



Analysis of Determinants of Nurse Compliance in Implementing Standard Precautions to Prevent Healthcare-Associated Infections (HAIs) at Imelda General Hospital for Indonesian Workers

Yohania Premita Gultom¹, Sri Wahyuni Nasution^{1*}, Chrismis Novalinda Ginting¹

¹Department of Public Health Masters, Faculty of Medicine, Dentistry and Health Sciences, Universitas Prima Indonesia, Indonesia

ABSTRACT

People come to hospitals with a hope of recovery, yet unfortunately some go home with a new infection which can vary from mild, moderate, severe, even to sepsis which can be life-threatening. Nosocomial infections or what is currently better known as Health-care Associated Infections (HAIs) refer to infections acquired from the hospital environment, either due to care services or from visitors who visit the hospital. The aims of this research are: Analyzing the factors that influence nurses' compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at RSU Imeldakerja Indonesia Medan. This type of research is quantitative research that uses a correlational design. The population in this study is all nursing staff working at the Indonesian Workers' Imelda RSU (RSU IPI) Medan in 2024, totaling 110 people. The data analysis used in this research is univariate, bivariate and multivariate analysis. The results of the research show that from the results of the bivariate analysis the variables of knowledge, information and training, facilities and infrastructure, management support and perceptions of risk influence nurses' compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at RSU Imelda Kerja Indonesia (RSU IPI) Medan and only the workload variable has no effect. The results of simultaneous multivariate analysis of the independent variables in this study have an effect on the dependent variable. The factor that most influences nurses' compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at RSU Imelda Kerja Indonesia (RSU IPI) Medan is Information and Training.

Keywords: HAIs, Nurses, Knowledge, Information and Training, Facilities and Amenities, Management Support, Perception of Risk, Workload

Corresponding author: Sri Wahyuni Nasution

Department of Public Health Masters, Faculty of Medicine, Dentistry and Health Sciences, Universitas Prima Indonesia, Indonesia

Email: sriwahyuninasution@unprimdn.ac.id

INTRODUCTION

According to Law of the Republic of Indonesia No. 44 of 2009, comprehensive individual health services including promotive, preventive, curative, and rehabilitative measures can be obtained from hospitals with the provision of inpatient, outpatient, and emergency facilities (Romiko, 2020). People come to the hospital with the hope of getting better, but unfortunately, many go home with a new infection that can vary from mild, moderate, severe, even to life-threatening sepsis. What is meant by infection is a condition caused by microorganisms such as bacteria, viruses, fungi, or parasites that can be transmitted or transmitted directly, namely through body fluids or vectors carrying infection, or directly, such as through microorganisms that stick to objects such as doorknobs, tables, and others (Purba et al., 2023).

Nosocomial infections or what are now better known as Health-care Associated Infections (HAIs) refer to infections acquired from the hospital environment, either due to care services or from visitors to the hospital (Romiko, 2020). What can be categorized as HAIs are infections that were not present when an individual came or was admitted to the hospital, and which occurred within 3 x 24 hours after the patient was admitted to the hospital, and which are not a continuation of a previous illness (Mustika & Kusbaryanto, 2021). Types of HAIs cases that are often found include urinary tract infections, surgical site infections, or infections caused by the use of ventilators in pneumonia patients (Purba et al., 2023).

Health-care Associated Infections (HAIs) are one of the major global health problems, especially in poor and developing countries (Mustika & Kusbaryanto, 2021). The World Health Organization (WHO) in 2022 stated that out of 100 patients treated in hospitals, as many as 7 patients in developed countries and 15 patients in developing countries experienced at least 1 type of nosocomial infection, where an average of 1 in 10 infected patients died (WHO, 2022). A study related to nosocomial infections involving 11 hospitals in DKI Jakarta reported that as many as 9.8% of hospitalized patients experienced nosocomial infections, where urinary tract infections, lower respiratory tract infections, bloodstream infections, and surgical wound infections were the most common types of nosocomial infections found (Achmad, 2017; Suarmayasa, 2023).

