The Relationship Of Knowledge And The Attitude Of Nurses In The Use Of Personal Protective Equipment During The Pandemic Covid-19 At Mardi Rahayu Holy Hospital

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Abstract. The rapid spread of the coronavirus is widespread due to the easy process of transmitting the infection from human to human. Airborne transmission occurs during procedures that produce aerosols and supportive care (for example tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation, bronchoscopy). The use of PPE is the main procedure in health service activities. Behavior in the use of PPE is determined by individual factors, the environment and hospital management. Individual factors consist of knowledge, attitudes, motivation and characteristics. This research aims to find outThe relationship between knowledge and nurses' attitudes in using personal protective equipment (PPE) during the Covid-19 pandemic at Mardi Rahayu Kudus Hospital. This type of research is correlational with a cross sectional design. The population of this study were nurses in the Surgical Room Installation at Mardi Rahayu Kudus Hospital. The sampling technique was total sampling so that the sample size was 43 respondents. Data collection using questionnaires. Statistical data analysis using the Chi Square test. The research results obtained a p value of 0.000. There isrelationship between knowledge and nurses' attitudes in using personal protective equipment during the Covid-19 pandemic at Mardi Rahayu Kudus Hospital because the p value is 0.000 < 0.05 at a significance level of 5%.

Key words: [Knowledge, attitudes, Personal Protective Equipment, Covid 19 Pandemic.]

INTRODUCTION

Occupational Safety and Health (K3) is an effort to create a safe, comfortable working atmosphere, and the ultimate goal is to achieve the highest productivity. Therefore, K3 is absolutely necessary to implement in every type of work field without exception. K3 efforts are expected to prevent and reduce the risk of accidents and illnesses resulting from work (Ministry of Health, 2015). The International Labor Organization (ILO) estimates that every year around 24 million people die due to accidents and diseases in the work environment, including 360,000 fatal accidents and an estimated 1.95 million are caused by fatal diseases that arise in the work environment. According to World Health Organization (WHO) records, 35-50% of the world's workforce is exposed to physical, chemical and biological hazards (WHO, 2020). The health problem that is currently endangering nurses is the coronavirus. Coronavirus (CoV) is a large family of viruses that cause diseases ranging from mild to severe symptoms (Ministry of Health, 2020).

Data shows that the increase in the number of COVID-19 cases is happening quite quickly and it has spread throughout the world. Coronavirus sufferers are increasing, namely 212 million with a death toll of 4.43 million. The highest data was in America at 37.8 million with 628 thousand deaths, followed by India with 32.4 million positive cases with 435 thousand deaths and Brazil with 20.6 million positive cases with 575 thousand deaths (WHO, 2021). The Ministry of Health (2020) recorded that confirmed transmission of the coronavirus reached 3.98 million positive cases and as many as 126 thousand deaths. There were 13,619 cases of Covid-19 sufferers in Central Java who were treated with confirmed recoveries of 419,181 cases and 30,177 people died. Data in Kudus recorded 16,901 positive cases with 15,506 confirmed recoveries and 1,376 deaths (Ministry of Health, 2021). Data at Mardi Rahayu Kudus Hospital in 2020 recorded 3,152 people and in March 2021 there were 487 people.

Work safety in operating rooms is also a particular concern, where as many as 800,000 health workers experience the risk of work accidents in America, as many as 24,000 health workers over 3 years show that the incidence of blood contact (exposure rate) is 3.5 per 100 workers per year (WHO, 2018).The operating room is a room that is very risky for the health of staff, especially surgical nurses, because of the large amount of equipment used for surgery, the use of anesthetic gas and prolonged high levels of psychological stress. An American study on the mechanism of tearing of rubber gloves and the occurrence of injuries punctured by sharp objects in 2,292 operations over 3 months found that 92% of glove tears were due to not being double and 8% due to unknown causes, then 70 injuries were due to

sharp object punctures, 0.7 % due to needles, 10% due to scalpels and 23% due to other effects (Tietjen, 2014).

Behavior in using PPE is determined by individual factors, the environment and hospital management (Nursalam, 2014). Individual factors consist of knowledge, attitudes, motivation and characteristics. Based on research by Zahara (2017), it was found that use Personal Protective Equipment PPE is determined from the nurse's understanding (knowledge) and behavior. Based on research by Muchlis (2018), it is known that the use of PPE is influenced by the nurse's attitude and motivation. Based on research by Wulandini (2016), the research results showknowledge about PPE was good at 77.3% (34 people), nurses' attitudes about PPE were positive at 61.4% (27 people), use of PPE was good at 63.6% (28 people). Implementing PPE is a mandatory thing that nurses must do, in order to prevent work accidents and prevent patients from contracting disease. Dewi's (2019) research found that the use of PPE is influenced by knowledge, attitudes, facilities, training and control.

