Analysis Of Knowledge, Characteristics, Attitude, And Behavior Of Nurses Regarding The Use Of Ppe (Personal Protection Equipment) In Accordance With Standard Operational Procedure (Sop) In The Inpatient Room Of Royal Prima Medan General Hospital

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Abstract.
Personal Protective Equipment (PPE) is special clothing or equipment used for personal protection from infectious materials. Nosocomial infections are a global health problem. One of the most popular nosocomial infections is the case of the Corona-19 virus (COVID). PPE protects healthcare workers from infectious infections and helps prevent cross-contamination with other patients. The purpose of this study was to determine the analysis of knowledge, characteristics, attitudes, and behavior of nurses regarding the use of PPE according to the Standard Operational Procedure (SOP) in the Inpatient Room of the Royal Prima General Hospital, Medan. This type of research is an analytical observational study with a cross-sectional study design. There is a significant relationship between the characteristics, attitudes, and behavior of nurses on the use of PPE (p <0.05).

Keywords: Personal Protective Equipment, Nurse, Covid-19.

I. INTRODUCTION

Equipment (PPE) is special clothing or equipment used for personal protection from infectious materials. Personal Protective Equipment is very important for nurses. The work carried out by nurses has a high potential for spreading infection, such as cleaning of body fluids, injection/blood draw, inserting catheters, wound care, and others. If the work is not equipped with Personal Protective Equipment (PPE) in accordance with established procedures, it will have the potential to transmit infectious diseases to both patients and health workers (Ayu Cahyaning, 2017).The use of PPE aims to protect patients from the invasion of pathogenic microbes. Gloves, masks, google (protective glasses), face shields, and also robes are PPE that are often found in hospitals. This PPE is used according to the indications for each type of PPE (Kemenkes RI, 2020). Nosocomial infections among patients and health workers in good condition can occur during the current COVID-19 outbreak. The designated hospital will ensure that all health care staff are trained in Hand washing, cough etiquette, proper use/doffing & disposal of PPE and bio-medical waste management.

Doctors, nurses, and paramedics working in the clinical field will always wear triple gloves and a layered surgical mask. Medical personnel working in isolation rooms will wear full PPE (including N95 masks). Support staff involved in cleaning and disinfection will also wear full PPE. Environmental cleaning should be carried out twice a day and consist of damp dusting and mopping the floor with Lysol or another phenolic disinfectant and cleaning the surface with a sodium hypochlorite solution. Detailed guidelines are available on the website of the Ministry of Health (NCDC,2020).Based on the results of the preliminary survey, it was found that the Royal Prima Hospital Medan provided PPE health workers one shift at a time. This house also has an SOP regarding how to use and remove PPE. The hospital also accepts COVID-19 patients. Based on this description, it is important to see the behavior of health workers in the use of PPE. Therefore, researchers are interested in conducting research on the Analysis of Knowledge, Characteristics, Attitudes, and Behaviors of nurses on the use of PPE (Personal Protective Equipment) according to the Standard Operational Procedure (SOP) in the Inpatient Room of the Royal Prima General Hospital, Medan.

II.   METHODS

This type of research is an analytic observational study with the design of this research is cross-sectional study. This research was conducted at the Royal Prima General Hospital Medan on Jl. Ayahanda No. 68A, Sei Putih Tengah, Kec. Medan Petisah, Medan City, North Sumatra 20118. The population and sample in this study were 137 nurses at the Royal Prima General Hospital, Medan Building B. Data analysis was carried out by univariate and bivariate analysis using the chi-square test.

III.   RESULT

1.   Distribution of Nurses Based on Knowledge of PPE SOPs

	Frequency	Percentage
Very Good	93	71,5%
Good	37	28,5%
Total	130	100%

Table 1. Distribution of Nurses Based on Knowledge of PPE SOPs

Table 1 above shows the distribution of nurses based on knowledge of PPE SOPs with the highest level of good knowledge as many as 93 nurses (71.5%). Meanwhile, with sufficient results as many as 37 nurses (28.5%).

