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Relationship of Knowledge and Attitude with Compliance from the Use of Personal Protective Equipment at Mitra Medika Amplas Hospital

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Abstract

Infected health workers can also be a source of infection for patients and other health workers, due to the lack of personal protective equipment. This type of research is using a cross sectional design. The dependent variable of this study is compliance from the use of personal protective equipment, and the independent variables are knowledge and attitude. Knowledge is the result of human sensing to know about an object through its five senses. When using personal protective equipment, it is necessary to have compliance in the form of an attitude to be willing to obey and follow a specification, standard or rule that has been clearly regulated and issued by an authorized organization. The sample consisted of 100 health workers consisting of nurses and midwives, emergency room doctors, room doctors, specialist doctors and isolation room nurses. Data were collected through interviews using a questionnaire, then the data was analyzed using univariate table frequency distribution and bivariate analysis using the chi-square test. The conclusion of the research is that there is a significant relationship between knowledge and compliance from the use of personal protective equipment (p=0.020) and there is a significant relationship between attitude and compliance from the use of personal protective equipment (p=0.032).

Keywords
knowledge; attitude; compliance; personal protective equipment

I. Introduction

In early 2020, the emergence of an outbreak of a new type of pneumonia or virus led by Wuhan, Hubei shocked the world and quickly spread to more than 190 countries. This outbreak is named coronavirus disease 2019 (COVID-19). COVID-19 is an infectious disease caused by severe acute respiratory syndrome. Coronavirus 2 (SARS-CoV-2), this virus has not been found in humans until September 23, 2021. The World Health Organization (WHO) has reported 229,373,963 confirmed cases worldwide, of which 4,705,111 deaths, the case fatality rate is 2, 05%) (World Health Organization, 2021).

The outbreak of this virus has an impact of a nation and Globally (Ningrum *et al*, 2020). The presence of Covid-19 as a pandemic certainly has an economic, social and psychological impact on society (Saleh and Mujahiddin, 2020). Covid 19 pandemic caused all efforts not to be as maximal as expected (Sihombing and Nasib, 2020).

Infected health workers can also be a source of infection for patients and other health workers. Protecting health care workers is critical to sustaining continuous patient care and maintaining the functioning of the health care system (Park, 2020).

However, the number of infections and deaths among health workers in each country is unclear, as some countries do not have public data. In addition, WHO headquarters does

not currently publish the number of infections and deaths of health workers in various countries on its COVID-19 website. In Indonesia alone, as many as 2,032 health workers died due to COVID-19 while carrying out their health service duties. The numbers are mainly doctors (730), nurses (670), midwives (288), etc.

According to data from infected health workers in China, many infected health workers in health care centers are in the early stages of the epidemic (that is, before the end of January 2020), perhaps due to the use of proper personal protective equipment or due to lack of adherence to the use of personal protective equipment (Abbas et al., 2021).

Personal protective equipment is personal protective equipment, clothing or special equipment used by health workers to protect themselves from physical, chemical, biological/infection materials. Personal protective equipment includes gloves, surgical masks or N95 masks, protective clothing, aprons, goggles, face shields, headgear, and foot protection. The purpose of using personal protective equipment is to protect staff or patients from work accidents such as in the medical world, these accidents include contact with blood, body fluids, secretions and feces between patients and staff, and vice versa (Kementerian Kesehatan, 2020).

The trigger for the occurrence of work accidents is due to not wearing personal protective equipment and even the lack of compliance of medical personnel in using these tools. Compliance itself is the compliance of medical personnel in using Personal Protective Equipment when carrying out medical procedures in hospitals. The scope of work carried out by health workers who have more direct contact with patients requires them to comply in applying the use of personal protective equipment in accordance with standard operating procedures to avoid infection. Personal protective equipment is very important to be used by a medical worker in carrying out their duties (Ernanda et al., 2020).

Personal protective equipment is a set of safety equipment used by workers to protect all or part of their bodies from the possibility of exposure to potential hazards of the work environment against accidents and occupational diseases. Medical personnel in hospitals are required to use personal protective equipment to avoid occupational safety and health risks in hospitals. There are several factors related to the compliance of medical personnel in using personal protective equipment, namely the attitudes and knowledge possessed by medical personnel.

