

Analysis of the Relationship Between Knowledge and Attitudes of Nurses on the Implementation of Universal Precautions During The Covid-19 Pandemic

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ABSTRACT

Universal precaution is an effort that is expected to reduce the risk of infection transmission to health workers, especially during the current pandemic. It aims to determine the relationship between knowledge and attitudes of nurses with universal precaution quality. A cross-sectional descriptive correlational study was conducted with 114 nurses. Simple random sampling was used for participant recruitment. Data was collected by questionnaire which was analyzed using Pearson correlation test. In this study, nurses have good knowledge and attitude about universal precaution. There is a strong relationship between the quality of knowledge ($p = 0.001$; strength of the relationship = 0.531). and universal precaution ($p = 0.001$; relationship strength = 0.491). This study confirms the relationship between nurses' knowledge and the quality of universal precautions. Education level seems to have the greatest influence, the results imply the need for nurses to have higher education.

Keywords: Covid-19, Universal Precaution, Knowledge, Attitude.

1. INTRODUCTION

In the era of the industrial revolution 4.0. people at the age of young adults have good health literacy, so it is hoped that nurses can match health literacy with qualified skills. Nurses need to provide optimal patient care. Every nurse in health care must have good nursing care. They must synergize with each other to improve the quality of service and hospital care, especially in universal precautions [1]. The COVID-19 pandemic has created fear around the world. It has been more than a year since the pandemic started until now there are signs of the case dropping [2]. Even in this one year there has been an increase in the number of confirmed and mutations of the Corona virus [3]. The existence of mutations causes the spread of the Corona virus faster. The spread of Covid-19 from human to human makes its spread very aggressive, so prevention efforts are needed [2]. Nurses are an integral part of health services, they provide patient-centered nursing care on a continuum of care to achieve optimal results so that they must have good clinical nursing [4].

Universal precaution is an effort that is expected to reduce the risk of infection transmission to health workers, especially during the current pandemic [1]. Coronavirus 19 is a disease from a large family of viruses that causes mild to severe illness, such as the common cold or the common cold and severe diseases such as MERS and SARS, so it requires special handling from biological, psychological, social and spiritual perspective [5]. The death rate for health workers, especially nurses due to exposure to Covid-19 is quite high, namely 103 people [6].

The application of universal precautions must be a concern and implemented by nurses in all hospitals in Indonesia [7]. As determined by the Indonesian Ministry of Health through the Decree of the Minister of Health of the Republic of Indonesia Number: 382/menkes/SK/III/2007 concerning Guidelines for Infection Prevention and Control in hospitals and other health care facilities. But in fact, from the results of a survey conducted by the Indonesian Ministry of Health and WHO to hospitals in provinces and districts/cities in Indonesia, there are still many regional hospitals that have not implemented infection prevention and control guidelines using the universal precautions method [8].

Data on the distribution of Covid in Indonesia as of 27 October 2020 Positive 396,454 Recovered 322,248 Died 13,512 with a total of 253 medical and health workers who died from being infected with Covid, consisting of 141 doctors, 9 dentists, and 103 nurses [9]. The problem of compliance with the

application of standard precautions in Indonesia is caused by limited facilities in infection control, for example, only a few hand washing facilities are available and if available sometimes without soap and towels [10]. Sometimes the availability of running water is also not available. In addition, alcohol-based hand sanitizers are not widely available and often lack gloves, gowns and masks [11]. Some nurses said they did not do self-protection due to lack of facilities such as insufficient gloves, hand washing soap ran out, this shows that the availability of facilities and infrastructure greatly affects nurses in implementing universal precautions [12].

The distribution of areas with the highest daily confirmed positive cases was in DKI Jakarta with the addition of 781 daily cases and a cumulative number of 102,678 cases. Followed by West Java with 390 cases and cumulatively reached 34,745 cases [6]. From these data, the role of the nursing profession is very important in handling COVID-19 patients. Nurses must obey in applying universal precautions to be safe and secure at work [13]. The purpose of this study was to analyze knowledge and attitudes with universal precautions in nurses at Binawan University, Jakarta.