2.   Distribution of Nurses by Age

	Frequency	Percentage
20–30 Years Old	24	18,5%
31-40 Years Old	70	53,8%
41-50 Years Old	36	27,7%
Total	130	100%

Table 2. Distribution of Nurses by Age

Table 2 above shows the distribution of nurses by age at the most with the age of 31-40 years with 70 people (53.8%). While the age of 41-50 years as many as 36 people (27.7%) and the age of 20-30 years as many as 24 people (18.5%).

3.   Distribution of Nurses by Gender

	Frequency	Percentage
Male	39	30%
Female	91	70%
Total	130	100%

Table 3. Distribution of Nurses by Gender

Table 3 above shows that the distribution of nurses is mostly female as many as 91 people (70%) and nurses with male sex as many as 39 people (30%).

4.   Distribution of Nurses by Education Level

	Frequency	Percentage
Diploma	102	78,5%
Bachelor	28	21,5%
Total	130	100%

Table 4. Distribution of Nurses by Education Level

Table 4 above shows the distribution of nurses based on education level at most with D3 degrees as many as 102 people (78.5%). While the level of education with a bachelor's degree is 28 people (21.5%).

5.   Distribution of Nurses Based on Years of Work

	Frequency	Percentage
>5 years	70	53,8%
<5 years	60	46,2%
Total	130	100%

Table 5. Distribution of Nurses Based on Years of Work

Table 5 above shows the distribution of nurses based on years of service at most >5 years as much as 53.8%. While nurses with a working period <5 years was 46.2%.

6.   Distribution of Nurses Based on Attitudes Regarding PPE SOPs

	Frequency	Percentage
Very Good	91	70%
Good	39	30%
Total	130	100%

Table 6. Distribution of Nurses Based on Attitudes Regarding PPE SOPs

Table 6 above shows that nurses based on attitudes regarding PPE SOPs were found at most with good attitudes as many as 91 nurses (70%). Meanwhile, with sufficient results as many as 39 nurses (30%).

7.   Distribution of Nurses Based on Behavior Using PPE according to SOP

	Frequency	Percentage
Very Good	92	70,8%
Good	38	29,2%
Total	130	100%

Table 7. Distribution of Nurses Based on Behavior Using PPE according to SOP

Table 7 above shows the distribution of nurses based on the behavior of using PPE according to the SOP at the most with good use of 92 nurses (70.8%). Meanwhile, with sufficient results as many as 38 nurses (29.2%).

8.   Distribution of Nurses Based on the Use of PPE According to SOP

	Frequency	Percentage
Very Good	92	70,8%
Good	38	29,2%
Total	130	100%

Table 8. Distribution of Nurses Based on the Use of PPE According to SOP

Table 8 above shows the distribution of nurses based on the use of PPE according to the SOP at the most with good use of 92 nurses (70.8%). Meanwhile, with sufficient results as many as 38 nurses (29.2%).

9.   The Relationship of Nurse Knowledge Regarding PPE SOPs with the Use of PPE According to SOPs

| Knowledge level | Use of PPE according to SOP | | | | | | *P* |
| | Very Good | | Good | | TOTAL | | |
	N	%	N	%	N	%	
Very Good	80	61,5%	13	10%	93	71,5%	0,00
Good	12	9,3%	25	19,2%	37	28,5%	
Total	92	70,8%	38	29,2%	130	100%	

Table 9. The Relationship of Nurse Knowledge Regarding PPE SOPs with the Use of PPE According to SOPs

Based on table 9 above, it shows the relationship between the level of good knowledge as many as 93 people (71.5%) with the use of PPE according to the SOP with good results as many as 80 people (61.5%) and with sufficient results as many as 13 people (10%). While the relationship between the level of sufficient knowledge is 37 people (28.5%) with the use of PPE according to the SOP with good results as many as 12 people (9.3%) and with sufficient results as many as 25 people (19.2%).