Knowledge is something that includes what medical personnel know about personal protective equipment. If the knowledge possessed by medical personnel is good, then their compliance in using personal protective equipment is also good. Compliance with the use must also be accompanied by knowledge of medical personnel in understanding how to properly use personal protective equipment in accordance with standard operating procedures to avoid infection. With this, it can be said that the knowledge possessed by personnel has a positive relationship to their compliance in using personal protective equipment.

Attitude is about paying attention to needs compared to desires related to the compliance of medical personnel in the use of personal protective equipment. When the medical personnel have good attitude, the better their compliance in using personal protective equipment. A medical worker prioritizes his attention on his need to use personal protective equipment because this tool is an important need and they must use it when they are carrying out their duties so that they avoid infections and work accidents that pose great risks to them. With this, it can be said that the attitude of medical personnel has a positive relationship with their compliance in using personal protective equipment.

The research study conducted by Ernanda et al. (2020) states that in order to avoid occupational diseases or work-related accidents by anticipating hazards or diseases that will arise, it is very important to use personal protective equipment to reduce the risk of work-related hazards. The strategy in infection prevention and control implemented by medical personnel and medical support employees is to place more emphasis on personal protective equipment used when working in accordance with the indications of what personal protective equipment they should use at work. This study also indicated that there was a relationship between attitudes and knowledge of nurses on compliance in using personal protective equipment in the inpatient room of the Dr. H. Moch Ansari Saleh Banjarmasin Regional General Hospital.

Mitra Medika Amplas Hospital is one of the privately owned hospitals located in Medan City, privately owned under the guidance of PT. Mitra Medis Manusia. In 2018 on December 31, 2018. Mitra Medika Amplas Hospital has successfully completed the accreditation process for the national hospital accreditation standard with a plenary predicate.

Based on an initial survey conducted on 30 health workers at Mitra Medika Amplas Hospital, it was found that 17 health workers did not comply with the use of personal protective equipment in accordance with the procedures for using personal protective equipment at Mitra Medika Amplas Hospital. Based on data from Mitra Medika Amplas Hospital, it is known that the number of health workers at Mitra Medika Amplas Hospital is 287 people, and 29 health workers or 10% of these health workers are exposed to COVID-19 and the disease they suffer from is experienced when they are serving patients and use proper personal protective equipment.

The objectives to be achieved in this study are to find out and analyze how the knowledge and attitudes of health workers relate to compliance with using personal protective equipment at Mitra Medika Amplas Hospital in 2021.

II. Review of Literature

2.1 Obedience

Referring to conformity, what is meant by compliance is a change in behavior or belief caused by pressure exerted by the group. Shaw said that obedience is closely related to a person's prestige which is judged from the point of view of other people's eyes. The benchmark for compliance with actions that occur in response to direct requests from other parties (Wardhani, 2016). There are four factors that influence the need, of which the four factors are understanding of how written instructions are clear and easy to understand, the quality of the interaction between health workers or health workers and patients, isolation from social and family and the presence of beliefs, attitudes and personality Niven (2013).

Smet (1994) states that there are four strategies that can be used to increase compliance, namely the support for professional health, social support from family and the surrounding environment, changes in healthy behavior with changes in lifestyle. and regular health checks and information sharing.

2.2 Personal Protective Equipment

Personal protective equipment is used as a device designed to prevent interference from substances, solid particles, liquids, or air to protect the wearer from infection or the spread of disease. If used properly, it can act as a barrier to entry between infectious substances (such as viruses and bacteria) and the skin, mouth, nose, or eyes of medical staff and patients. This barrier can prevent the spread of contaminated blood, body fluids or

respiratory secretions, contaminated from blood, body fluids. In addition, other infection control measures, such as washing hands, using hand sanitizer or alcohol-based hand sanitizer, and covering the inside of the arm with a tissue when coughing and sneezing, may reduce the amount of infection spreading from one person to another. The use of good and correct personal protective equipment, which includes the transfer and/or disposal of contaminated personal protective equipment, is carried out to prevent the wearer and other parties from contact with infectious materials (Kementerian Kesehatan, 2020).

Types other than personal protective equipment that are recommended for use by health workers are surgical/facemasks, N95 masks, face shields, face shields, gowns, some are disposable and some are reusable, aprons, gloves, head protection, safety shoes.

