faced, especially when dealing with emergencies. The nurses in this study were those who worked at the primary health cares (PHC) in Bandung City and cared for patients who self-isolated because, according to data compiled by the Ministry of Health, only 20% of all infected patients required hospital treatment, and the other 80% carried out independent care (Kementerian Kesehatan RI, 2020). Based on the data and information above, the research aimed to analyze and identify the obstacles perceived by PHC nurses. It was intended that by addressing the obstacles faced by nurses, the number of cases and fatalities caused by COVID-19 will decrease.

## 2. METHOD

### Research Design

This research was a quantitative descriptive study that describes or characterizes a situation objectively. A cross-sectional research design was adopted for this study. The study then employed a survey method to discover the obstacles that the community health center nurses experienced.

### Population and Sample

The population in the study was nurses at the primary health cares in 10 districts with the highest COVID-19 cases in Bandung City. The sampling technique used in this study is total sampling with a response rate of 81.63%. A total of 120 nurses were recruited as samples for the study for a variety of factors, including nurses who were on leave or had retired.

### Instrument

A questionnaire that had been modified from research (Al-Ashwal et al., 2020) was distributed to the nurses in charge as the primary data collection tool to identify the factors that pose obstacles to nurses' performance of their tasks in managing the COVID-19 outbreak. A questionnaire sheet was used as the study's instrument to identify the respondents' obstacles. The validity test was carried out from 1 to 2 June 2022 on 15 PHC nurses in Cimahi City. The results of the questionnaire validity test were carried out on 15 research respondents at the Cimahi City PHC and it was found that the *r* table value was 0.195 while the *r* calculated value of each item was 0.225 – 0.879. So it can be concluded that the instrument used is declared valid. Reliability testing was carried out repeatedly on the sample group selected in the validity test. The results analyzed using Chronbach's Alpha, and a value of 0.756 was obtained so that the instrument used was said to have a sufficient level of reliability. Each item on the questionnaire was compiled by the researcher based on existing theories. Google form was used to distribute the questionnaire.

### Research Procedure

Respondents selected according to the criteria were asked for the contact number of the WhatsApp application and put into one group used for this study. Respondents were first explained the aims and objectives of the study, as well as a time contract for each session to provide information about growth and development stimulation. Information-sharing sessions were held three times within seven days, namely on day 1, day 4, and day 7. The rationalization of giving interventions 3 times in 1 week is to increase the mothers's knowledge and skills further. Most of the previous studies only provided 1 time of health education in increasing knowledge.

Information was provided using chat groups, pictures, and videos. The mother's ability to stimulate the child was measured before and after the provision of information. Researchers used a Google Survey Form with a link distributed to respondents via WhatsApp group messages, allowing respondents to provide responses and answers. All responses and answers from respondents are stored in a computer using a password.

## Data Analysis

The univariate analysis aimed to provide a descriptive statistical examination of the distribution of the variables under study. The univariate analysis stage provided an overview and description of the characteristics of respondents.

Bivariate analysis was also carried out to perform the task of preventing and managing the characteristics of PHC nurses and the incidence of COVID-19 under study. The bivariate test utilized in this study was the chi-square test to see the relationship between variables. The p-value, correlation strength, and correlation direction were used to interpret the correlation test results.

Multinomial logistic regression was used as the multivariate analysis in this study. The following describes the multinomial logistic regression testing procedure in multivariate analysis:

1. Bivariate selection was carried out as the initial phase.
2. Using the dependent variable, the researcher used bivariate selection for each independent variable. The variables with p values 0.250 at the time of bivariate analysis were the variables included in the multivariate model.
3. Following the bivariate stage, the researcher conducted the simultaneous multivariate analysis stage.

## Ethical Clearance

This research has passed a research ethics review from Padjadjaran University Research Ethics Committee and has obtained a research ethics letter with number: 393/UN6.KEP/EC/2022.

## 3. RESULT

The characteristics of nurses at the primary health care in Bandung are presented in the following table.