In addition to increasing the risk of morbidity and mortality in hospitals, HAIs also have a significant impact on the economic aspect. Patients who experience HAIs require an increase in the duration of their hospitalization, and of course also increase other costs including medicines, examinations, procedures, and patient consumption, which can result in financial loss (Octaviani & Fauzi, 2020). Previous findings reported that patients exposed to HAIs require 2.5 times longer treatment time than other patients (Purba et al., 2023).

Basically, the main principle in reducing the incidence of HAIs is to take actions that prevent the transmission or transmission of microorganisms that cause infection (Mustika & Kusbaryanto, 2021). Prevention or suppression of the incidence of HAIs can be done by implementing the Infection Prevention and Control (PPI) program consistently (Romiko, 2020). Official regulations from the Ministry of Health of the Republic of Indonesia require every health service facility to record and report the implementation of PPI to the Regency/City Health Office, Provincial Health Office, and also the Ministry of Health periodically, namely every 6 months or as needed (Permenkes, 2017).

Nursing staff have a role as the frontline implementers in the implementation of the PPI program in a hospital. This is because nurses are health workers who are always in contact with patients for 24 hours. Therefore, the incidence of HAIs can increase significantly if nursing staff are negligent in carrying out their duties (Romiko, 2020). Moreover, nursing staff play a crucial role in the success of these prevention efforts in terms of their accuracy and compliance in implementing them.

Related research conducted in Nigeria reported that the knowledge and awareness of health workers regarding infection prevention efforts are actually quite good, but the practice is still lacking (Adegboye et al., 2018). A study related to the implementation of infection prevention and control programs in India by Rabaan et al. (2017) reported that one of the main factors that triggers the increase in infection incidence in the hospital environment is carelessness or negligence of health workers. Other previous studies related to nosocomial infections reported that several factors underlying nurses' non-compliance in implementing infection prevention efforts include lack of knowledge or experience in the field, communication factors such as relationships between health workers, lack of equipment, human resources, and attitudes of health workers (Mustika & Kusbaryanto, 2021).

Rumah Sakit Umum Imelda Pekerja Indonesia (RSU IPI) is one of the Type B hospitals located in Medan City. Based on the initial survey conducted at RSU IPI, HAIs incidents were still found in various service areas such as inpatient and outpatient care, which is suspected to be one of the impacts of the lack of compliance of nursing staff in implementing the Infection Control and Prevention (PPI) program.

This makes researchers interested in studying and analyzing further the factors that influence nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Umum Imelda Pekerja Indonesia (RSU IPI) Medan.

RESEARCH METHOD

Research Design

This study is a quantitative research that uses correlational design to analyze the relationship between independent variables and dependent variables. The method used in this study is a cross-sectional approach, where the independent

variables and dependent variables are assessed simultaneously at one time, and no follow-up is carried out on these variables. The purpose of this study was to analyze the influence of certain factors on nurses' compliance in carrying out standard precautions to prevent Health Associated Infections (HAIs) at Rumah Sakit Umum Imelda Pekerja Indonesia (RSU IPI) Medan, Indonesia.

Research Population

The population of this study includes all 110 nurses working at RSU IPI Medan, Indonesia.

Research Sample

The samples are nurses who fulfill the inclusion criterias such as: have worked at RSU IPI for at least 6 months and willing to participate as a respondent in this study; and does not have any of the exclusion criteria such as: have worked at RSU IPI for less than 6 months, were on at the time of research, were unwilling to participate in this study. This study uses total sampling technique, in which all population members who fulfill the criterias are used as sample. Therefore, there are 110 samples in this study.

Research Time and Location

This research was conducted at Rumah Sakit Umum Imelda Pekerja Indonesia (RSU IPI) Medan in October 2024.

