

## The Use of Personal Protective Equipment Compliance among Midwives During COVID-19 Pandemic in Indonesia

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### ABSTRACT

Individuals most at risk of infection are those who are in close contact with COVID 19 patients, such as midwives who run Independent Practices. Midwives can protect themselves when providing care by complying with infection prevention and control practices that include proper administrative, environmental and engineering control and use of Personal Protective Equipment (PPE) (i.e. appropriate in the selection of the appropriate type of PPE, how it is used, how to release and how to dispose or wash PPE). This study aimed to analyze factors that can affect the behavior of PPE use among midwives. This type of research was observational analytical research methods. The population in this study was 87 midwives. The study was conducted in Sambas Regency in July-August 2021. This research instrument was a questionnaire. The results of the study showed there was relationship between knowledge (p-value 0.395), and education level (p-value 0.103) with compliance, there was a relationship of working life (p-value 0.000) and availability of PPE (p-value 0.001) With Compliance of Using Personal Protective Equipment (PPE) in Sambas Regency In 2021. It is expected to be the basis and guideline to conduct further research related to the behavior of using PPE while working on midwives in health care facilities in Indonesia.

Keywords: compliance; personal protective equipment

### INTRODUCTION

Adherence in using PPE in Indonesian health facilities only 40% of health workers only use a few PPE only in direct contact with patients such as gloves. This is because health workers are not used to using PPE, forgetful, busy and about 52% of hospitals do not have the right equipment. Lack of access to PPE in hospitals is most likely due to low hospital budgets, either due to leadership negligence in preparing PPE or due to limited costs of providing PPE or possibly due to a lack of nurse knowledge about the dangers that can occur in hospitals (Panaha, 2021).

Based on WHO data, infections in medical personnel are quite high. To date, there have been more than 3000 health workers who have tested positive for the coronavirus. 6 As of May 7, 2020, there were 989 health workers who died from COVID-19 worldwide or by 0.37% (989 out of 270,426) (Aevara, 2020). Individuals most at risk of infection are those who are in close contact with COVID 19 patients, such as midwives who run Independent Practices. In providing health services, midwives are very susceptible to contracting so the PPE used is a standard PPW based on risk assessment (Kemenkes, 2020).

Research conducted in the Working Area of Kuok and Kampar Health Center by Dhini Anggraini Dhilon (2021) mentioned that only 5 midwives (33.3%) are knowledgeable but obedient in the use of PPE, while 5 well-informed midwives there are 4 respondents (20%) who are not compliant in the use of PPE. There are several factors that affect health workers in using PPE while on duty. Initial assessment must be important for nurse to asses client in hospital (Putri, et al. 2021). According to Sanjaya's research (2018), it is known that there is a significant relationship between the attitude and behavior of the use of PPE in health care workers in Sleman Regency.

Efforts to prevent health workers from being infected with COVID-19 are by complying with infection prevention and control practices (Oktaviani, Kundaryanti, & Novelia, 2022). These efforts include administrative, environmental, engineering control and proper use of Personal Protective Equipment (PPE). PPE acts as a barrier between infectious materials (e.g. viruses and bacteria) with the skin, mouth, nose, or eyes (mucous membranes) of health workers and patients (Directorate General of Health Services, 2020; Novelia, Lubis, Murniati, & Carolin, 2021; Hariyanto, Purwandari, & Tri Afandi, 2021).

Based on a preliminary study of Sambas County Area officers in 2021, there were inconsistencies in officers using PPE. Two out of ten officers sometimes wear PPE while on duty. The use of PPE is very important for health center officials to prevent and reduce the risk of exposure to COVID-19 from the community, both confirmed and not yet. Therefore, researchers are interested in analyzing how and use compliance is currently working on midwives in the Sambas region during the COVID-19 pandemic.

**METHOD**

This research is a quantitative research with the research design used is Cross Sectional. The population in this study is midwives who are in Sambas district (87 midwives). The study was conducted in Sambas Regency in June-August 2021. Sampling techniques was a total sampling. The variables used are knowledge, working life, policies, availability of PPE with compliance with the use of PPE while working on midwives in Sambas Regency during the COVID-19 pandemic. The research instrument used in the study was the questionnaire. Data analysis used was univariate analysis and bivariate analysis used Chi-Square test.

**RESULT**

**Univariate Analysis**

Table 1. Frequency Distribution

Variable	Frequency	Percentage
Knowledge		
Good	63	72.4
Less good	24	27.6
Working Time		
<5 years	16	18.4
5-10 years	29	33.3
11-15 years	19	21.8
>15 years	23	26.4
Level of Education		
D1 Midwifery	5	5.7
D3 Midwifery	43	49.4
D4 Midwifery	37	42.5
Master of Midwifery	2	2.3
Availability of APD		
Enough	33	37.9
Less	54	62.1
<b>Total</b>	<b>87</b>	<b>100.0</b>

Based on the table above, the majority of respondents had good knowledge which were 63 (72.4%). The majority of respondents had a working life of 5-10 years which were 29 (33.3%). The majority of respondents educated d3 midwifery were 43 (49.4%). The majority of respondents had less PPW availability which were 54 (62.1%). The majority of respondents complied to PPE 62 (71.3%).