**Table 1. Characteristics of PHC nurses in Bandung (n=120)**

Category	Number (n)	Percentage (%)
<b>Sex</b>		
Male	24	20
Female	96	80
<b>Age</b>		
Early Adult (26 – 35 years old)	53	44.2
Late Adult (36 – 45 years old)	40	33.3
Early Elderly (46 – 55 years old)	19	15.8
Elderly (56 – 65 years old)	8	6.7
<b>Educational Level</b>		
SPK	2	1,7
DIII	78	65
Ners	40	33,3
<b>Employment Status</b>		
ASN	68	56,7
Germas	37	30,8
P3K	11	9,2
BLUD	3	2,5
Tenaga BOK	1	0,8
<b>Working Period</b>		
0-1 Years	10	8,3

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1-3 Years	3	2,5
3-5 Years	38	31,7
6-10 Years	3	2,5
>10 Years	66	55
<b>Nurses attending workshops, courses, and/or seminars related to the COVID-19 outbreak</b>		
Yes	89	74,2
No	31	25,8
<b>Nurses trained on COVID-19 outbreak control and prevention</b>		
Yes	75	62,5
No	45	37,5
<b>Nurses having experience and dealt with previous disease outbreaks</b>		
Yes	66	55
No	54	45
<b>Total</b>	<b>120</b>	<b>100</b>

According to the data in Table 1, the majority of health center nurses are female (as many as 96 people, or 80.2%), with the majority being in their early adult years (as many as 53 people, or 44.2%). The majority of health center nurses with a DIII educational background were 78 people (65%), the majority of nurses with ASN employment status were 68 people (56.7%), and the majority of the working period was more than 10 years for as many as 66 people (55%).

The data in the Table 1 shows that 89 (74.2%) PHC nurses have attended workshops or courses and seminars related to the COVID-19 outbreak. A total of 75 people (62.5%) have received COVID-19 outbreak control and prevention training. A total of 66 people (55%) have experienced and dealt with previous disease outbreaks.

**Table 2. An overview of PHC nurses' perceived obstacles in handling the COVID-19 outbreak in the implementation of tracing, monitoring, education and counseling, and referral selection tasks (n=120)**

Category	Low Obstacles		High Obstacles	
	Frequency	Percentage	Frequency	Percentage
Tracing tasks	62	51,7	58	48,3
Monitoring tasks	59	49,2	61	50,8
Education and Counselling Tasks	86	71,7	34	28,3
Referral Selection Tasks	60	50	60	50

**Table 3. Correlation Test of PHC Nurse Characteristics with the PHC Nurse Obstacles in Handling and Preventing COVID-19 Outbreaks**

Variable	Obstacles			
	Tracing Task	Monitoring Tasks	Education and Counselling Tasks	Referral Selection Tasks
Sex	0,523	0,411	0,919	0,171
Age	0,289	0,024*	0,877	0,010*
Educational Level	0,383	0,035*	0,539	0,994
Employment Status	0,583	0,282	0,900	0,363
Working Period	0,623	0,424	0,998	0,386

Updating knowledge (through workshops or seminars)	0,994	0,016*	0,920	0,297
Trained in COVID-19 Outbreak Control	0,509	0,479	0,346	0,572
Experienced Handling Previous Outbreaks	0,441	0,102	0,271	0,271

\* = there is a significant relationship

According to the data in the Table 2, 62 (51.7%) PHC nurses encountered low obstacles while tracing COVID-19 patients. In the monitoring task, 61 (50.8%) PHC nurses encountered high obstacles. In carrying out education and counseling tasks, 86 (71.7%) PHC nurses encountered low obstacles. In the referral selection task, 60 (50%) of PHC nurses encountered high obstacles.

Chi-square was used to examine the relationship between the characteristics of community health center nurses and nurses' obstacles in conducting COVID-19 prevention and handling. The correlation test results are shown in the table below.

The chi-square test results on the Table 3 show that the variables that correlate with Nurse Obstacles in carrying out monitoring tasks are Age, Education Level, and Updating Knowledge, followed by Age in the correlation with Nurse Obstacles in carrying out Referral Selection tasks. Where the  $p$  value =  $0.024 < 0.050$  for the Age variable to Nurse Obstacles in carrying out monitoring tasks,  $0.035 < 0.050$  for the Education Level variable to Nurse Obstacles in carrying out monitoring tasks,  $0.016 < 0.050$  for the Updating Knowledge variable to Nurse Obstacles in carrying out monitoring tasks, and  $0.010 < 0.050$  for the Age variable to Nurse Obstacles in carrying out Referral Selection tasks. Thus that it can be concluded that the relationship between these variables is significant and that multivariate analysis can proceed.

