



Analysis Of Nurse Obedience in The Standard Precautions of Healthcare Associated Infections (HAIs)

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Abstract

The prevalence of healthcare associated infections (HAIs) is increasing which caused by higher morbidity and mortality rates. Efforts are made to prevent and control the transmission of disease from patients to health care workers or vice versa is the application of Standard Precautions. This study determined the analysis of standard precautions obedience to prevent HAIs at Nahdlotul Ulama (NU) Demak hospital. This research was a quantitative with cross sectional design. The population were nurses at NU Demak hospital, and based on purposive sampling technique, there were 67 respondents. Data analysis uses Pearson Product Moment and Linear Regression. The results of this study indicate that partially influence of independent variables on standard precautions to prevent HAIs, namely in education ($p = 0,000$), knowledge ($p = 0,000$), training ($p = 0,000$), facility ($p = 0,000$), support get ($p = 0,000$) and supervision ($p = 0,000$). These results indicate that all variables have a positive effect on nurses obedience with standard precautions preventing HAIs at NU Demak hospital. The effect simultaneously gets a p value of $0,000$, which means that there is a simultaneous influence of the independent variable on nurses obedience in standard precautions to prevent HAIs.

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INTRODUCTION

The services provided by the hospital must focus on patient safety so that patients recover from their illnesses and get healthy again without complications. Infectious disease as a result of the process of health care or Healthcare Associated Infection (HAIs) is one of the health problems in various countries in the world, including Indonesia. According to WHO (World Health Organization) research at hospitals originating from 14 countries in four regions (regional), the incidence of infection reaches 8.7% of patients. In a certain period of time as many as 1.4 million people in the world experience HAIs. The incidence of HAIs in the United States in 2011 reached 722,000 patients, as many as 75,000 patients died from HAIs. The incident was found in officers more than 8 million exposed to blood or other bodily fluids. The most contamination pathway is through the type of wound contact with contaminated sharp instruments such as needles, instruments and scalpels (82%), contact with mucous membranes of the eyes, nose or mouth (14%), exposed to peeling or damaged skin (3%).

The prevalence of HAIs is increasing which is at risk of higher morbidity and mortality rates. The USA Centers for Disease Control (CDC) states that 36% of infections acquired during treatment can be prevented through strict management in treating patients (Soedarto, 2016). Efforts are made to prevent and control the transmission of disease from patients to health care workers or vice versa is the application of Standard Precautions or Standard Precautions (Menkes RI, 2017). The main components of the Standard Precautions include hand hygiene, the use of tools namely hand hygiene, personal protective equipment (PPE), decontamination of patient care equipment, environmental health, waste management, linen management, health protection for officers, placement of patients, hygiene respiration (cough and sneezing ethics), safe injection practices and safe lumbar puncture practices. Vigilance of this standard is regulated and made standard operating procedures that must be obeyed by nurses.

Nurse obedience is a problem in implementing vigilance standards. Standard precautions must be taken because they are prone to contracting infections, especially linen and uniforms as a dangerous medium of transmission. Nurses are also at risk of being pricked by syringes (Motaarefi et al., 2016). Bacteriological picture of nurses hand 20% positive found staphilococcus epidermidis and enterobacter aerogenes (Zuhriyah, 2014). Standard precautionary measures as an effort to prevent transmission of infection. Other studies have shown that washing hands (5 moments) prevents infection. Nurse obedience in service facilities is still minimal (36%) (Fauzia et al., 2014).

Obedience in the implementation of this standard precaution reflects a nurse's behavior which is determined by individual, organizational and psychological factors. A study proves that obedience is associated with a management role (Satiti, 2017). The predictors of standard vigilance obedience include aspects of perceived benefits, perceived constraints, perceived severity, perceived vulnerability and action cues. Nair (2014) proves that knowledge and attitude determine the act of washing hands in nursing students. Nurse obedience in infection prevention found 47.3% was not compliant due to ineffective leadership (Saragih, 2015).

Performance factors in infection prevention and control are influenced by training (sig. 0.07), supervision (sig. 0.001), motivational factors are not related (sig. 0.126) (Mustariningrum & Koeswo, 2015). Other studies have shown that adherence to hand washing is associated with knowledge (p value 0.035) and attitude (p value 0.035) (Amalia & Widagdo, 2016). Hand washing obedience is related to the socialization program. Research (Sujianto, 2014) gained good knowledge of 70.5%, training and availability of good facilities 62.1%, heavy workload of 55.8%, nurse obedience level of 69.5% stated obedience. Variables related to obedience are knowledge and tools. Knowledge forms an understanding that will increase obedience so that it can prevent infection (Ahsan, 2015). Research (Purnomo, 2015) proves that there is a relationship between work safety climate,

leadership support, management commitment and shared information on obedience with the implementation of standard precautions (OR 0.436).