10.   The relationship between the age of nurses and the use of PPE according to the SOP

| Age | Use of PPE according to SOP | | | | | | *P* |
| | Very Good | | Good | | TOTAL | | |
	N	%	N	%	N	%	
20-30 Years old	19	14.6 %	5	3,8 %	24	18,5 %	0,52
31-40 Years old	47	36,2 %	23	17,7 %	70	53,8%	
41-50 Years old	26	20 %	10	7,7 %	36	27,7 %	
TOTAL	92	70,8%	38	29,2%	130	100%	

Table 10. The relationship between the age of nurses and the use of PPE according to the SOP

Based on table 10 above shows the relationship between age and the use of PPE according to the SOP, most commonly found in nurses aged 31-40 years, namely 70 people (53.8%) with the use of PPE according to the SOP with good results as many as 47 people (36.2%). while with sufficient results as many as 23 people (17.7%). While the age of 41-50 years is as many as 36 people (27.7%) with the use of PPE

according to the SOP with good results as many as 26 people (20%) while with sufficient results as many as 10 people (7.7%) and age 20-30 years namely as many as 24 people (18.5%) with the use of PPE according to the SOP with good results as many as 19 people (14.6% while with sufficient results as many as 5 people (3.8%).

11. The Relationship between Nurse's Gender and the Use of PPE According to SOP

| Gender | Use of PPE according to SOP | | | | | | P |
| | Very Good | | Good | | TOTAL | | |
	N	%	N	%	N	%	
Male	31	23.8 %	8	6,2 %	39	30 %	0,11
Female	61	46,9 %	30	23,1 %	91	70%	
TOTAL	**92**	**70,7%**	**38**	**29,3%**	**130**	**100%**	

Table 11. The Relationship between Nurse's Gender and the Use of PPE According to SOP

Based on table 11 above, it shows the relationship between the sex of nurses and the use of PPE according to the SOP, most commonly found in nurses with female sex as many as 91 people (70%) with the use of PPE according to the SOP with good results as many as 61 people (46.9%) while with enough results as many as 30 people (23.1%). For men, as many as 39 people (30%) with the use of PPE according to the SOP with good results as many as 31 people (23.8%) while with sufficient results as many as 8 people (6.2%).

12. The relationship between the level of nursing education and the use of PPE according to the SOP

| Education Level | Use of PPE according to SOP | | | | | | P |
| | Very Good | | Good | | TOTAL | | |
	N	%	N	%	N	%	
Diploma	74	56,9%	28	21,5%	102	78,5%	0,26
Bachelor	18	13,8%	10	7,7%	28	21,5%	
TOTAL	**92**	**70,8%**	**38**	**29,2%**	**130**	**100%**	

Table 12. The relationship between the level of nursing education and the use of PPE according to the SOP

Based on table 12 above, the relationship between the level of nurse education and the use of PPE according to the SOP is most often found with the D3 education level as many as 102 people (78.5%) with the use of PPE according to the SOP with good results as many as 74 people (56.9%) while the results are quite as many as 28 people (21.5%). The level of S1 education is as many as 28 people (21.5%) with the use of PPE according to the SOP with good results as many as 18 people (13.8%) while with sufficient results as many as 10 people (7.7%).

13. The relationship between the length of the nurse's work period and the use of PPE according to the SOP

| Length of Service | Use of PPE according to SOP | | | | | | P |
| | Very Good | | Good | | TOTAL | | |
	N	%	N	%	N	%	
>5 Years	46	35,4%	24	18,5%	70	53,8%	0,12
<5 Years	46	35,4%	14	10,8%	60	46,2%	
TOTAL	**92**	**70,8%**	**38**	**29,2%**	**130**	**100%**	

Table 13. The relationship between the length of the nurse's work period and the use of PPE according to the SOP

Based on table 13 above, it shows the length of service > 5 years, namely 70 people (53.8%) with the use of PPE according to the SOP with good results as many as 46 people (35.4%) while with sufficient results as many as 24 people (18.5%). In addition, the length of work <5 years is as many as 60 people (46.2%) with the use of PPE according to the SOP with good results as many as 46 people (35.4%) while with sufficient results as many as 14 people (10.8%).