2. METHOD

The design of this research is a cross sectional study, that is, this research was conducted with one observation of the research variables and within a certain period. This research is a quantitative research because it uses research data expressed in the form of numbers [14]. This research was conducted in September 2021 and was carried out after obtaining ethical approval from the Research Ethics Committee of the Faculty of Nursing, Binawan University, namely: 028/PE/FKK-KEPK/IX/2021. The population in this study are nurses who work and are currently undergoing education at Binawan University. Sampling in this study was done by simple random sampling.

Everyone in the population has the same opportunity to be a sample, using the Lameshaw formula, the sampling results are 114 nurses. The dependent variable studied was the knowledge and attitude of nurses regarding universal precaution, while the independent variable was quality in the application of universal precautions.

How to collect data using primary and secondary data. The collection of primary data obtained through the distribution and filling out of the questionnaire instrument through the google form was carried out to the nurses who had been selected to be the research

sample. Analysis of the data used is descriptive analysis which aims to present an overview of the frequency distribution of each research variable. And correlation analysis using Pearson's Correlation to see the relationship between variables.

3. RESULT

3.1 Characteristics of Respondents

Respondents in this study were nurses who worked in the Covid 19 ward and were currently in nursing education at the final level, namely the nursing profession. In this study, the characteristics of the respondents studied consisted of gender, age, education level and employment status. The percentage of respondents' characteristics can be seen in Table 1. Nurses who were respondents in this study were mostly female (81.6%), mostly aged 22-32 years (42.1%), education level was mostly at the level of Nursing Nurses (62.5%), and status most of the work contracts (59.7%).

Table 1. Frequency Distribution of Nurse Characteristics at Binawan University in 2021

Characteristics of Respondents	Frequency	Percentage (%)
Sex		
Male	21	18,4
Female	93	81,6
Age		
22–32 year	44	38,6
33–42 year	48	42,1
43–55 year	22	19,3
Education		
Diploma degree	36	31,6
Bachelor's degree	78	68,4
Employee		
Govern	46	40,3
Contract	68	59,7

Table 2. Frequency Distribution of Nurse Knowledge at Binawan University in 2021

Knowledge	Frequency	Percentage (%)
Good	104	91,2
Enough	10	8,8
Lack	0	0
Total	114	100

Table 3. Frequency Distribution of Nurse Attitude at Binawan University in 2022

Attitude	Frequency	Percentage (%)
Good	27	23,6
Enough	84	73,6
Lack	3	2,8
Total	114	100

Table 4. Frequency Distribution of Nurse Characteristics at Binawan University in 2021

Application of Universal Precaution	Frequency	Percentage (%)
Good	87	76,3
Enough	27	23,7
Total	114	100

Based on Table 4, the results of the distribution of the Frequency of Universal Precaution Application at Binawan University in 2021 show that most of the complaints of universal precaution in nurses are in the good category, namely 76.3%.

Table 5. Cross Tabulation between Gender and the Implementation of Universal Precaution at Binawan University in 2021

Sex	Implementation universal precaution					
	Enough		Good		Total	
	Σ	%	Σ	%	Σ	%
Male	10	47,6	11	52,4	21	100
Female	13	13,9	80	86,1	93	100
Total	23	20,1	91	79,9	114	100

Gender Relationship with Compliance in the Application of Universal Precaution. Gender is one of the factors that have a relationship with belief. Table 5 which shows cross tabulation between sexes with compliance in universal application precautions. The results of Table 5 show that there are more female nurses than male nurses. And female nurses mostly have good compliance (86.1%).

Table 6. Cross-tabulation between age and the application of Universal Precaution at Binawan University in 2021

Age	Implementation <i>universal precaution</i>					
	Enough		Good		Total	
	Σ	%	Σ	%	Σ	%
22-32	20	45,5	24	52,5	44	100
33-42	18	35,5	30	62,5	48	100
43-55	11	26,2	31	73,8	42	100
Total	23	20,1	91	79,9	114	100

The Relationship of Age with Compliance in the Application of Universal Precaution. The results of the research on the characteristics of the workforce regarding the cross tabulation between the age of nurses and in the application of universal precautions are in Table 6. Most nurses are in the 33–42-year-old group as many as 48 people. Most nurses aged 33–42-year-old have a good universal precaution application, which is 62.5%. Relationship Level of Compliance Education in the Implementation of Universal Precaution

The results of the research on the characteristics of respondents regarding cross tabulation between education level and the implementation of Universal Precaution can be seen in table 7.