Obedience is an action in accordance with the procedure. Obedience is determined by predisposing factors (individual characteristics, knowledge, attitudes and beliefs), enabling factors (health facilities and facilities) and reinforcing (attitudes, behaviors and support). The results of the study prove that individual characteristics are not related to the application of universal precautions. Perceptions of the completeness of infrastructure and perceptions of nurses' self-abilities relate to nurses' behavior in the application of universal precautions. Research shows that training, work motivation, and supervision are strongly related and have a significant effect on the performance of IPCLN (Mustariningrum & Koeswo, 2015). Standard precautions are determined by socialization (Jamaluddin et al., 2012). The facility determines infection prevention and control (Herman & Handayani, 2016).

Obedience studies in standard precautions have not been carried out as a whole. Research at Roemani Hospital Semarang in 2017 proves the implementation of standard vigilance that is less proven by nurses assuming that not all measures require hanson and masks so that the use of masks and handscons is not carried out obediently. Banyumas Hospital research also shows that some nurses do not comply with standard precautions. Research at RSUP dr. Kariadi found 30.5% of nurses were not compliant in standard vigilance (Sujianto, 2014). Obedience is an interesting theme in the implementation of standard precautions. Precaution standards must be carried out by all officers in providing services to patients.

METHODS

This research is a quantitative research which is correlational type. The research approach used a cross sectional research design. The population in this study were 81 nurses in the Islamic Nahdlotul Ulama Hospital Demak. The

sampling technique of this research was Purposive Sampling. Calculation of sample size with Slovin formula so that the sample size of 75 respondents. The independent variables in this study were education, training, knowledge, supervision, management support and infrastructure. The dependent variable of this study was obedience with implementing precautionary standards for HAIs. The instrument in this study was in the form of a questionnaire. Bivariate data analysis uses Pearson Product Momment and multivariate analysis uses Linear Regression.

RESULTS AND DISCUSSION

Distribution of Respondent

Characteristics of respondents known the average age of respondents is 31.0 years. The most sexes were 46 female (61.3%) and 29 men (38.7%). The most work tenure is in the category of 5-10 years with 29 respondents (38.7%) and >10 years with 8 respondents (10.7%) as shown in Table 1.

Table 1. Distribution of Respondent

Characteristics	Frequency	Percentage
Age		
< 30 Year	34	45.3
30-40 Year	39	52.0
> 40 Year	2	2.7
Gender		
Male	29	38.7
Female	46	61.3
Working Period		
< 5 Year	38	50.7
5-10 Year	29	38.7
> 10 Year	8	10.7

The distribution of research variables are shown in Table 2. The most education is D3 Nursing as many as 55 respondents (73.3%) and graduates of S1 Nursing as many as 20 respondents (26.7%). The most training variables were 45 respondents (60%) and 30 respondents (40%) had not yet participated. The knowledge variable at most good categories were 38 respondents (50.7%) and at least the knowledge category lacked as many as 16 respondents (21.3%). The supervision variable was at most good categories with 54 respondents

(72%) and less categories with 21 respondents (28%). The most complete variable variables are 53 respondents (70.7%) and incomplete categories are 22 respondents (29.3%). The most support variable is good category with 50 respondents (66.7%) and less categories with 25 respondents (33.3%). The variable of obedience in standard precautions prevents HAIs from the most obedient as many as 48 respondents (64%) and less categories as many as 27 respondents (36%).

Table 2. Distribution of Research Variables

Variable	Frequency	Percentage
Education		
D3- Nursing	55	73.3
S1- Nursing	20	26.7
Training		
Not Yet	30	40.0
Followed	45	60.0
Knowledge		
Less	16	21.3
Medium	21	28.0
Good	38	50.7
Supervision		
Less	21	28.0
Good	54	72.0
Facilities		
Incomplete	22	29.3
Complete	53	70.7
Supports		
Less	25	33.3
Good	50	66.7
Obedience		
Less	27	36.0
Obedient	48	64.0

The results in this study on independent variables of standard precautions prevent HAIs, namely in education getting a p value of 0,000, in knowledge getting a p value of 0,000, in training getting a p value of 0,000, in the means of getting a p value of 0,000, in support getting a p value of 0,000 and on supervision get a p value of 0,000. These results indicate that all variables have a positive influence on nurses' obedience with standard precautions to prevent HAIs at NU Demak Hospital.

Regression test results obtained a value of r 0.949 indicating a very strong influence of the independent variables on the dependent variable.

Regression analysis also explains the determination used to determine the percentage contribution of the influence of the independent variable (X) simultaneously on the dependent variable (Y). This coefficient shows how big the percentage of variation of the independent variables used in the model is able to explain the variation of the dependent variable. These results are shown from the value of R Square which is equal to 0.900 which means that 90% obedience is influenced by these factors. While the remaining 10% is influenced or explained by other variables not included in this research model.