**Bivariate Analysis**

Table 2. Relationship of Midwife Knowledge with Compliance Using Personal Protective Equipment (APD) in Sambas Regency Area in 2021

Knowledge	Compliance				n	%	p-value
	Obedient		Disobedient				
	n	%	n	%			
Good	47	74.6	16	25.4	63	100.0	0.395
Poor	15	62.5	9	37.5	24	100.0	
<b>Total</b>	<b>62</b>	<b>71.3</b>	<b>25</b>	<b>28.7</b>	<b>87</b>	<b>100.0</b>	

Based on the table above, it can be known from 63 respondents with good knowledge, 47 (74.6%) respondents obediently use PPE and 16 (25.4%) respondents did not comply to the use PPE. Out of the 24 respondents with poor knowledge, 15 (62.5%) respondents obediently used APD and 9 (37.5%) respondents did not comply to the use of PPE. The results of the statistical test obtained p-value = 0.395 which means  $p\text{-value} < \alpha$  (0.05), it can be concluded that there was no relation of midwife knowledge with compliance using personal protective equipment (PPE) in Sambas Regency Area in 2021.

Table 3. Midwives' Working Period Relationship with Compliance Using Personal Protective Equipment (PPE) in Sambas Regency Area in 2021

Working time	Compliance				n	%	p-value
	Obedient		Disobedient				
	n	%	n	%			
< 5 years	12	75.0	4	25.0	16	100.0	0.000
5-10 years	12	41.4	17	58.6	29	100.0	
11-15 years	16	84.2	3	15.8	19	100.0	
>15 years	22	95.7	1	4.3	23	100.0	
Total	62	71.3	25	28.7	87	100.0	

Based on the table above, it can be known from 16 respondents with a working period of < 5 years, 12 (75.0%) respondents obediently used APD and 4 (25.0%) respondents who did not comply to the use PPE. Out of the 29 respondents with a working period of 5-10 years, 12 (41.4%) respondents obediently used PPE and 17 (58.6%) respondents who did not comply with the use of PPE. Out of the 19 respondents with a working period of 11-15 years, 16 (84.2%) respondents obediently used PPE and 3 (15.8%) respondents who did not comply to the use of PPE. Out of 23 respondents with a working period of >15 years, 22 (95.7%) respondents obediently used PPE and 1 (4.3%) respondents who did not comply to the use of PPE. The results of the statistical test obtained p-value = 0.000 which means  $p\text{-value} < \alpha$  (0.05), it can be concluded that there was a relationship between working period of midwives with compliance using personal protective equipment (APD) in the Sambas Regency Area in 2021.

Table 4. Relationship of Education and Compliance Using Personal Protective Equipment (PPE) in Sambas Regency Area in 2021

Level of Education	Compliance				n	%	p-value
	Obedient		Disobedient				
	n	%	n	%			
D1 midwifery	5	100.0	0	0.0	5	100.0	0.103
D3 midwifery	26	60.5	17	39.5	43	100.0	
D4 midwifery	29	78.4	8	21.6	37	100.0	
Master of midwifery	2	100.0	0	0.0	2	100.0	
Total	62	71.3	25	28.7	87	100.0	

Based on the table above, it can be known out of 5 respondents with a level of midwifery education, 5 (100.0%) respondents obediently used APD. Out of the 43 respondents with a D3 midwifery education level, 26 (60.5%) respondents obediently used PPE and 17 (39.5%) respondents did not compliance to the use of PPE. Out of the 37 respondents with a DIV level of midwifery education, 29 (78.4%) respondents obediently used PPE and 8 (21.6%) respondents who did not comply to the use of PPE. Out of 2 respondents with master of midwifery education level, 2 (100.0%) respondents obediently used PPE. The results of the statistical test obtained p-value = 0.103 which means  $p\text{-value} < \alpha$  (0.05), it can be concluded that there was no relation of midwife education level with compliance of the use of personal protective equipment (PPE) in Sambas Regency in 2021.

Table 5. Relationship of PPE Availability with Compliance Using PPE in Sambas Regency Area in 2021

Availability of PPE	Compliance				n	%	p-value
	Obedient		Disobedient				
	n	%	n	%			
Enough	30	90.9	3	9.1	33	100.0	0.001
Less	32	59.3	22	15.5	54	100.0	
Total	62	71.3	25	28.7	100	100.0	

Based on the table above, it can be known out of 33 respondents with enough availability of PPE, majority of them comply to the use of PPE (90.9%). The results of the statistical test obtained p-value = 0.001 which means p-value <  $\alpha$  (0.05), it can be concluded that there was a Relationship of PPE Availability with Compliance Using Personal Protective Equipment (PPE) in the Sambas Regency Area in 2021.

### DISCUSSION

Based on the results of statistical tests obtained p-value = 0.395 which means p-value <  $\alpha$  (0.05), it can be concluded that there was no Relationship of Midwife Knowledge with Compliance Using Personal Protective Equipment (APD) in the Sambas Regency Area in 2021. In line with Dhillon's research (2021) the value of p Value of 0.015 can be concluded that there is a relationship of knowledge with the level of compliance of midwives in the use of PPE (p value < 0.05).