Table 7. Cross Tabulation between Education Level and Universal Precaution

Level Education	Implementation <i>Universal Precaution</i>					
	Enough		Good		Total	
	Σ	%	Σ	%	Σ	%
Diploma degree	10	27,8	26	72,2	36	100
Bachelor's degree	27	34,6	51	65,4	78	100
Total	37	32,5	77	67,5	114	100

It is known that most of the respondents have the highest level of education found in nursing

bachelor's degree as many as 78 people and those who have the most compliance with the good category is 65.4%. It is mean that education have a good imply in nursing care at patient Covid 19 even though most of them were contract employee at hospital that has recruits as volunteer to take care the patient Covid 19.

Relationship of Employment Status with Compliance in the Implementation of Universal Precaution

Based on Table 8, it is known that most of the respondents (nurses) are non-government nurses (contract). This can be due to the large number of recruitments of nurse volunteers in treating patients with Covid 19, during this pandemic, the need for nurses to treat patients with Covid is very high as are the deaths of health workers (7).

Table 8. Cross-tabulation between employment status and Compliance in the Implementation of Universal Precaution at Binawan University in 2021

Status	Implementation <i>Universal Precaution</i>					
	Enough		Good		Total	
	Σ	%	Σ	%	Σ	%
Civil servant	3	6,5	43	93,5	46	100
Non-PNS	31	45,6	37	54,4	68	100
Total	34	29,8	80	70,2	114	100

Table 9. Relationship between Knowledge and Compliance in the Implementation of Universal Precaution to Nurses at Binawan University in 2021

Knowledge	Implementation universal precaution				Total		Pvalue	Pearson's
	Enough		Good		N	%		
	n	%	n	%				
Enough	4	40	6	60	10	100	0,0005	0,531
Good	15	14,4	89	85,6	104	100		
Total	19	16,7	95	83,3	114	100		

Table 10. Relationship between Attitude and Compliance in the Application of Universal Precaution to Nurses at Binawan University in 2021

Attitude	Implementation universal precaution				Total		Pvalue	Pearson's		
	Lack		Enough		n	%				
	n	%	n	%						
Good	4	14,8	3	11,1	20	74,1	27	100	0,001	0,491
Enough	3	3,6	19	22,6	62	73,8	84	100		
Lack	2	66,7	1	33,3	0	0	3	100		
Total	9	7,8	23	20,3	82	71,9	114	100		

3.2 Relationship of Knowledge with Quality in the Implementation of Universal Precaution

The relationship between knowledge and the implementation of universal precautions by nurses shows that nurses who have sufficient knowledge both have sufficient and good knowledge in the application of universal precautions (40%), while nurses who have good intentions tend to have good compliance in the application of universal precautions (85, 6%).

Based on statistical tests to determine the relationship of knowledge with the quality of universal precaution implementation using the Pearson test. The results of the Pearson test using the degree of significance = 0.05, then the p value = 0.0005, which means the p Value < α that H0 is rejected. The conclusion obtained is that there is a relationship between knowledge and the quality of applying universal precautions.

Based on statistical tests using Pearson's correlation between knowledge of the quality of applying universal precautions, the Pearson's value is 0.531 which indicates that the strong relationship between knowledge and application of universal precautions is moderate. The correlation value shown is positive. This means that the better the knowledge, the better the application of nurses in universal precaution.

Relationship of Attitude with the Application of Universal Precaution

3.3 Relationship of Attitude with Quality in the Implementation of Universal Precaution

The relationship between attitudes and the implementation of universal precautions by nurses shows that nurses who have sufficient attitudes both have sufficient and good knowledge in the application of universal precautions (22.6%), while nurses who have good attitudes tend to have good attitudes in applying good universal precautions. (74.1%) and those who have a lack attitude (66.7%).

Based on statistical tests to determine the relationship between attitudes and the quality of universal precaution implementation using the Pearson test. The results of the Pearson test using the degree of significance = 0.05, then the p Value = 0.001, which means the p value < α that H0 is rejected. The conclusion obtained is that there is a relationship between attitude and the quality of the application of universal precaution.