Attitude is a factor that plays a role in determining nurse compliance in implementing universal precautions. Attitude is readiness or willingness to act and is not the implementation of certain motives (Azwar, 2015). Based on research by Yusran (2014), nurses who have a good attitude will be more compliant in implementing universal precautions in hospitals. According to Kusmiyati (2017), the factors that influence the low attitude of nurses regarding universal precautions in using PPE are knowledge, behavior, availability of personal protective equipment and nurse motivation.Based on Mardiana's research (2017), the results showed that the use of PPE is determined by the nurse's knowledge. The nurse's knowledge and attitude are important factors in determining the level of compliance. If the use of PPE is less compliant, nurses are at risk of contracting infections.

Based on a preliminary study conducted by researchers on July 12 2021 at Mardi Rahayu Kudus Hospital, it was found that data on the use of PPE by nurses had not reached 100%, especially the use of PPE in operating rooms. The use of PPE in the operating room must follow established procedures. The results of observations of 10 nurses showed that 4 nurses used complete PPE, namely nurse cap, glasses (google), visor (phase shield), surgical gown, N 95 mask and mask. surgical, double gloves and boots, while 3 nurses did not use N95 masks, only used surgical masks, 3 people did not use double gloves and non-double protective clothing, removed the visor during the procedure and did not use boots. The protocol for using PPE is determined by the nurse's understanding of the transmission of infection.

Based on existing phenomena, researchers are interested in conducting research on the relationship between knowledge and nurses' attitudes in using personal protective equipment during the Covid-19 pandemic at Mardi Rahayu Kudus Hospital.

METHODS

This type of research is correlational with a cross sectional design. The population of this study were nurses in the Surgical Room Installation at Mardi Rahayu Kudus Hospital. The sampling technique was total sampling so that the sample size was 43 respondents. Data collection using questionnaires. Statistical data analysis using the Chi Square test.

RESULTS AND DISCUSSION

1. Respondent Characteristics
   a. Age

Table 1. Frequency Distribution of Respondents Based on Age
Mardi Rahayu Kudus Hospital in 2021

Age	f	%
< 30 Years	11	25.6
31-40 Years	20	46.5
41-50 Years	9	20.9
> 50 Years	3	7.0
Total	**43**	**100.0**

The most common age range was 31-40 years with 20 respondents (46.5%).

b. Gender

Table 2. Frequency Distribution of Respondents Based on Gender in Mardi Rahayu Kudus Hospital in 2021

Gender	f	%
Man	15	34.9
Woman	28	65.1
Total	**43**	**100.0**

The gender of most respondents was female with 28 respondents (65.1%).

c. Education

Table 3. Frequency Distribution of Respondents Based on Education In Mardi Rahayu Kudus Hospital in 2021

Education	f	%
D3 Nursing	36	83.7
Bachelor's Degree in Nursing	7	16.3
Total	43	100.0

The most educated people were D III Nursing graduates, 36 (83.7%).

d. Years of service

Table 4. Frequency Distribution of Respondents Based on Work Period In Mardi Rahayu Kudus Hospital in 2021

Years of service	f	%
< 5 Years	9	20.9
5-10 Years	25	58.1
> 10 Years	9	20.9
Total	**43**	**100.0**

The most common work period category is 5-10 years 25 (58.1%).

2. Univariate Analysis

a. Nursing Knowledge

Table 5. Frequency Distribution of Respondents Based on Nurse Knowledge In Mardi Rahayu Kudus Hospital in 2021

Nursing Knowledge	f	%
Good	37	86.0
Currently	6	14.0
Not enough	0	0.0
Total	**43**	**100.0**

The majority of nurses' knowledge was in the good category, as many as 37 respondents (86%).

b. Nurse's Attitude

Table 6. Frequency Distribution of Respondents Based on Nurses' Attitudes In Mardi Rahayu Kudus Hospital in 2021

Nurse's Attitude	f	%
Good	35	81.4
Enough	7	16.3
Not enough	1	2.3
Total	**43**	**100.0**

Most of the nurses' attitudes were in the good category, as many as 35 respondents (81.4%).