2.3 Knowledge

Knowledge affects personal compliance, and knowledge gained from experience will be more durable than knowledge based on knowledge described by Notoatmodjo (2010), which can have an effect on compliance. Knowledge includes knowledge of medical staff about personal protective equipment. If the knowledge possessed by medical personnel is good, then their compliance when using personal protective equipment is also good. Complying with this use must also have knowledge of medical personnel who understand how to use personal protective equipment correctly in accordance with standard operating procedures to avoid infection. Based on this, it can be said that the knowledge possessed by personnel has a positive correlation with their compliance with personal protective equipment.

2.4 Attitude

Bloom's behavioral theory in Notoatmodjo (2012) explains that behavior is a function of predisposing factors, namely factors within the individual and having individual attitudes. The attitude of the respondents will affect their behavior in using personal protective equipment in the workplace. If medical personnel are good or positive, then their performance is good in the application of personal protective equipment, on the other hand if medical personnel are negative or have poor performance, they often do not perform well in the application of personal protective equipment (Fridalni and Rahmayanti, 2018). The attitude of prioritizing needs, not desires related to the compliance of medical personnel when using personal protective equipment. When medical staff have a good attitude, their adherence to personal protective equipment is better. Medical personnel prioritize the use of personal protective equipment because it is an important requirement and must be used when carrying out their duties to avoid infections and work accidents that pose a big risk to themselves. medical personnel is positively correlated with compliance with the use of personal protective equipment.

The theoretical basis used by the researcher uses the theory of Niven (2013) which states that a person's compliance can be influenced by four factors, namely beliefs, attitudes and personality, understanding of instructions, social and family isolation and the quality of interaction between health professionals.

III. Research Method

This type of research uses a quantitative approach with a cross sectional design. Quantitative research is a systematic scientific study of the parts and phenomena and the causality of their relationships. The purpose of quantitative research is to develop and use mathematical models, theories and/or hypotheses related to natural phenomena

(Pandiangan et al., 2021). Cross-sectional study is a type of research that observes population or sample data only once at the same time (Pandiangan, 2015).

The dependent variable of this study is compliance from the use of personal protective equipment, and the independent variable is knowledge and attitude which aims to determine the relationship between knowledge and attitude of health workers with compliance from the use of personal protective equipment at Mitra Medika Amplas Hospital in 2021.

Population is a group or collection of objects or objects that will be generalized from the research results (Pandiangan et al., 2018). The population of this study were all health workers at Mitra Medika Amplas Hospital with a total of 287 health workers, male and female. The sample used the exclusion and inclusion criteria of 100 health workers consisting of nurses and midwives as many as 19 people, 10 emergency room doctors, 5 room doctors, 9 specialist doctors and 57 isolation room doctors, and health workers who work in emergency units or in isolation rooms and are willing to be patient responders.

The data is taken based on library research and primary data. Library research of reference sources is a form of research that uses library facilities by examining theoretical discussions from various books, articles, and scientific works related to writing (Pandiangan, 2018). Data were collected and conducted by interview using a questionnaire so that the researcher got the identity of the sample (such as name, age, gender and occupation). Furthermore, the data was then analyzed using univariate and bivariate analysis. Univariate analysis is descriptive using a table frequency distribution. Meanwhile, bivariate analysis was carried out using the chi-square test using the Statistical Package for the Social Sciences version 20.00 application. Bivariate analysis is one of the simplest forms of quantitative analysis. It involves the analysis of two variables, for the purpose of determining the empirical relationship between them (Tobing et al., 2018).

IV. Results and Discussion

4.1 Results

a. Frequency Distribution by Age, Gender, Occupation and Length of Work at Mitra Medika Amplas Hospital

Table 1. Frequency Distribution of Respondents by Age, Gender, Occupation and Length of Work in the Emergency Room or Isolation Room at Mitra Medika Amplas Hospital

Age	**n**	**%**
22-23 Years	30	30%
33-43 Years	30	30%
44-54 Years	14	14%
>54 Years	26	26%
Total	100	100%
Gender	**n**	**%**
Male	40	40%
Female	60	60%
Total	100	100%
Occupation	**n**	**%**
Nurses and Midwives	19	19%
Emergency Room Doctor	10	10%
Room Doctor	5	5%
Medical Specialist	9	9%

Isolation Room Doctor	57	57%
Total	100	100%
Length of Work	**n**	**%**
1 -5 Years	38	38%
6-10 Years	48	48%
>10 Years	14	14%
Total	100	100%