Data Analysis

Data in this study was analysed in 3 steps: univariate analysis, bivariate analysis, and multivariate analysis. Univariate analysis was conducted to learn the frequency distribution and the percentage of all variables in this study. Meanwhile bivariate analysis was conducted to study the correlation between the independent and dependent variables in this study. Lastly, multivariate analysis was conducted to have a deeper understanding of the correlation between variables.

RESULT AND DISCUSSION

Frequency Distribution of Respondent Characteristics

Table 1
Frequency Distribution of Respondent Characteristics

Age	n	%
20-30 Years	75	68.2
31-40 Years	35	31.8
Total	110	100
Gender	n	%
Man	35	31.8
Woman	75	68.2
Total	110	100
Last education	n	%
NERS	20	18.2
D3	69	62.7
S1	21	19.1
Total	110	100
Length of working	n	%
1-5 Years	64	58.2
>5 Years	46	41.8
Total	110	100
Room	n	%
Orchid	10	9.1
Ashoka	8	7.3
Endoscopy	2	1.8
Hemodialysis	9	8.2
ICU	17	15.5
Emergency Room	13	11.8
Yellow	8	7.3
Jasmine	9	8.2
Neonate	4	3.6

Wound Care	2	1.8
Sakura	15	13.6
Stroke Union	5	4.5
VK	8	7.3
Total	110	100.0

Table 1 explains the results of the frequency distribution of the characteristics of respondents in this study. Respondents in this study aged 20-30 years were 75 (68.2%) and respondents aged 31-40 years were 35 (31.8%). Respondents in this study who were male were 35 (31.8%) and respondents who were female were 75 (68.2%).

The respondents in this study whose last education was NERS were 20 (18.2%), respondents whose last education was D3 were 69 (62.7%), and respondents whose last education was S1 were 21 (19.1%). Respondents in this study who had worked for 1-5 years were 64 (58.2%), and those who had worked for >5 years were 46 (41.8%).

Respondents in this study who worked in the Anggrek room were 10 (9.1%), respondents who worked in the Asoka room were 8 (7.3%), respondents who worked in the Endoscopy room were 2 (1.8%), respondents who worked in the Hemodialysis room were 9 (8.2%), respondents who worked in the ICU room were 17 (15.5%), respondents who worked in the IGD room were 13 (11.8%), respondents who worked in the Kemuning room were 8 (7.3%), respondents who worked in the Melati room were 9 (8.2%), respondents who worked in the Neonatal room were 4 (3.6%), respondents who worked in the Wound Care room were 2 (1.8%), respondents who worked in the Sakura room were 15 (13.6%), respondents who worked in the Stroke Unit room were 5 (4.5%), and respondents who worked in the VK room were 8 (7.3%).

Univariate Analysis Results

1. Knowledge

Table 2
Respondents' Knowledge of Basic Principles of Standard Precautions

Knowledge	n	%
Good	81	73.6
Not enough	29	26.4
Total	110	100

Table 2 explains the results regarding respondents' knowledge of the basic principles of standard precautions to prevent healthcare associated infections (HAIS). The results of the study showed that respondents who had good knowledge were 81 with a percentage of (73.6%), and respondents who had poor knowledge were 29 with a percentage of (26.4%). From these results, it can be seen that the majority of respondents in this study had good knowledge of the basic principles of standard precautions to prevent healthcare associated infections (HAIS).

2. Information and Training

Table 3
Information and Training on the Basic Principles of Standard Precautions

Information and Training	n	%
Enough	77	70.0
Not enough	33	30.0
Total	110	100

Table 3 describes the results regarding information and training on the basic principles of standard precautions to prevent healthcare associated infections (HAIS). The results of the study showed that 77 respondents said that information and training were good with a percentage of (70%), and 33 respondents said that information and training were lacking with a percentage of (30%). From these results, it can be seen that the majority of respondents in this study said that information and training on the basic principles of standard precautions to prevent healthcare associated infections (HAIS) were good.