A multivariate analysis was performed to determine the dominant factors associated with nurse characteristics and nurse obstacles in implementing COVID-19 outbreak prevention and handling measures. The multinomial logistic regression test was used in this study's multivariate analysis. The final multivariate multinomial logistic regression modeling is obtained as follows:

**Table 4. Multivariate Analysis of PHC Nurse Characteristics Variables associated with PHC Nurse Obstacles in Handling and Preventing COVID-19 Outbreaks**

Variable	Exp(B)	p	Nagelkerke
Updating Knowledge *Obstacles in Monitoring tasks	2.619	0,038	0,185

According to the Table 4, PHC nurses who updated their knowledge experienced 2.6x lower obstacles in carrying out monitoring tasks. Updating knowledge can explain or relate to 18.5% of the obstacles faced by PHC nurses in monitoring tasks. It can be concluded that the most significant factor associated with the PHC nurses' obstacles in dealing with and preventing the COVID-19 outbreak in carrying out monitoring tasks is updating knowledge.

#### 4. DISCUSSION

According to the findings of the study, 62 nurses (51.7%) who work in the primary health cares did not encounter any obstacles while tracing COVID-19 patients. The PHC nurses use this guide as a reference upon doing the tracing tasks (Hayati et al., 2021).

The results of this study also demonstrate that 33.3% of the PHC nurses with a Ners education background are employed, and 31.7% of them have worked between 3-5 years. The study's data also reveals that 55% of PHC nurses had experience managing prior disease outbreaks, 62.5% have attended training on controlling and preventing the COVID-19 outbreak, and 74.2% of PHC nurses have updated their expertise through workshops and seminars related to the outbreak. This data could assist nurses in carrying out tracing tasks, which may change their perceptions, most of whom stated that they did not find any obstacles while carrying out tracing duties. Research by Tiara et al. (2021) on the Implementation of COVID-19 Tracing in Depo Jaya Village, West Java stated that 98.7% of the residents had good knowledge about COVID-19 tracing. It is in line with the research of Hager et al. (2021) which found that 84% of the community's main source of information was social media. The reach of the internet and social media applications that are used almost every day are the main sources of information for people to share. Although the public's understanding of tracing was not examined in these studies, it could be assumed that as public awareness of tracing grows, so would the ease with which PHC nurses are able to trace COVID-19.

Based on the findings of the study, as many as 61 persons (50.8%) of nurses encountered obstacles in carrying out monitoring tasks. This might be related to how the nurses responded to several questions on the monitoring task questionnaire in this study, such as: 10% of nurses disagree and strongly disagree that self-isolation patients have sufficient communication devices to enable indirect supervision. In addition, 25.83% of nurses disagree and strongly disagree with the notion that self-isolation patients always consent to the arrival of nurses to perform monitoring duties. Another statistic revealed that 39.17% of nurses disagreed or strongly disagreed with the notion that self-isolation patients have access to health equipment like thermometers and oximeters to assess their own health conditions. Another item revealed that 39.17% of nurses strongly disagreed and disagreed that isoman patients have simple devices such as thermometers and oximeters to monitor their own clinical conditions. Some of these factors may make it difficult for community health nurses to perform the task of monitoring COVID-19 patients.

As many as 86 (71.7%) PHC nurses encountered no difficulties while performing education and counseling tasks. This study data also shows that the majority of PHC nurses with a Ners educational background and a working age of 3-5 years have updated their knowledge through workshops, courses, and seminars related to the COVID-19 outbreak, training on controlling and preventing the COVID-19 outbreak, and possess previous disease outbreak experience. This information can help nurses perform educational and counseling tasks for COVID-19 patients who are undergoing independent isolation and quarantine.

One of the enabling factors that can influence a person's behaviour is information exposure. One of the ways that technology and information can be used to counter and prevent the spread of COVID-19 is to communicate and disseminate relevant information to the larger community (Budd et al., 2021). According to Sari, Yanti, Liliana, and Ismail's research titled *Pembuatan Aplikasi monitoring Karantina Mandiri Orang dalam Pengawasan (ODP) COVID-19 di Kota Depok*, primary health care officers monitor and educate self-isolating patients either through SMS, WhatsApp chats, or direct telephone. As a result, the availability of the communication media may make it easier for PHC nurses to provide education and counseling to COVID-19 patients undergoing self-isolation.

According to the findings of this study, 60 (50%) of PHC nurses experienced obstacles while performing the referral selection task. This could be related to nurses' responses to several questions on the referral selection task questionnaire in this study, such as: 40% of nurses disagree and strongly disagree that nurses always receive a prompt response from SISRUITE in order to handle clinical deterioration in self-isolation patients. Furthermore, 36.67% of nurses disagree and strongly disagree that self-isolation patients who lack adequate communication devices do not pose a problem in carrying out referral selection tasks. Another finding indicates that 60.83% of nurses agree or strongly agree that there are difficulties in referring patients who have deteriorated due to insufficient hospital facilities.