Effect of nurse education level on obedience with standard precautions preventing Healthcare Associated Infections (HAIs)

The results of the study get the most education is D3 Nursing as many as 55 respondents (73.3%) and graduates of Nursing S1 as many as 20 respondents (26.7%). The level of education influences nurses' obedience in the standard precautions preventing Healthcare Associated Infections (HAIs) at NU Demak Hospital (r 0.452, p value 0.000). A nurse with a qualification of nursing education level Diploma III in competence both from cognitive, affective, and psychomotor aspects is expected to be able to carry out their duties and responsibilities in providing nursing services to patients in accordance with operational standard procedures that apply to the local work environment including the application of universal precaution.

This study is different from the Basuni (2019) which proves that education is not a significant relationship with universal precaution practices for infection prevention. This is due to the level of education of nurses between professions and vocational have the same level of skills and abilities in conducting universal precaution. Puspitasari (2019) proves that education influences universal awareness. One's education is related to one's intellectual abilities. Intellectual ability is the ability used to perform various mental activities such as reasoning to analyze, solve problems and think. Sagita (2018) proves that most respondents who

take universal precaution are D III Nursing graduates.

Kamil (2016) also shows that the most education is D III Nursing. Kartika (2017) which shows that nurses' education level influences nurses' performance in health services. Putri et al. (2018) proves that education is related to obedience with the use of PPE. Education has contributed to the implementation of universal precaution and determines the level of competence of nurses, where the higher the level of education determines the optimal ability of service. Putri et al. (2018) proves that education is a dominant factor in obedience with the use of PPE in nurses.

Effects of training on obedience with standard precautions preventing HAIs

The results of the study received the most training had participated as many as 45 respondents (60%) and who had not participated as many as 30 respondents (40%). The results of the analysis get a p value of 0,000 and a calculated r value of 0.805. These results indicate a very strong effect of training on adherence to the standard precautions preventing HAIs. The training will increase the nurse's knowledge and awareness before taking care of the patient. This training must be conducted periodically so as to be able to form safe actions while providing care to patients and be able to improve the implementation of universal precaution. Training is also an effort to improve the quality of services as well as a form of legality of practice (Licensed Practical Nurse).

Mpamize (2016) explains that training is related to universal precaution (OR, 18.52, C.I = 1.74-197.28, P = 0.016). Johnson et al. (2019) explained that training is an effort to increase nurses' skills in using PPE. Banaser et al. (2019) states that prevention to protect the transmission of microorganisms and reduce the possibility of transmission of infection is known as standard precautions. Morais et al. (2015) explained that a well-conducted training would improve nurses' knowledge and skills. Aung (2017) explained that every health facility must have an infection prevention and control program for health workers

through continuous training. Obi et al. (2017) states that in health facilities each nurse has not all received training on the use of PPE and sharps management as universal precautions and nosocomial infection control procedures that are closely related to transmission of infectious diseases.

Effect of nurse's level of knowledge on obedience with standard precautions preventing HAIs

The results of the study gained knowledge at most good categories of 38 respondents (50.7%) and at least knowledge categories lacked as many as 16 respondents (21.3%). These results provide a conclusion that in general the level of knowledge of respondents is a good category because of universal precaution as a guide that must be done so that the material (information) is often accepted since they were still in education. This stimulus process shows repetition (repetition) and attention from the respondent so that the respondent is easy to understand hand washing procedures and other actions. Some respondents with a moderate level of knowledge and lack of category due to respondents not paying enough attention to the surgical hand washing procedure items that finally there are items that are forgotten.

Fayaz et al. (2014) research shows that most respondents have less knowledge and low universal precaution practices. Putri et al. (2018) explained that the majority of the workforce did already have good knowledge but in reality good knowledge did not guarantee workers were compliant to use PPE. Kartika (2017) prove that knowledge is the most influential factor in universal precaution. Parwata (2017) proves that nurses' knowledge is in some categories good in the implementation of hand washing. The results of this study are in line with research by Kale et al. (2012) which states that there is a significant relationship between knowledge and obedience with universal precautions (P value = 0,000) and there is a significant relationship between knowledge and the behavior of applying universal precautions (P value = 0,000). Noviana (2017) shows that health workers' understanding of universal precaution is still lacking and is at risk of

becoming infected with HIV / AIDS. This is due to officers not getting the right information in universal precaution. Research by Fayaz et al. (2014) also proves that knowledge influences universal awareness. Sagita (2018) explains that universal precaution as a realm of action (performance) based on knowledge will be better than lack of knowledge.

