THE RELATIONSHIP BETWEEN KNOWLEDGE, TRAINING, AND INFRASTRUCTURE ON THE COMPLIANCE OF HEALTH WORKERS IN APPLYING STANDARD PRECAUTIONS IN HOSPITALS

Nabilatul Fanny[1], Devi Pramita Sari[2], Alifah Sari Nugraini[3]
Faculty Of Health/Duta Bangsa Surakarta University[1], Faculty Of Health/Duta Bangsa Surakarta University[2], Faculty Of Health/Duta Bangsa Surakarta University[3]
Correspondence Email: nabilatul@udb.ac.id[1], devi_sari@udb.ac.id[2]

ABSTRACT

Compliance with standard precautions among health workers in hospitals is currently still low. Based on the preliminary survey, it is known that the IPCLN has been formed and the PPI program has been created. The infection data found that there was one nurse who was positive for HBsAg, supervision was limited to service matters. The research objective was to determine the relationship between knowledge, training, and infrastructure on the compliance of health workers in applying standard precautions in hospitals. This type of research is a quantitative research that is correlational, with a cross-sectional research design. The population is all nurses in the emergency room, inpatient and outpatient settings. Sampling was taken using Purposive Sampling technique, the sample size was 163 respondents. Univariate and bivariate data analysis. The results showed that 66.2% of respondents had good knowledge, 70.6% had attended training, and 77.3% of respondents answered that the infrastructure was good. Bivariate analysis showed that the knowledge variable had a P value = 0.001 (<0.05), the training variable had a P value = 0.000 (<0.05), and the infrastructure variable had a P value = 0.000 (<0.05). The conclusion is that there is a relationship between knowledge, training, and infrastructure on the compliance of health workers in applying standard precautions. Suggestions that health workers should always apply standard precautions, hospitals can provide ongoing training and education to improve care adherence to standard precautions.

KEYWORDS Standard precaution, Healthcare Associated Infections (HAI's)

INTRODUCTION

Nosocomial infection is one of the occupational risks faced by health workers in hospitals. Blood and body fluids are a medium for disease transmission from patients to health workers. Human Immunodeficiency Virus, Hepatitis B and Hepatitis C Virus are the biggest threat to health workers. The incidence of infectious diseases in hospitals is considered a serious problem because it threatens the health and safety of patients and health workers globally, apart from that, the incidence of these infections also has an impact on the quality of health services and improvement of health services (Yusran, 2008). Health workers are at risk of exposure to infection transmission originating from known or unknown sources of infection such as contaminated objects, used syringes and other sharp objects. The incidence of exposure to microorganisms observed among all health workers with the highest exposure was nurses (Efstathiou, et. al., 2011).

Standard precautions are precautions that are designed to be applied routinely in the care of all patients in hospitals and health care facilities, whether those who have been diagnosed, suspected of being infected or colonized (Menkes RI, 2017). This action is implemented to prevent cross-transmission before the patient is diagnosed, before the results of laboratory tests are available and after the patient is diagnosed (Soedarto, 2016). According to the CDC and HICPAC (2007) recommend 11 (eleven) main components that must be implemented and complied with in standard precautions, namely hand hygiene, Personal Protective Equipment (PPE), decontamination of patient care equipment, environmental health, waste management, linen management, health protection staff, patient placement, respiratory hygiene/coughing and sneezing ethics, safe injecting practices and safe lumbar puncture practices (Menkes RI, 2017).

Meanwhile, the definition of compliance is behavior in accordance with the rules (Niven, 2008). Studies show that adherence to Standard Precautions among health workers to avoid exposure to microorganisms is still low (Metha, et. al., 2010 in Ayu Sahara, 2011). In Indonesia, low adherence to standard precautions is caused by limited facilities for infection control, for example handwashing facilities in wards are only a few available and sometimes without soap or towels when available. Sometimes running water is also not available. Additionally, alcohol-based hand sanitizers are not widely available and there is often a shortage of gloves, gowns and masks.

In many hospitals, containers for sharps disposal are often not available (Duerink, et. al., 2006). According to Dejoy (1995; 1996; 2000) in Brevidelli and Tamara (2009) adherence to standard precautions can be seen from three levels, namely: individual/worker, task and work dynamics, and organizational context. The first level describes the health of workers with their personal characteristics and work experience. At the second level, describing their work duties and the dynamics of their occupational health, where the demands of health workers to care for patients compete with their personal safety. The third level describes the organizational context, where the organization may have safety culture values and leadership support to support the application of standard precautions.