3. Bivariate Analysis

Table 7. The Relationship between Knowledge and Nurses' Attitudes in Using Personal Protective Equipment During the Covid-19 Pandemic at Mardi Hospital Holy Mercy Year 2021

Knowledge	Nurse's Attitude						Total		P value
	Good		Enough		Not enough				
	f	%	f	%			f	%	
Good	35	94.6	2	5.4	0	0.0	37	100	0,000
Currently	0	0.0	5	83.3	1	16.7	6	100	
Not enough	0	0.0	0	0.0	0	0.0	0	0.0	
Total	**35**	**81.4**	**7**	**16.3**	**1**	**2,3**	**43**	**100**	

The statistical test results obtained a p value of 0.000. These results show that there isrelationship between knowledge and nurses' attitudes in using personal protective equipment during the Covid-19 pandemic at Mardi Rahayu Kudus Hospital because the p value is 0.000 < 0.05 at the 5% significance level.

DISCUSSION

1. Age

The research results obtainedThe most common age range was 31-40 years with 20 respondents (46.5%). This shows that the respondents are in the productive age range, namely adulthood. This age describes the time of life that has been passed since birth. A person's age determines cognitive abilities and social behavior. Age greatly influences a person's understanding and thinking patterns. As you get older, your ability to understand and think will also develop, so that your knowledge of personal protective equipment will improve. A person's age is important because it becomes the basis for a more permanent and stable life structure. The older a person is, the more mature their level of ability and strength will be in thinking and working. Someone who is more mature has a tendency to be more trusted than someone who is not mature enough. This is as a result of the experience of mental maturity (Ajhuri, 2019).

Previous research by Yanti (2021) found that the majority of respondents were adults, namely 26-35 years old (74.3%) and 36-45 years old (16.2%). Productive age is the ideal age to do work in a hospital, where this age shows optimal performance in providing services to patients. This age limit is as classified by the Ministry of Health. The Kudus service institution enforces that health workers must be of productive age where the retirement age is 65 years. Inpatient services with a high workload require nursing staff to be of productive age. Aisyiyah's research (2020) found that the respondents were in the productive age range (68.8%).

2. Gender

The research results obtainedThe gender of most respondents was female with 28 respondents (65.1%). This shows that women are the dominant workforce in hospitals. Women who have gentle and loving characteristics are very suitable for working as nurses (Yusran, 2014). Nursalam (2014) stated that initially the nursing profession was occupied by women, but in its development nursing was also occupied by men. Gender roles in service do not recognize limitations on men, but on excellent service standards that prioritize caring behavior towards patients.

Sari's (2021) research found that the most common gender was female (90%). Women have attitudes and actions to be more obedient in carrying out procedural actions so that more women are obedient in using PPE. Yanti's (2021) research also found that the majority of nurses are women (76.7%). It is easier for women to follow developments in protocol services, including the use of PPE. Women also have better performance compared to men, especially in providing services to patients.

3. Education

The research results obtainedThe most educated people were D III Nursing graduates with 36 respondents (83.7%). These results show that the majority of nurses have vocational education. Wulandini's research (2016) states that education influences the ability and thinking power of nurses in providing services to patients. Nursalam (2014) states thatNurses with qualifications at the Diploma III level of nursing education with competence in both cognitive, affective and psychomotor aspects are

expected to be able to carry out their duties and responsibilities in providing nursing services to patients in accordance with standard operating procedures that apply in the local work environment, including the application of PPE.

By typelevelcompetency as stated by Nursalam (2014) that the D III Nursing education level as a vocational nurse is more directed at skills whileBachelor(profession)provide material and practice that is almost the same so that it tends to influence performance when in the clinic which shows thatEducation will influence the clinical performance of nurses both in the cognitive and action domains. Aisyiyah's research (2021) found that 59.7% of respondents had a bachelor's degree and 33.8% had a master's degree and 6.5% of respondents had a doctoral degree. Nurhidayah (2015) states that a person's level of education influences their response to something that comes from outside. People who are highly educated will be more rational and creative and open to accepting various reform efforts, they will also be better able to adapt to various changes.

4. Years of service

The research results obtained the maximum work period was 5-10 years as many as 25 respondents (58.1%). Work experience is calculated starting from the first time you enter a hospital institution until research is carried out. Work experience will have an influence on a person in terms of work experience regarding the form of action or thought that has been carried out so far, so that the longer someone works, the more experience they will gain. making it easier to understand and have the opportunity to excel and adapt to the environment in which he finds himself. However, on the other hand, the longer people work, the more bored individuals will become and ignore the applicable rules.

Aisyiyah's research (2021) found that most respondents had worked 5-10 years. The length of service determines the employee's level of competence in carrying out their work. The length of service is an individual characteristic that concerns seniority and juniority. The assumption that often applies and is believed is that employees who are quite senior are seen as having high performance, while those who are junior still need to be developed and developed further. This measure is actually only to make calculations easier, because by knowing the date, month and year of entry you can determine a person's seniority level and the level of suitability for receiving a certain amount of allowances.