Faidah (2015) proves that knowledge influences the implementation of universal precaution. Research conducted by Amalia & Widagdo (2016) and Wuisan (2017) shows that knowledge determines obedience with the application of hand washing. Mpamize (2016) explains that knowledge as a universal precaution factor (OR = 65.97, C.I = 6.23-698.96, P = 0.01). Obedience behavior as a form of universal precaution service standards (Singh, 2016). Sharma (2014) explains that the inhibiting factors for actions are caused by inadequate knowledge, psychological reactions such as laziness and tolerance to change low due to lack of external support from individuals and supervision by superiors (supervision). For this reason, it is necessary to identify the factors of nurse performance so that management can make better plans to improve nurse obedience and conduct ongoing evaluations.

Effects of supervision on obedience with standard precautions preventing HAIs

The results of the study got the most supervision for both categories of 54 respondents (72%) and less categories of 21 respondents (28%). The results of the analysis obtained a p value of 0,000 and a calculated r value of 0.831, this indicates that supervision has a significant effect on obedience with standard precautions. Supervision carried out by the nursing manager or head of the room properly and continuously can ensure the provision of nursing care in accordance with the standards of nursing practice. Supervision covers all activities that management believes will help achieve administrative objectives. Activities that are an integral part of supervision in nursing include reporting, division of tasks, giving direction, observation, assessment, guidance, and education.

Faidah (2015) proves that supervision is related to the implementation of universal precaution (p 0.045) and explains that nursing supervision aims to ensure that all patients receive care patients accordingly. Supervision must be done routinely, Kasim (2017) proves that supervision is one of the factors that influence individual obedience in the use of personal protective equipment. Basuni (2019) explains that supervision influences the practice of universal precaution. The role of the head of space in the supervision of the category head of space is less than 4.8%. A well-run patient safety program is supported by the role of the nursing manager through supervision activities. Marheni (2016) also gives clear results that the application of patient safety culture is determined by the supervision of the head of the room.

Influence of infrastructure on obedience with standard precautions preventing HAIs

The results of the study obtained the most complete facilities by 53 respondents (70.7%) and incomplete categories by 22 respondents (29.3%). The results of the study obtained a p value of 0,000 and a calculated r value of 0.831. These results indicate the influence of serana on nurse obedience in the implementation of universal precaution. Amoran et al. (2013) explained that the first set of prevention guidelines to protect health workers and patients from microorganism transmission and reduce the likelihood of transmission of infectious diseases now known as standard precautions, one component is washing hands. Nurse obedience in washing hands still needs to be improved. This is due to several factors which are related to knowledge, facilities, years of service and high workload.

Universal precautions are created and must be applied to protect anyone against accidents that can occur. Amoran et al. (2013) provides recommendations that officers must have good knowledge about preventing transmission of infection, behaving and acting properly in taking every action. Moni (2015) proves that the means are related to the implementation of universal precaution. Basuni (2019) asserts that complete

facilities are also very important in the implementation of universal precaution. The results of this study are in line with Romadhoni (2014) which states that there is a significant relationship between the availability of facilities towards the implementation of universal precaution in childbirth assistance (P value = 0.002). Availability means the readiness of a facility in the form of labor, goods, capital, and budget to be used at the specified time.

Effect of management support on obedience with standard precautions preventing HAIs

The results of the study received the most support from both categories of 50 respondents (66.7%) and less categories by 25 respondents (33.3%). This study also obtained a p value of 0,000 and a calculated r value of 0.943, which means that management support had a very strong effect on obedience with standard precautions preventing HAIs. Support is help that individuals receive from other people or groups around them, by making the recipient feel comfortable, loved, and valued. The operational concept of social support is perceived support, which has two basic elements including the perception that there are a number of other people that someone can rely on when needed and the degree of satisfaction with existing support.

Puspitasari (2019) explains that good obedience reflects the magnitude of one's sense of responsibility for the tasks assigned to him. Nair (2014) received universal precaution 31% (4 respondents) while 69% (9 respondents) were disobedient, hand washing, which was 31% (4 respondents), 69% (9 respondents) did not. Iswanti (2017) proves that the provision of support in the form of fulfillment of facilities, the provision of rewards and technical guidance has an influence on the obedience of the implementation of universal precaution. Yusnita (2017) proves that obedience with the use of PPE as a form of action follows predetermined instructions (procedures). Providing support makes it easy to implement universal precaution. For this reason, a strategy is needed for health service organizations to provide proportional support in increasing obedience.

CONCLUSION

The conclusions in this study show that education, training, knowledge, supervision and support have a positive influence on nurses' obedience with standard precautions preventing HAIs. The results of the regression equation get $Y = (-0.034) + 0.096$ (Education) + 0.149 (Training) + 0.028 (Knowledge) + (-0.039) Supervision + (0.033) Facilities + (0.825) Support.

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