Data compiled by Susanti (2021) published on June 16, 2021 showed that the availability of beds for COVID-19 patients in several hospitals in Bandung, West Java, was running low. The bed occupancy rate (BOR) for COVID-19 patients at Hasan Sadikin Hospital (RSHS) Bandung was only 80.36 percent. Meanwhile, Rasyad (2021) in his article published on June 19, 2021 stated that the BOR in Bandung City has increased again from 88.67 percent to 91 percent. The foregoing may be related to nurses' obstacles in carrying out the task of referral selection.

The findings revealed that several characteristics of PHC nurses had a significant relationship with several perceived obstacles in carrying out the COVID-19 outbreak prevention and handling. The perceived obstacles of PHC nurses in carrying out monitoring tasks are significantly related to age category, education level, and updating knowledge. It is also known that age has a significant relationship with PHC nurses' perceived obstacles in carrying out referral selection tasks.

Age has a relationship with the level of knowledge, the level of perceived vulnerability, the level of perceived severity, the level of perceived benefits, and the level of perceived obstacles in the VIA examination Titisari et al. (2018). In line with the results of the study, the research by Kurniawati et al. (2020) show that age category has a significant relationship with perceived seriousness, perceived obstacles, and self-efficacy in the participation of adolescents in the local health service community. Later, according to Sartika & Akbar (2021), age significantly correlated to understanding and taking precautions in dealing with the COVID-19 outbreak. As a result, in



this study, age has a significant relationship with PHC nurses' perceived obstacles in carrying out monitoring tasks and referral selection.

From the results of the study, it is also known that the level of education has a significant relationship with the perception of nurse obstacles in carrying out monitoring tasks. In line with research conducted by Desanti et al. (2010), it shows that education level has a significant relationship with breast cancer self-examination behaviour and perceptions about performing breast examinations. Further the level of education is also known to have a significant relationship with the perceived knowledge about measles rubella immunization, perceived benefits, perceived barriers, and mother acceptance of measles rubella immunization in children (Prabandari et al., 2018).

The findings revealed that PHC nurses who update their knowledge about COVID-19 countermeasures through workshops or seminars have a significant relationship with nurse obstacles in carrying out monitoring tasks. Not only is participation in workshops or seminars related to overcoming the COVID-19 outbreak meaningful, but it also has an effect on the perception of obstacles in carrying out monitoring tasks. Suharyanto (2018) stated in his research that participation in seminars and workshops has an impact on the quality of service because it can reduce the perception of obstacles in carrying out treatment to overcome and prevent the COVID-19 outbreak. This is supported by Citra Hadi's research findings. The findings revealed that health center nurses who update their knowledge about COVID-19 countermeasures through workshops or seminars have a significant relationship with health center nurses' difficulties in carrying out monitoring tasks. Not only is participation in workshops or seminars related to overcoming the COVID-19 outbreak meaningful, but it also has an effect on the perception of obstacles in carrying out monitoring tasks. This is in line with Suharyanto (2018) research, which found that attending seminars and workshops has an effect on the quality of service and can lessen the perception of obstacles in providing services to handle and prevent the COVID-19 spread. This is corroborated by Citra Hadi Kurniati's research findings from 2020, which show that perceived obstacles and service quality are inversely related. It was determined from the multivariate analysis that Nagelkerke = 0.185. Accordingly, the element of upgrading the knowledge of PHC nurses through seminars or workshops related to handling the COVID-19 can determine or impact up to 18.5% of the variation in the perceived obstacles of the nurses in carrying out monitoring responsibilities.

## 5. CONCLUSION

The majority of PHC nurses encounter high obstacles in carrying out monitoring tasks, while the majority of them experience low barriers in carrying out tracing tasks and education & counseling tasks. However, in the conduct of the referral selection tasks, the number of PHC nurses who experienced high obstacles and low obstacles was equal. There are several characteristics of PHC nurses that are associated with various obstacles in preventing and handling the transmission of the COVID-19 outbreak. The age group, educational level, and nurses' upgrading knowledge all significantly affect PHC nurses' hurdles to carrying out monitoring tasks. Additionally, there is

a significant correlation between the age variable and the obstacles PHC nurses face when performing referral selection tasks. The attributes of nurses that are most associated with the obstacles experienced by PHC nurses in preventing and handling the COVID-19 outbreak are the correlation between the nurses' updating knowledge through workshops and seminars related to the COVID-19 outbreak and the obstacles encountered by PHC nurses in performing monitoring tasks.

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