14. **The relationship between nurses' attitudes regarding PPE SOPs with the use of PPE according to SOPs**

Attitude	Use of PPE according to SOP						P
	Very Good		Good		TOTAL		
	N	%	N	%	N	%	
Very Good	79	60,8%	12	9,2%	91	70%	0,00
Good	13	10%	26	20%	39	30%	
TOTAL	92	70,8%	38	29,2%	130	100%	

Table 14. The relationship between nurses' attitudes regarding PPE SOPs with the use of PPE according to SOPs

Based on table 14 above, it shows that the most good attitude relationships are as many as 91 people (70%) with the use of PPE according to the SOP with good results as many as 79 people (60.8%) and with sufficient results as many as 12 people (9.2%). While the relationship is enough attitude that as many as 39 people (30%) with the use of PPE according to the SOP with good results 13 people 10% and with enough results 26 people (20%).

15. **Relationship of Nurse Behavior Regarding PPE SOPs with the Use of PPE according to SOPs**

Behavior	Use of PPE according to SOP						P
	Very Good		Good		TOTAL		
	N	%	N	%	N	%	
Very Good	73	56,2%	18	13,8%	91	70%	0,01
Good	19	14,6%	20	15,4%	39	30%	
TOTAL	92	70,8%	38	29,2%	130	100%	

Table 15. Relationship of Nurse Behavior Regarding PPE SOPs with the Use of PPE according to SOPs

Based on table 15 above shows the relationship of good behavior as many as 91 people (70%) with the use of PPE according to the SOP with good results as many as 73 people (56.2%) and with sufficient results as many as 18 people (13.8%). In addition, the behavioral relationship is sufficient as many as 39 people (30%) with the use of PPE according to the SOP with good results for s many as 19 people (14.6%) and with sufficient results as many as 20 (15.4%).

IV.   DISCUSSION

A.   Relationship of Nurse Knowledge Regarding PPE SOPs with the Use of PPE in accordance with SOPs

Based on the results of the research above, it shows the relationship between the level of knowledge and the use of PPE according to the SOP at most with a good level of knowledge, namely as many as 93 people (71.5%) with the use of PPE according to the SOP with good results as many as 80 people (61.5%) and with sufficient results. as many as 13 people (10%). From the results of the Fisher exact test analysis between knowledge and the use of PPE, a p-value = 0.00 is obtained, because the p-value (0.00) < (0.05), it can be concluded that there is a relationship between knowledge and the use of PPE.Most of the nurses at the Royal Prima Hospital Medan are well-informed. However, good knowledge of nurses is not related to the use of PPE. Even though the respondent has a high level of knowledge about PPE but lacks the will and is lazy, the respondent will not use PPE. People who have good knowledge tend to underestimate and ignore a rule or knowledge that has been obtained because of these rules, another factor that causes this to happen is because the PPE available in the hospital environment is not complete so respondents do not use PPE completely.This is in accordance with previous research conducted by Lira Mufti at the Kuok Health Center 2019 with statistical test results it can be seen that the p-value = 0.003 (p < 0.05), meaning that there is a significant relationship between knowledge and compliance with the use of PPE (Lira Mufti, 2019).