5. Knowledge

The results of the study obtained that the most nurses' knowledge was in the good category, with 37 respondents (86%). This good knowledge was demonstrated by the ability to evaluate the benefits of PPE by answering correctly, especially in aspects of the use of PPE, the purpose of PPE and knowledge about the types of PPE in the operating room. Personal protective equipment is a means of protecting oneself from the possibility of accidents or work-related diseases. Previous research by Ardini (2018) found that 88.1% knew that the requirements for personal protective equipment include being comfortable to wear, not disturbing when working and providing effective protection. As many as 39 respondents (92.9%) knew the use of personal protective equipment such as masks when working. There were 40 respondents (95.2%) who knew that special gloves were used to avoid injury to the hands while working. 39 respondents (92.9%) answered correctly that the use of hand protective equipment is to protect hands from sharp objects/scratches, chemicals and infectious fluids.

The respondent's level of knowledge is in the good category because the use of PPE is a guide to what must be done so that the material (information) is often received since they were still in education. This stimulus process shows repetition and attention from respondents so that it is easy for respondents to understand hand washing procedures and other actions. Some respondents with a level of knowledge in the medium and low categories were because the respondents did not pay enough attention to surgical handwashing procedure items, which ultimately resulted in items being forgotten (Fajriyah, 2021). Research conducted by Amalia (2016) shows that knowledge determine compliance with PPE use. Good or poor knowledge does not always lead to the discipline to comply with using PPE when working. There is no guarantee that someone who has high knowledge will comply with using PPE because the knowledge they have only reaches the first level of knowledge, where first level knowledge is knowledge that simply remembers the information received (Nurmala et al., 2018). A person's high level of knowledge about PPE only consists of remembering information about PPE but has not yet reached the level of understanding the importance of using PPE level 3.

The research results showed that 6 respondents (14%) had moderate knowledge. This was

indicated by their lack of ability to answer questions about the benefits, types and uses of PPE. Respondents who had poor knowledge were because respondents still did not know about PPE level 3, either its benefits or how to use it properly and correctly. Research by Fayaz et al (2014) proves that the majority of respondents have insufficient knowledge and low practice of universal precautions. Putri et al (2018) explained that the majority of workers do have good knowledge, but in reality good knowledge does not guarantee that workers are obedient in using PPE. There is no guarantee that workers who have high knowledge will comply with using PPE because their knowledge only reaches a basic level. Putri (2019) also stated that this knowledge is knowledge that simply remembers the information received. The workforce's knowledge about PPE is high because the workforce only remembers information about PPE but has not yet reached the level of understanding and applying the use of PPE.

6. Nurse's Attitude

The results of the research showed that nurses' attitudes were mostly in the good category, namely 35 respondents (81.4%). This is shown from the research results, namely the tendency of respondents to use PPE during surgery in the form of wearing double gloves, wearing a face mask, wearing glasses to maintain personal safety, wearing a protective gown, and wearing protective shoes. The use of PPE in the operating room has its own standards compared to other services because the infection transmission rate is higher than in other service settings. Notoatmodjo (2016) explains that attitude is a tendency to take action. Attitude is also a closed response to stimuli. According to researchers, most of the respondents have a high attitude due to work demands according to standards so that respondents before working in the operating room must be mentally prepared that working in the operating room is different from in other rooms. Operating room nurses must be prepared with various standards and rules that must be followed obediently.

Research by Triningtyas (2021) found that nurses' attitudes were in the good category (63%). The good attitudes possessed by respondents were determined by personal characteristics such as age, gender and education. In this study the average age of respondents was 35.6 years, which is included in the adult and productive age categories. At this age the emotional level tends to be stable and there is a tendency to take actions in accordance with beliefs (attitudes). This research also found that the majority were women (65.1%), where women found it easier to follow the rules than men. Meanwhile, based on education, the majority were D III nursing graduates, where diploma education tends to prioritize skills so that they tend to prepare better attitudes in taking action (Ardini, 2018).

The results of the research showed that 7 respondents (16.3%) had a sufficient attitude of nurses and 1 respondent (2.3%) had a poor attitude. This is shown from the research results, namely that there is a feeling of emotional objection and a sense of distrust so that the components in forming actions are hampered as proven by the statement that the use of PPE becomes a burden and hinders the respondent's activities, both in the use of face masks, glasses, shoes and aprons. A lack of attitude is evidenced by a lack of sense of personal responsibility in the use of PPE, namely feeling objections when the type of PPE used interferes with providing services to patients. According to researchers, this lack of attitude is due to a different perception from nurses and the burden of using PPE so that this perception forms a lack of attitude.