Based on a preliminary survey conducted by researchers, it is known that IPCLN (Infection Prevention and Control Link Nurse) has been formed and an Infectious Disease Control and Prevention (PPI) program has been created. The application of standard precautions that must be carried out by all officers in providing services to patients has also been carried out. Data from the 2022 PPI recorded compliance with hand washing of 78%,

use of PPE according to SOP 70%. The infection data found that 1 nurse was positive for HBsAg, supervision was limited to service issues, there was no PPI education program.

Based on the description above, the author is based on conducting research entitled the relationship between knowledge, training and infrastructure on the compliance of health workers in implementing standard precautions in hospitals.

RESEARCH METHOD

This type of research is a quantitative research that is correlational, with a cross-sectional research design. The independent variables consist of knowledge, training and infrastructure. Meanwhile, the dependent variable in this research is the compliance of health workers in implementing standard precautions. The population in this study were all nurses who worked in emergency rooms, inpatient installations, and outpatient installations. The sampling method was carried out using a purposive sampling technique, so the sample size was 163 respondents. Data analysis was univariate (frequency distribution) and bivariate analysis (Chi-Square test) with P Value < α (0.05).

RESULT AND DISCUSSION

Characteristics of Respondents

The characteristics of the respondents are the criteria given to the research subjects, so that the sources of information in the research are properly targeted. The distribution of the characteristics of the respondents in this study were age, gender, education, and length of work as described in the following table.

Table 1. Characteristics of Respondents Based on Age

No.	Age	Frequency	Percentage
1	21 – 30	75	46,0%
2	31 – 40	65	39,9%
3	41 – 50	23	14,1%
Total		163	100%

Based on table 1, it can be seen that the age of most respondents was 21 - 30 years, with 75 respondents (46,0%).

Table 2. Characteristics of Respondents by Gender

No.	Gender	Frequency	Percentage
1	Man	57	35%
2	Woman	106	65%
Total		163	100%

Based on table 2, it can be seen that the sex of the most respondents was female as many as 106 respondents (65%).

Table 3. Characteristics of Respondents by Education

No.	Education	Frequency	Percentage
1	D3 Nursing	112	68,7%
2	S1 Nursing	51	31,3%
Total		163	100%

Based on table 3, it can be seen that the education of the most respondents is D3 Nursing as many as 112 respondents (68.7%).

Table 4. Characteristics of Respondents Based on Years of Service

No.	Years of Service	Frequency	Percentage
1	<5 Years	65	39,9%
2	5 – 10 Years	82	50,3%
3	>10 Years	16	9,8%
	Total	163	100%

Based on table 4, it can be seen that the longest working period of the respondents was 5-10 years as many as 82 respondents (50.3%).

Univariate Analysis

The univariate analysis describes compliance variables, knowledge variables, training variables, and facilities and infrastructure variables which are displayed in the form of a frequency distribution table. The results obtained are as follows.

Table 5. Distribution of Respondents Based on Compliance

No.	Compliance	Frequency	Percentage
1	Obey	27	16,6%
2	Not Obey	136	83,4%
	Total	163	100%

Based on table 5, it can be seen that the majority of respondents have adhered to standard precautions in hospitals, namely 136 respondents (83.4%).

Table 6. Distribution of Respondents Based on Knowledge

No.	Knowledge	Frequency	Percentage
1	Good	108	66,2%
2	Currently	36	22,1%
3	Not Enough	19	11,7%
	Total	163	100%

Based on table 6, it can be seen that most of the respondents have good knowledge of standard precautions in hospitals, namely 108 respondents (66.2%).

Table 7. Distribution of Respondents Based on Training

No.	Training	Frequency	Percentage
1	Have Attended Training	115	70,6%
2	Have Not Attended Training	48	29,4%
	Total	163	100%

Based on table 7, it can be seen that the majority of respondents had attended training on standard precautions in hospitals, namely 115 respondents (70.6%).

Table 8. Distribution of Respondents Based on Infrastructure

No.	Infrastructure	Frequency	Percentage
1	Good	126	77,3%
2	Not Good	37	22,7%
	Total	163	100%

Based on table 8, it can be seen that the majority of respondents answered that the infrastructure that supports the implementation of standard precautions in hospitals is good, namely 126 respondents (77.3%).

Bivariate Analysis

The bivariate analysis describes the relationship between knowledge, training, and infrastructure on the compliance of health workers in applying standard precautions in hospitals, with the help of computerized statistical tests using the Chi-Square test.