B.   The relationship between the age of nurses and the use of PPE according to the SOP

Based on the table above shows the relationship between Age and the use of PPE according to the SOP, most commonly found in nurses aged 31-40 years, namely 70 people (53.9%) with the use of PPE according to the SOP with good results as many as 47 people (36.2%) while with sufficient results as many

as 23 people (17.7%). From the results of the fisher's exact test analysis between age and the use of PPE, p-value = 0.52, because the p-value (0.52) > (0.05), it can be concluded that there is no relationship between age and the use of PPE.Most of the nurses at the Royal Prima Hospital in Medan have a maximum age of 31-40 years. At that age, nurses are already using PPE according to the SOP properly. At that age, this is because at that age the thinking is better and more stable.This is in accordance with previous research conducted by Salma Adilah 2018 with the results of hypothesis testing using the Chi-square Test between the age variable and the nurse's compliance variable with the use of PPE showing a p-value of 0.779 > 0.05, which means Ha is rejected, H0 is accepted. So it can be concluded that there is no relationship between the age of the respondent and the level of compliance of the respondent in using PPE (Salma Adilah, 2018).

The age of 20-25 years is the first period of introduction to the world of work, someone in this period will start looking for a place in the world of work and the world of social relations. While the age of 26-35 years is based on the period of life, this age becomes important because during this period the structure of life becomes more fixed and stable. The more old a person is, the level of ability and strength of a person will be more mature in thinking and working.

C. The Relationship between Nurse's Gender and the Use of PPE according to SOP

Based on the research above, it shows that the relationship between the sex of nurses and the use of PPE according to the SOP is most often found in nurses with female sex, namely as many as 91 people (70%) with the use of PPE according to the SOP with good results as many as 61 people (46.9%) while with the results enough for 30 people (23.1%). From the results of the fisher's exact test analysis between gender and the use of PPE, the p-value = 0.11, because the p-value (0.11) > (0.05), it can be concluded that there is no relationship between gender and the use of PPE.This is in accordance with previous research conducted by Gladys Apriluana with the results that there is no significant relationship between gender and the behavior of using PPE in health workers in Banjarbaru Hospital with the results of the Chi-square statistical test obtained a value (p-value = 0.940) (Gladys Apriluana, 2016).This is because any gender does not affect using or not using PPE. Male and female gender have the same opportunities and thoughts to use or not to use PPE.

D. The relationship between the level of nursing education and the use of PPE according to the SOP

Based on the table above, the relationship between the level of nurse education and the use of PPE according to the SOP is most often found with the D3 level of education as many as 102 people (78.4%) with the use of PPE according to the SOP with good results as many as 74 people (56.9%) while the results are quite as many as 28 people (21.5%). From the results of the fisher's exact test analysis between gender and the use of PPE, p-value = 0.26, because the p-value (0.26) > (0.05), it can be concluded that there is no relationship between the level of education and the use of PPE.Most of the nurses at the Royal Prima Hospital in Medan have a Diploma in Nursing. With this level of education, it can be seen that the use of PPE according to the SOP there is good. The use of PPE is not affected by the level of education there. This is because the average respondent has a Diploma in education.This is in accordance with previous research conducted by Herpan 2012 where the results of the research obtained a p-value = 0.486 which means that the relationship between education and nurse performance in controlling INOS at PKU Bantul Hospital Yogyakarta is not significant, or there is no relationship between education and nurse performance in controlling INOS at PKU Bantul Hospital Yogyakarta (Herpan, 2012).The higher the level of education, the more likely the workforce can work and carry out their work.

E. The relationship between the length of the nurse's tenure and the use of PPE according to the SOP

Based on the results of the study above, it shows that the longest working period with the use of PPE according to the SOP is the most with a working period of > 5 years, namely 70 people (53.9%) with the use of PPE according to the SOP with good results as many as 46 people (35.4%) while with enough results as many as 24 people (18.5%). From the results of the Fisher exact test analysis between the working period and the use of PPE, it is obtained that the value of p = 0.11, because the value of p (0.12) > (0.05), it can be concluded that there is no relationship between the tenure of nurses and the use of PPE.Most of the nurses at

the Royal Prima Hospital in Medan have a working period of > 5 years. With a working mass, the working period is almost the same, namely an average of 5 years showing good work experience and use of PPE. It can be seen from the results of good use of PPE as many as 92 people.This is in accordance with previous research conducted by Salma Adilah 2018 with the results of hypothesis testing using the Chi-square Test between the variable period of service and the nurse's compliance variable with the use of PPE showing a p-value of 0.585> 0.05, which means Ha is rejected, H0 is accepted. . So it can be concluded that there is no relationship between tenure and the level of respondent compliance in using PPE (Salma Adilah, 2018).