Based on statistical tests using the Pearson's correlation between attitudes and the quality of universal precaution, the Pearson's value is 0.491 which indicates that the strong relationship between attitudes and the application of universal

precautions is moderate. The correlation value shown is positive. This means that the better the attitude, the better the nurse's application in universal precaution.

4. DISCUSSION

4.1 Knowledge

The knowledge and behavioral attitudes referred to in this study are the desires possessed by nurses to tend to apply Universal Precaution (UP) based on the knowledge possessed by each nurse. Based on Table 2 shows that most of the knowledge of nurses included in the good category as many as 89 nurses (85.6%). Knowledge is the main factor that influences individuals to behave and behave primarily in performing nursing care. Nurses in Indonesian Ministry of Health regulations on number 49 have several levels that place themselves when carrying out nursing care and this is also related to the level of knowledge possessed by nurses. The level of knowledge of nurses affects the quality of nursing care and has an impact on the quality of hospital services [15].

4.2 Attitude

Universal precautions are guidelines made for infection control processes. Currently nursing is focusing on treating patients with Covid 19. A person's attitude in acting, thinking, deciding greatly affects the outcome of a nursing care and impacts the quality of health services in hospitals, therefore the attitude of nurses in their care has an impact on self and patient safety so that All nurses must have a good attitude, including the application of universal precautions to achieve personal and patient safety and the quality of care.

4.3 The Relationship of Gender with the Application of Universal Precaution

Based on gender characteristics, it shows that most of the respondents consist of women, which is 76.6%. The results of this study have similarities with those proposed by Gemuhay (2019) [16] that the gender of nurses is mostly female, because historically nursing has played a role in traditional care taking in families and communities [17].

4.4 The Relationship of Age with the Application of Universal Precaution

The highest proportion of age among respondents is 33–42 years old, which is 67.5% (productive category). The results showed that workers aged 33–42 had good compliance in the application of universal precaution, which was 62.5%. Age at the adult stage, tends to show a better level of cognitive development, especially in critical and creative thinking skills and a responsible attitude towards actions in making decisions [18].

4.5 Relationship between Education Level and Universal Precaution

The education referred to in this study is the last formal education level completed by nurses as respondents. Based on Table 6 shows that as many as 67.5% of respondents with Nurse Education have a good universal precaution application. One's education is closely related to one's intellectual abilities. Intellectual ability is the ability used to perform various mental activities such as reasoning, analyzing, solving problems, and thinking [19].

A nurse with a competency level qualification of nursing education in terms of cognitive, affective, and psychomotor aspects is expected to be able to provide nursing care for Covid 19 patients and pay attention to standard operating procedures that apply to the hospital environment [20].

4.6 Relationship of Employment Status with Universal Precaution Implementation

Work status is the work status of nurses at work, namely as state civil servants (ASN) and contract/honorary/non-PNS workers. Based on the research, nurses whose contract, mostly have a good level of universal precaution application, which is 54.4%.

4.7 Relationship of Knowledge and Attitude with Application of Universal Precaution

Nurses in this study on average had quite good knowledge (71.4% of the maximum value). Nurses also showed good knowledge [21]. Universal precautions are infection control measures carried out by all health workers to reduce the risk of spreading infection and are based on the principles of: that blood and body fluids can potentially transmit disease, both from patients and health workers [3]. The universal precautions procedure

aims to protect health care workers, patients and staff from exposure to infectious objects during treatment procedures [11]. Prevention includes patient evaluation, personal protection, instrument sterilization, surface disinfection, use of single-use tools, and handling of medical waste [22]. So, there must be guidelines to prevent the possibility of cross-infection, namely COVID-19, both to health workers and to patients during the treatment period.

This guideline is called universal precautions which need to be monitored for its implementation by hospital management to ensure that health workers are not exposed to Covid 19 when nursing care is carried out either in inpatient or outpatient. However, the concept of inpatient care management as primary nursing gives nurses autonomy to manage their patients independently and cooperate so that universal precautions are needed in nursing [23]

In the application of universal precautions, health workers, in this case nurses, provide information about the patient's physical, psychosocial, and spiritual conditions, as well as support patient planning and implementation and increase the effectiveness of teamwork. Health development aims to achieve optimal health status, one of the efforts is to prevent the spread of infection [24]. Nurses as professional registered nurse (RN) play a role in preventing the spread of infection, one of which is by applying universal precautions to prevent cross infection [25]. As RN, nurses often make direct contact with patients so they are expected to have good knowledge of universal precautions by applying them in every nursing care [22].