3. Facilities and Amenities

Table 4
Facilities and Amenities for Standard Precautions Application

Facilities and Amenities	n	%
Complete	74	67.3
Incomplete	36	32.7
Total	110	100

Table 4 explains the results of respondents' assessments of facilities and amenities on the basic principles of standard precautions to prevent healthcare associated infections (HAIS). The results of the study showed that 74 respondents said that facilities and infrastructure were complete with a percentage of (67.3%), and 36 respondents said that facilities and infrastructure were incomplete with a percentage of (32.7%). From these results, it can be seen that the majority of respondents in this study said that the facilities and infrastructure on the basic principles of standard precautions to prevent healthcare associated infections (HAIS) were complete.

4. Management Support

Table 5
Management Support for Standar Precautions Application

Management Support	n	%
Enough	77	70.0
Not enough	33	30.0
Total	110	100

Table 5 explains the results regarding respondents' assessment of management support for the basic principles of standard precautions to prevent healthcare associated infections (HAIS). The results of the study showed that 77 respondents said that management support was sufficient with a percentage of (70%), and 33 respondents said that management support was insufficient with a percentage of (30%). From these results, it can be seen that the majority of respondents in this study said that management support for the basic principles of standard precautions to prevent healthcare associated infections (HAIS) was sufficient.

5. Perception of Risk

Table 6
Perception of Risk Regarding Healthcare Associated Infections (HAIs)

Perception of Risk	n	%
Good	85	77.3
Not enough	25	22.7
Total	110	100

Table 6 explains the results of respondents' assessments of perceptions of risk on the basic principles of standard precautions to prevent healthcare associated infections (HAIS). The results of the study showed that respondents who said that the perception of risk was good were 85 with a percentage of (77.3%), and respondents who said that the perception of risk was less were 25 with a percentage of (22.7%). From these results, it can be seen that the majority of respondents in this study said that the perception of the risk of the basic principles of standard precautions to prevent healthcare associated infections (HAIS) was good.

6. Workload

Table 7.
Workload of Respondents

Workload	n	%
Tall	72	65.5
Low	38	34.5
Total	110	100

Table 7 explains the results of respondents' assessments of their workload. The results of the study showed that 72 respondents said the workload was high with a percentage of (65.5%), and 38 respondents said the workload was low with a percentage of (34.5%). From these results, it can be seen that the majority of respondents in this study said their workload) was high.

7. Nurse Compliance in Carrying Out Standard Precautions to Prevent HAIs

Table 8
Nurses' Compliance in Carrying Out Standard Precautions to Prevent HAIs

Nurse Compliance in Implementing Standard Precautions to Prevent HAIs	n	%
Obedient	79	71.8
Not obey	31	28.2
Total	110	100

Table 8 explains the results of the assessment of nurses' compliance in implementing standard precautions to prevent HAIs at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI). The results of the study showed that respondents who complied with carrying out standard precautions to prevent HAIs at RSU IPI were 79 with a percentage of (71.8%), and respondents who did not comply with carrying out standard precautions to prevent HAIs at RSU IPI were 31 with a percentage of (28.2%). From these results, it can be seen that the majority of respondents in this study complied with carrying out standard precautions to prevent HAIs at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI).

Bivariate Analysis Results

1. The Influence of Knowledge Level on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Table 9
The Influence of Knowledge Level on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Knowledge	Nurse Compliance in Implementing Standard Precautions to Prevent HAIs				Total	P-Value
	Obedient		Not obey			
	n	%	n	%		
Good	75	68.2	6	5.5	81	P= 0.000
Not enough	4	3.6	25	22.7	29	
Total	79	71.8	31	28.2	110	

Table 9 explains the results of bivariate analysis on the influence of knowledge level on nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. The cross-tabulation results show that respondents in this study with good knowledge who were compliant in implementing standard precautions to prevent HAIs were 75 with a percentage of (68.2%) and those who were not compliant were 6 with a percentage of (5.5%). Meanwhile, respondents in this study with less knowledge who were compliant in implementing standard precautions to prevent HAIs were 4 with a percentage of (3.6%) and those who were not compliant were 25 with a percentage of (22.7%).