Source: SPSS Data Processing Results (2021)

Based on Table 1, it can be seen that the distribution of respondents amounted to 100 people consisting of (40%) male respondents and (60%) female respondents. When viewed by age, there were 100 people consisting of (30%) aged 22-23 years, (30%) aged 33-43 years, (14%) aged 44-54 years and (26%) with age >54 years. As for the work, there are five types, namely, (19%) nurses and midwives, (10%) emergency room doctors, (5%) room doctors, (9%) specialist doctors and (57%) isolation room doctors. When viewed from the length of work, (38%) 1-5 years, (48%) 6-10 years and (14%) >10 years.

b. Frequency Distribution of Respondents According to Knowledge and Attitude of Medical Personnel on Compliance from the Use of Personal Protective Equipment at Mitra Medika Amplas Hospital

Table 2. Frequency Distribution of Respondents According to Knowledge and Attitude of Medical Personnel about Personal Protective Equipment

Compliance from the Use of Personal Protective Equipment					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Obey	62	62.0	62.0	62.0
	Not Obey	38	38.0	38.0	100.0
	Total	100	100.0	100.0	
Knowledge					
Valid	Not Good	23	23.0	23.0	23.0
	Good	77	77.0	77.0	100.0
	Total	100	100.0	100.0	
Attitude					
Valid	Not Good	25	25.0	25.0	25.0
	Good	75	75.0	75.0	100.0
	Total	100	100.0	100.0	

Source: SPSS Data Processing Results (2021)

Based on Table 2, the results are that there are 62 respondents (62%) who are obedient in using personal protective equipment while 38 respondents (38%) are not compliant in using personal protective equipment. Then for knowledge and attitude, for knowledge, there are 23 respondents (23%) who have poor knowledge of the use of personal protective equipment while 77 respondents (77%) have good knowledge of the use of personal protective equipment. For attitude, there are 25 respondents (25%) who

have a bad attitude towards the use of personal protective equipment while the remaining 75 respondents (75%) have a good attitude towards the use of personal protective equipment.

Table 3. Relationship of Knowledge, Compliance from the Use of Personal Protective Equipment to Compliance Attitude of Personal Protective Equipment in the Emergency Room or in the Isolation Room at Mitra Medika Amplas Hospital

Variable	**Knowledge * Compliance from the Use of Personal Protective Equipment**					
	Obey		Not Obey		Total	Value-p
Knowledge	n	%	n	%	N (%)	
Not Good	19	30.64%	4	10.53%	23	0.020
Good	43	69.36%	34	89.47%	77	
Total	62	100%	38	100%	100	
	Attitude * Compliance from the Use of Personal Protective Equipment					
Attitude	Obey		Not Obey		Total	Value-p
	n	%	n	%	N (%)	
Not Good	20	32.25%	5	13.15%	25	0.032
Good	42	67.74%	33	86.84%	75	
Total	62	100%	38	100%	100	

Source: SPSS Data Processing Results (2021)

Based on Table 2 using the bivariate test with chi-square test, it shows that in compliance with the use of personal protective equipment with knowledge there are 19 obedient respondents with poor knowledge and 62 other respondents with good knowledge. Meanwhile, 4 respondents did not comply with poor knowledge and 34 respondents did not comply with good knowledge, in the emergency department or in the isolation room at Mitra Medika Amplas Hospital. From this table, we can see that there is a significant relationship between knowledge and compliance with the use of personal protective equipment (p=0.020).

For compliance with the use of personal protective equipment with an attitude there are 20 obedient respondents with a bad attitude and 42 obedient respondents with a good attitude. Meanwhile, 5 respondents did not comply with a bad attitude and 33 respondents with a good attitude in the emergency department or in the isolation room at Mitra Medika Amplas Hospital. From this table, we can see that there is a significant relationship between attitude and compliance with the use of personal protective equipment (p=0.032). From knowledge with compliance with the use of personal protective equipment and attitudes with compliance with the use of personal protective equipment, it is known that both are significant because of the value (p <0.05).