Universal precaution is an approach that focuses on the goal of protecting patients and health workers from all mucus fluids and body substances (secretions and excretions) that have the potential to infect not only blood [26]. Universal Precaution is a precautionary guideline for infection prevention that can reduce the risk of transmission of infection from patients to health workers regardless of infection status to reduce exposure to infections including COVID 19 [27].

From the observations of researchers, a minimum of 40 hours of nurses in close contact with patients in hospitals so that the application of

universal precautions must be carried out to prevent the increasing number of health workers, especially nurses. In Indonesia, until October 2020 there were 103 nurses who died [9] due to being infected with COVID. The spread of COVID19 has a case fatality rate (CFR) of 8.4% [28]. Therefore, nurses are expected to have sufficient knowledge so that they have a positive attitude in applying care to patients according to standard operating procedures based on the universal precaution principle [29].

Knowledge is a very important domain for the formation of one's behavior (overt behavior) while behavior is a person's response to a stimulus that comes from outside or from within a person. Bloom, (divides behavior into three domains, namely cognitive, affective, and psychomotor which are developed in knowledge, attitudes, and actions [14]. Knowledge is influenced by internal (from within) and external (from outside) factors. Internal factors include age, education, and experience, while internal factors include environment, information, and social. This ever-growing knowledge is acquired through interactions with clients and other individuals, introspection, reflection, and analysis. Therefore, nurses need to apply basic knowledge through critical thinking, psychomotor skills, and interpersonal actions [17]. This knowledge is used to help clients achieve their optimum health potential by not forgetting the principles of universal precautions.

WHO issued six priority strategies, which will be carried out by the government to overcome the pandemic? The strategy is as follows: Expand, train, and employ Health workers optimally; Implement a system to find suspected cases; Increase test production and increase availability; Identify facilities that can be transformed into health care facilities for the corona virus; Develop a plan for case quarantine; and refocusing government measures to suppress the virus so that we have an important role in suppressing the spread of COVID19 infections. From the first strategy, it appears that health workers are the focus where the application of universal precaution is one of the issues that must be considered by hospital services [3].

The hospital's efforts in infection control are both to protect patients and staff by applying universal precautions [5]. Universal precautions

(UP) are guidelines made by the Centers for Disease Control and Prevention (CDC) and the Occupational Safety and Health Administration (OSHA). Infection prevention efforts can improve the quality of health services. Universal precautions consist of various actions consisting of washing hands as a prevention of cross infection [1].

Use of PPE such as gloves, masks, protective eyewear, face shields and aprons to prevent possible splashes from the patient's body; management of sharps (there is a special place to accommodate syringes, used ampoule bottles, and others); sterilization of medical devices; waste management; linen management [3]. The attitude and behavior of nurses to comply with the application also affects the incidence of infection with the disease. Universal precaution is seen as very important in infection prevention efforts and can reduce the exposure of nurses to COVID-19 and be able to improve the quality of nursing care services [30]

Nurse leaders can improve the quality of nursing care documentation. Nurse leaders also provide direction for nurses in providing nursing care, which in turn can increase nurse job satisfaction and [31]. This study found that nurses' knowledge had a strong positive correlation with the quality of universal alertness. This result is in line with Dewi's finding that universal awareness is influenced by nurses' knowledge [17]. In providing information, nurses must analyze, interpret, and explain information relating to patients and other relevant matters. Knowledge can affect the way nurses provide nursing care to patients, especially in the Covid 19 Ward [32].

The results of the study also showed a significant relationship between knowledge and attitudes. These results agree that nurses with good knowledge can improve the quality of care. Attitude ability can greatly affect patient outcomes, and low ability can contribute to errors. The nursing process is influenced by the nurse's ability to decide nursing care needed by nurses. Therefore, the clinical decision-making ability of nurses must be improved and maintained when nurses treat patients daily.

5. CONCLUSION

This study confirms the relationship between nursing knowledge and attitudes with the quality of implementing universal precautions in nursing care of Covid 19 patients. The results of the study imply the need for nurses to have higher education. Managers in hospitals can use the results of this study to inform policy makers about the education and training needs of nurses

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