From the results of the chi square test, a significance value of $0.000 < 0.05$ was obtained, which means that there is an influence of the level of knowledge on nurses' compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. The result of this study is in line with a related previous research conducted by Wachid (2019), in which it was concluded that nurses' level of knowledge significantly influences their compliance in carrying out Standard Precautions in RSI NU Demak. Previous studies also concluded that knowledge is indeed a determining factor that highly influences how an individual act, thus comply to carry out Standard Precautions to prevent the occurrence of Healthcare Associated Infections (HAIs) in hospitals (I Gusti & Muliawan, 2021).

2. The Influence of Information and Training on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs) □ ADD PRE RESEARCHES

Table 10 explains the results of bivariate analysis on the influence of information and training on nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) Rumah Sakit Imelda Pekerja

Indonesia (RSU IPI) Medan. The cross-tabulation results show that respondents in this study who said that information and training were good, those who were compliant in implementing standard precautions to prevent HAIs were 74 with a percentage of (67.3%) and those who were not compliant were 3 with a percentage of (2.7%). Meanwhile, respondents in this study who said that information and training were lacking, those who were compliant in implementing standard precautions to prevent HAIs were 5 with a percentage of (4.5%) and those who were not compliant were 28 with a percentage of (25.5%).

Table 10
The Influence of Information and Training on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Information and training	Nurse Compliance in Implementing Standard Precautions to Prevent HAIs				Total	P-Value
	Obedient		Not obey			
	n	%	n	%		
Good	74	67.3	3	2.7	77	P= 0.000
Not enough	5	4.5	28	25.5	33	
Total	79	71.8	31	28.2	110	

From the results of the chi square test, a significance value of $0.000 < 0.05$ was obtained, which means that there is an influence of information and training on nurses' compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. This result is consistent with a research conducted by I Gusti & Muliawan (2021) in Denpasar which concluded that information and training also has a significant influence on nurses' compliance, in which nurses with adequate information and training are 1.7 times more compliant in carrying out Standard Precautions. Alongside internal factors namely level of knowledge, hospital management also has to provide adequate training in order to provide needed information for nurses on how to correctly carry out Standard Precautions, and also creating a holistic understanding as to why it is crucially important to carry them out (Mustika & Kusbaryanto, 2021).

3. The Influence of Facilities and Amenities on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Table 11
The Influence of Facilities and Amenities on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Facilities and Amenities	Nurse Compliance in Implementing Standard Precautions to Prevent HAIs				Total	P-Value
	Obedient		Not obey			
	n	%	n	%		
Complete	71	64.5	3	2.7	74	P= 0.000
Incomplete	8	7.3	28	25.5	36	
Total	79	71.8	31	28.2	110	

Table 11 explains the results of the bivariate analysis of the influence of facilities and amenities on nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. The cross-tabulation results show that respondents in this study who said that facilities and infrastructure were complete and complied with standard precautions to prevent HAIs were 71 with a percentage of (64.5%) and those who did not comply were 3 with a percentage of (2.7%). Meanwhile, respondents in this study who said that facilities and infrastructure were incomplete and complied with standard precautions to prevent HAIs were 8 with a percentage of (7.3%) and those who did not comply were 28 with a percentage of (25.5%).