This result could be due to the fact that the number of working periods at the Royal Prima Hospital Medan is almost the same, with an average of approximately 5 years. The period of work is usually associated with the time to start work, where work experience also determines a person's attitude and performance, the longer the working period, the skills and attitudes of a person will be better because they have adapted to their work. A longer working period indicates more work experience in a person compared to other coworkers. A person's work experience determines how a nurse carries out their daily functions, because the longer the nurse works, the more skilled and experienced they will be in dealing with problems at work.

F.   The relationship between nurses' attitudes regarding PPE SOPs with the use of PPE according to SOPs

Based on the results of the study above, the relationship between attitudes and the use of PPE according to the SOP was the most with good attitudes, namely as many as 91 people (70%) with the use of PPE according to the SOP with good results as many as 79 people (60.8%) and with enough results 12 people. (9.2%). From the results of the fisher's exact test analysis between attitudes and the use of PPE, a p-value = 0.00 is obtained because the p-value (0.00) < (0.05), it can be concluded that there is a relationship between attitudes and the use of PPE.The attitude of the Royal Prima Hospital nurses can be said to be good, this is accompanied by the availability of complete personal protective equipment so that it greatly affects the respondent's actions in using complete PPE even though the respondent already has the will to use the complete PPE but the PPE is not available, the respondent will not use PPE, but it is also based on the level of awareness of nurses who are still lacking.This is in accordance with previous research conducted by Muhammad Zaki with the results of the bivariate test stating that there is a relationship between nurses' attitudes (ρ = 0.004) and the use of PPE for nurses at RSUD Dr. RM Pratomo Bagansiapiapi (Muhammad Zaki, 2018).The results obtained information that using the inappropriate use of PPE according to the SOP due to discomfort when using PPE and feeling safe even though not using PPE, respondents argued that PPE is used only when taking actions or examining patients who are considered at risk of transmitting certain diseases.

G.   The Relationship of Nurse Behavior Regarding PPE SOPs with the Use of PPE in accordance with SOPs

Based on the results of the study above, the relationship between behavior and the use of PPE according to the SOP was the most with good behavior as many as 91 people (70%) with the use of PPE according to the SOP with good results as many as 73 people (56.2%) and with sufficient results as many as 18 people (13.8%). From the results of the fisher's exact test analysis between attitudes and the use of PPE, p-value = 0.01, because the p-value (0.01) < (0.05), it can be concluded that there is a relationship between behavior and the use of PPE.This shows that the behavior of using PPE is good enough. This condition can reduce the risk of work accidents and increase the incidence of nosocomial infections. Respondents' actions in using PPE can be influenced by many stimuli. The stimulus can be in the form of providing training on the principles of using PPE in practice. PPE training programs can help respondents to improve their cognitive abilities and skills when doing practice.This is in accordance with previous research conducted by Siti Mariana at Mokopido Hospital with the results using the chi-square test indicating that the value (p-value 0.000 <0.05) then from these results it can be concluded that there is a relationship between action and the use of PPE in Mokopido Hospital. Tolitoli (Siti Mariana, 2018).The availability of personal protective equipment (PPE) at the Royal Prima Hospital is categorized as complete. Personal protective equipment such as protective shoes, gloves, and masks are not limited so that they can be used by nurses as a whole. The availability of complete PPE is one of the supporting factors that can be provided by the hospital in an

effort to control the hazards of the work environment, both physical, biological, and chemical so as to create a healthy, safe, and comfortable work environment.

V. ACKNOWLEDGMENT

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