4.2 Discussion

a. The Relationship between Knowledge and Compliance with the Use of Personal Protective Equipment for Medical Personnel at Mitra Medika Amplas Hospital

There is a relationship between knowledge and compliance with the use of personal protective equipment with a significance of p=0.020 or less than 0.05 (5%). These results are relevant to the research conducted by Ernanda et al. (2020) which stated that based on the bivariate test using the chi-square test, there was a significant relationship between knowledge and adherence to using personal protective equipment at the Dr. H. Moch Ansari Saleh Banjarmasin Regional General Hospital with statistical test obtained at 0.01.

The results of this study indicate that a better understanding of compliance with the use of personal protective equipment can also minimize the risk of exposure to COVID-19. Knowledge is related to compliance because obedience is a pattern domain in the formation of behavior. Based on the knowledge described in Notoatmodjo (2010) affects compliance. Knowledge includes knowledge of medical staff about personal protective equipment. If medical personnel have good knowledge, their compliance with personal protective equipment is also good. Complying with this use must also have knowledge of medical personnel who understand how to use personal protective equipment correctly in accordance with standard operating procedures to avoid infection.

In this study, it was shown that most of the medical personnel working at Mitra Medika Amplas Hospital already had a good understanding of personal protective equipment. According to research results, almost everyone who has served at Mitra Medika Amplas Hospital already knows this set of personal protective equipment, as evidenced by the answers to several questions about personal protective equipment. However, the reality in the field is that there are still many people who do not use standard personal protective equipment when taking action against patients. This is due to several factors, one of which causes them to stop using personal protective equipment because they understand that personal protective equipment is only used in emergency situations.

b. The Relationship between Attitude and Compliance with the Use of Personal Protective Equipment for Medical Personnel at Mitra Medika Amplas Hospital

There is a relationship between attitude and compliance with the use of personal protective equipment with a significance of p=0.032 or less than 0.05 (5%). These results are relevant to the research conducted by Ernanda et al. (2020) which states that based on the bivariate test using the chi-square test, there is a significant relationship between attitude and adherence to using personal protective equipment at the Dr. H. Moch Ansari Saleh Banjarmasin Regional General Hospital with statistical test obtained at 0.003.

The results of this study indicate that the better a person's attitude is formed, the more they are obedient in appreciating the use of personal protective equipment. The relationship between attitude and compliance is associated with a good understanding of compliance with using personal protective equipment, supported by the respondent's experience, supported by self-confidence, emotional life and willingness to take positive action. The attitude of paying attention to the needs and desires related to the compliance of health workers in the use of personal protective equipment. When the attitude of health workers is good, they must comply more with the use of personal protective equipment. Health workers prioritize the need for the use of personal protective equipment because this tool is an important requirement and must be used while on duty to avoid infections and other work accidents that pose a lot of risks to them.

In this study, most of the medical personnel working at Mitra Medika Amplas Hospital had a good attitude towards the use of personal protective equipment, as

evidenced by the respondents' responses to the questionnaire about personal protective equipment attitudes towards the use of personal protective equipment. From this study, although the results of nurses' attitudes towards the use of personal protective equipment were good, there were still many respondents who did not like the use of personal protective equipment and did not use personal protective equipment according to the standard of use personal protective equipment in the ward. This is of course influenced by several factors, including knowledge of personal protective equipment available to health workers, because this is what underlies their behavior towards the available personal protective equipment.

V. Conclusion

Based on the results of research and discussion, the following conclusions can be drawn:

1. There are 62 respondents (62%) who are obedient in using personal protective equipment while 38 respondents (38%) are not compliant in using personal protective equipment.
2. There are 23 respondents (23%) who have poor knowledge of the use of personal protective equipment while 77 respondents (77%) have good knowledge of the use of personal protective equipment.
3. There are 25 respondents (25%) who have a bad attitude towards the use of personal protective equipment while the remaining 75 respondents (75%) have a good attitude towards the use of personal protective equipment.
4. There is a significant relationship between knowledge and compliance from the use of personal protective equipment (p=0.020).
5. There is a significant relationship between attitude and compliance from the use of personal protective equipment (p=0.032).
6. The better knowledge of compliance with the use of personal protective equipment, the risk of exposure to COVID-19 can also be minimized. The reason knowledge has a relationship with compliance is because compliance is a domain pattern in the formation of behavior. The better a person's attitude is formed, the more obedient in compliance with the use of personal protective equipment. The relationship between attitude and compliance is thought to be due to a good understanding of compliance with the use of personal protective equipment, supported by the respondent's experience, which is supported by trust and confidence, emotional life and willingness to take positive action.

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