Banda's research (2015) proves that the attitude towards using PPE is in the adequate category at 29.1% and the attitude towards inadequate is 70.9%. Triningtyas (2021) stated that attitudes that still need to be improved are the importance of implementing health protocols during work breaks, the effectiveness of protection using shoe covers, awareness of not lowering the mask below the chin when eating, and continuing to prioritize the use of appropriate PPE over comfort. This attitude is related to the individual's lack of response to the use of PPE as a work rule and standard so that they feel objectionable and interfere with activities and interactions with patients. Attitudes that are less related to a person's characteristics, namely based on gender, were found to be mostly male, 69.7%, whereas in this study, female gender was 30.3%. Men tend to have an attitude of seeking sensation so they tend to have a different attitude, this causes men to have a more negative attitude in taking action.

7. The Relationship between Knowledge and Nurses' Attitudes in Using Personal Protective Equipment During the Covid-19 Pandemic

The research results show that there isrelationship between knowledge and nurses' attitudes in using personal protective equipment during the Covid-19 pandemic at Mardi Rahayu Kudus Hospital

because the p value is 0.000 < 0.05 at a significance level of 5%. This relationship is shown in percentages vizAs many as 37 respondents with good knowledge had the most attitudes in the good category, 35 respondents (94.6%). Meanwhile, with moderate knowledge, 6 respondents found that the most attitudes were in the sufficient category, 5 respondents (83.3%). This relationship shows a positive nature where the better the knowledge, the better the attitudes formed. Attitudes are formed because they have knowledge and form confidence and responsibility towards these actions (Budiman, 2013).

This research is supported by previous research which found a relationship between knowledge and attitudes.Knowledge and attitude are predisposing factors that encourage health workers' behavior in using PPE. Good knowledge and attitudes influence the correct practice of using PPE, which is expected to provide optimal protection for health workers (Triningtyas, 2021). Attitudes in everyday life are emotional reactions to social stimuli. The operational attitude of using PPE is related to the reaction of nurses in the operating room to protect themselves from contracting disease due to surgical wounds or blood splashes. So this attitude determines a person's actions in complying with the use of PPE. Attitudes are also formed because of good knowledge (Zahara, 2017).

This research found respondents with good knowledge but with adequate attitudes of 5.4%. This shows that someone who has good knowledge does not necessarily have a good attitude because there are obstacles in forming attitudes such as the lack of a support system and the mental burden of nurses when working so that even though nurses have good knowledge, the attitudes formed are still low. Previous research by Ardini (2018) found that among respondents who had negative attitudes there were respondents who had good knowledge, and respondents who had sufficient knowledge also had negative attitudes towards the use of personal protective equipment at work. This is because nurses have a heavy workload tall. Purwanto (2014) states that all attitudes cannot necessarily be realized in an action because to realize an action, supporting factors such as facilities, means and other media are needed to make it easier for someone to take action.

Attitude formation must also be supported by good knowledge.Factors inhibiting its formation are due to lack of knowledge, psychological reactions such as laziness and low tolerance for change due to lack of support from outside the individual and supervision carried out by superiors (Sharma, 2014). The use of PPE is basically a technique for preventing disease transmission through splashes of blood/body fluids or droplets that can hit the nurse's body so be aware of transmission by using PPE (gloves and masks). Rizqullah (2021) stated that compliance with the use of PPE greatly influences disease transmission. Sari (2021) explains that efforts to prevent health workers from being infected with COVID-19 are to comply with infection prevention and control practices. These efforts include administrative, environmental, technical/engineering controls and the use of appropriate Personal Protective Equipment (PPE). PPE acts as a barrier. between infectious materials (e.g. viruses and bacteria) and the skin, mouth, nose or eyes.

CONCLUSION

Conclusion

1. Most nurses' knowledge is in the good category.
2. Most nurses' attitudes were in the good category.
3. There isThe relationship between knowledge and nurses' attitudes in using personal protective equipment during the Covid-19 pandemic at Mardi Rahayu Kudus Hospital.

Suggestion

1. Future researchers can conduct research on the relationship between knowledge and attitudes and PPE compliance with the incidence of Covid-19 infection using a more complete questionnaire.
2. Nurses are more active in participating in seminars or training in order to increase understanding of PPE and carry out procedures according to existing standards.
3. The hospital can provide regular seminar and training schedules (3 months), especially regarding the use of PPE according to appropriate procedures.
4. MakeresultsThis research is used as reference material for students and provides training on the use of PPE to nurses on duty in the operating room.

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