According to the assumption of the researchers, in the results of the study there are respondents who have less knowledge but obediently use PPE, this can be due to regulations that force health workers to be disciplined and obedient to use PPE, for health workers who do not use PPE will be sanctioned (Lestari, Novelia, & Suciawati, 2020). In addition, it can also be caused because respondents have a fear to be exposed to COVID 19. The availability of sufficient means in health care facility also encourages a person to obediently use PPE. In the results of the study also obtained respondents who have good knowledge but do not comply using PPE. This can be due to the awareness of respondents who are still less related to the prevention of COVID 19 transmission. In addition, it can also be caused because the use of PPE reduces the sense of comfort at work, for example respondents who usually use a surgical mask daily, replaced using an N 95 mask then feel claustrophobic, or if it is usual to work not using a face shield then when using face shield like someone obstructs vision and so on. So what health workers need to do is get used to it and keep in mind that not only COVID 19 can be transmitted through improper use of PPE, but there are many other more dangerous diseases that can be life-threatening such as HIV / AIDS, Hepatitis B and others.

Based on the results of statistical tests obtained p-value = 0,000 which means p-value <  $\alpha$  (0.05), it can be concluded that there is a Relationship of the Working Period of Midwives With Compliance Using Personal Protective Equipment (APD) in the Sambas Regency Area in 2021. Based on the study of Alviah (2020) analysis of Chi-Square ( $\chi^2$ ), obtained the result p = 0.006, using a = 0.05 and pValue < 0.05, then H0 is rejected i.e. there is a relationship between the working period and compliance using PPE. A man's working life is related to his work experience, knowledge and work skills. The longer a person works, the more work experience, knowledge and job skills he gets. The experience that the janitor has is that when cleaning the toilet without using gloves, eating his hands will feel hot and becomes aware if not using gloves will be dangerous. Someone who has a long period of work, then the experience is also more and more mature but there are still those who do not behave safely because they already feel experienced and skilled in doing work Experience is a combination of knowledge and behavior where knowledge results from knowing after people sensing their environment. The length of work is identical to experience, the longer a person's work then the experience becomes more and more. Experience will have an effect in increasing one's knowledge, because one's knowledge is also gained from experience (Setyaningrum, et al,2016).

Based on the results of statistical tests obtained p-value = 0.103 which means p-value <  $\alpha$  (0.05), it can be concluded that there was no relation of midwife education level with compliance using personal protective equipment (PPE) in Sambas Regency Area in 2021 Iriani's research (2017) showed that the statistical test results obtained a value of p = 0.365 then it can be concluded there is no relationship between the level of education and the level of compliance in the use of PPE for midwives. The results showed that most midwives with D3 midwifery education level.

Education is the formal process of training an intellect and an individual's development includes intellectual, spiritual, moral, creative, emotional as well as physical activities. In this case, the level of education will be a predisposition to a person's behavior change as it provides a different learning experience for the individual. However, in working as a midwife not only formal education that becomes the basis for midwives, but must be equipped with training

and motivation from within a midwife to do a better action. In addition, with motivation will cause awareness in midwives that the importance of using PPE to improve safety while working.

Based on the results of statistical tests obtained  $p\text{-value} = 0.001$  which means  $p\text{-value} < \alpha (0.05)$ , it can be concluded that there was a Relationship of PPE availability with compliance using personal protective equipment (PPE) in the Sambas Regency Area in 2021. Sanjaya research (2018) obtained  $p$  value 0.001 with a correlation coefficient value of 0.585. The results of this statistical test confirmed that  $H_a$  was accepted and  $H_0$  was rejected because there was a relationship between the availability of PPE and the compliance of midwives using PPE in normal labor assistance at the Sleman Regency Inpatient Health Center and the assessment of the level of activity between two variables, namely in the strong category.

Compliance is influenced by knowledge, according to the results of research conducted by midwives already have good knowledge in showing midwives who have a positive attitude will obediently use PPE. This shows that there are midwives who are obedient in using PPE. Obedient midwives using PPE pay attention to every equipment use when helping with labor. Obedient midwives always use personal protective equipment such as head coverings, protective glasses, masks, aprons, gloves, boots.

Based on observations, only a small percentage of respondents always wear work clothes, work shoes, and masks. Compliance with the use of PPE is the effort and behavior of individuals to comply with regulations using tools that serve to protect part or all of their bodies from potential harm in the workplace.

## CONCLUSION

Based on the results of the study that there was no relationship of knowledge with compliance using personal protective equipment (PPE) ( $p\text{-value} 0.395$ ). A period of working has a relationship with compliance of the use of PPE ( $p\text{-value} 0.000$ ). There was no relationship between education level and compliance of the use of PPE ( $p\text{-value} 0.103$ ). There was a relationship between PPE availability and compliance with the use of PPE in Sambas Regency In 2021 ( $p\text{-value} 0.001$ ). The midwives need to pay attention of the use of PPE especially during pandemic COVID-19. The department of infection control of health care facility should has a guideline and punishment regarding the use of PPE.

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