Table 9. Relationship between Knowledge and Compliance with Health Workers in Implementing Standard Precautions in Hospitals

No	Knowledge	Compliance				Total		*P Value*
		Obey		Not Obey				
		F	%	F	%	F	%	
1	Good	68	89,5	8	10,5	76	100	0,001
2	Currently	43	78,2	12	21,8	55	100	
3	Not Enough	20	62,5	12	37,5	32	100	
	Total	131	80,4	32	19,6	163	100	

Based on table 9, it is known that the value of P = 0.001 (<0.05), meaning that there is a relationship between knowledge and compliance of health workers in applying standard precautions in hospitals. This is in line with the theory put forward by Rogers in Notoatmodjo (2007), stating that change or adoption of behavior goes through several stages of a very sequential process. Efforts to provide knowledge and awareness of this importance are the main factors in this stage of the process. This awareness and knowledge will then build interest and effort to try the desired behavior (Notoatmodjo, 2015).

This research is also in line with the results of research conducted by Dachirin (2019) concerning Analysis of Nurse Compliance in Performing Standard Precautions to Prevent Healthcare Associated Infections (HAI's) at the Islamic NU Demak Hospital which shows that the level of knowledge of nurses has a significant effect on adherence to standard precautions to prevent Healthcare Associated Infections (HAI's).

Knowledge is the result of knowing and this happens after people sense a certain object, from experience and research it is proven that behavior based on knowledge will be better than behavior that is not based on knowledge. Knowledge factors are education, occupation and age (Notoatmodjo, 2012).

Table 10. Relationship of Training to Compliance of Health Workers in Applying Standard Precautions in Hospitals

No	Training	Compliance				Compliance		*P Value*
		Obey		Obey				
		F	%	F	%	F	%	
1	Have Attended Training	104	94,5	6	5,5	110	100	0,000
2	Have Not Attended Training	35	66	18	34	53	100	
	Total	139	85,3	24	14,7	163	100	

Based on table 10, it is known that the P value = 0.000 (<0.05), meaning that there is a relationship between training and health workers' compliance in implementing standard precautions in hospitals. Respondents who have received training have a greater chance of complying with standard precautions compared to respondents who have not received training.

According to Notoatmodjo (2012), knowledge is the result of knowing and this occurs after people sense a particular object. From experience and research it has been proven that behavior that is based on knowledge will be better than behavior that is not based on knowledge. Knowledge factors are education, training, employment and age. Understanding PPI, both the concept of procedures and mechanisms, can be done by increasing the competency of human resources in health service facilities through training. In line with research conducted by Dachirin (2019) which shows that participation in nurse training has a significant effect on compliance with standard precautions to prevent Healthcare Associated Infections (HAI's).

Table 11. Relationship between Infrastructure and Compliance with Health Workers' Compliance in Implementing Standard Precautions in Hospitals

No	Infrastructure	Compliance				total		*P Value*
		Obey		Obey				
		F	%	F	%	F	%	
1	Good	108	96,4	4	3.6	112	100	0,000
2	Not Good	35	68,6	16	31,4	51	100	
	Total	143	87,7	20	12,3	163	100	

Based on table 11, it is known that the P value = 0.000 (<0.05), meaning that there is a relationship between infrastructure and health workers' compliance in implementing standard precautions in hospitals. In terms of the availability of facilities and infrastructure, respondents said that the availability of facilities and infrastructure at the hospital was good. Even so, it is hoped that hospitals can complete the deficiencies found, namely in providing clean and dry wipes or tissues as well as posters with instructions on how to wash hands to make it even better.

According to Green et.al. (2005) explained that one of the supporting factors and influencing certain behavior is the availability of resources. Without the support of adequate resources will prevent someone from doing something well. In terms of compliance with standard precautions, the availability of resources, namely the existence of facilities that support workers to carry out standard precautions, for example the existence of hand washing facilities and infrastructure, Personal Protective Equipment (PPE), materials/equipment for disinfecting and sterilizing and equipment for handling sharp objects and medical waste management. In carrying out activities or activities, the existence of facilities and infrastructure will certainly really help the smoothness and efficiency of the process, especially in achieving good health services.

CONCLUSION

The conclusion from this study was that 66.2% of respondents had good knowledge of standard precautions, 70.6% had attended training on standard precautions, and 77.3% of respondents answered that the infrastructure that supports the application of standard precautions in hospitals is good. The results of the bivariate analysis showed that there was a relationship between knowledge (P value = 0.001 (<0.05)), training (P value = 0.000 (<0.05)), and infrastructure (P value = 0.000 (<0.05)) on the compliance of health workers in implementing standard precautions in hospitals. Suggestions for health workers should always apply Standard Precautions as an effort to prevent nosocomial infections either in themselves or in others. Hospitals can provide ongoing training and education to improve treatment compliance with standard precautions.

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