From the results of the chi square test, a significance value of $0.000 < 0.05$ was obtained, which means that there is an influence of facilities and infrastructure on nurses' compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. The results of this study are in line with research conducted by The Witch (2019) which the results of the study showed that facilities and infrastructure had a significant effect on compliance with standard precautions to prevent Healthcare Associated Infections (HAIs) at RSI NU Demak. Based on the study conducted by The Prodigal Son (2021), the results obtained were that respondents whose work units had complete facilities and infrastructure were 5.31 times more compliant in implementing standard precautions compared to respondents whose work units did not have complete facilities and infrastructure. Availability of facilities is one of the factors that influence compliance and is a supporting factor in the implementation of a program.

Therefore, in supporting the infection prevention and control program, each health service facility must provide sufficient and adequate resources.(Rahmawati, 2021).

4. The Influence of Management Support on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Table 12
The Influence of Management Support on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Management Support	Nurse Compliance in Implementing Standard Precautions to Prevent HAIs				Total	P-Value	
	Obedient		Not obey				
	n	%	n	%			
Enough	70	63.6	7	6.4	77	70	P= 0.000
Not enough	9	8.2	24	21.8	33	30	
Total	79	71.8	31	28.2	110	100	

Table 12 explains the results of bivariate analysis on management support for nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. The cross-tabulation results show that respondents in this study who said management support was sufficient, who complied with implementing standard precautions to prevent HAIs were 70 with a percentage of (63.6%) and those who did not comply were 7 with a percentage of (6.4%). Meanwhile, respondents in this study who said management support was insufficient, who complied with implementing standard precautions to prevent HAIs were 9 with a percentage of (8.2%) and those who did not comply were 24 with a percentage of (21.8%).

From the results of the chi square test, a significance value of $0.000 < 0.05$ was obtained, which means that there is an influence of management support on nurse compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. The results of this study are in line with research conducted by Wachid (2019), which showed that management support has a significant effect on compliance with standard precautions to prevent Healthcare Associated Infections (HAIs) at RSI NU Demak. Management Support is a form of manager support for system users. One form of support is providing facilities in the form of training and assistance to system users. Another form of support that can be shown by the hospital management is by providing needed funds to maximize the implementation of Standard Precautions, such as funds to conduct trainings or to provide supporting facilities (Mustika & Kusbaryanto, 2021). Management support is indeed very important for the success of system development such as in the implementation of standard precautions to prevent Healthcare Associated Infections (HAIs) in hospitals.

5. The Influence of Perception of Risk on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Table 13
The Influence of Perception of Risk on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Perception of Risk	Nurse Compliance in Implementing Standard Precautions to Prevent HAIs				Total	P-Value	
	Obedient		Not obey				
	n	%	n	%			
Good	74	67.3	11	10	85	77.3	P= 0.002
Not enough	5	4.5	20	18.2	25	22.7	
Total	79	71.8	31	28.2	110	100	

Table 13 explains the results of bivariate analysis of perceptions of risk towards nurses' compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. The results of cross tabulation show that respondents in this study who said that the perception of risk was good, who were compliant in carrying out standard precautions to prevent HAIs were 74 with a percentage of (67.3%) and those who were not compliant were 11 with a percentage of (10%). Meanwhile, respondents in this study who said that the perception of risk was less, who were compliant in carrying out standard precautions to prevent HAIs were 5 with a percentage of (4.5%) and those who were not compliant were 20 with a percentage of (18.2%).

From the results of the chi square test, a significance value of $0.002 < 0.05$ was obtained, which means that there is an influence of perceptions about risk on nurses' compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. This result is consistent with a research conducted by I Gusti & Muliawan (2021) in Denpasar that found out that there is no significant influence of perception of risk on nurses' compliance. However, the "Health Belief Model," proposed that perception of risk is a key factor influencing health behaviors, as it suggests that individuals who perceive a vulnerability to infection are more likely to engage in preventive behaviors to minimize risk.

6. The Influence of Workload on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Table 14
The Effect of Workload on Nurses' Compliance in Carrying Out Standard Precautions to Prevent Healthcare Associated Infections (HAIs)

Workload	Nurse Compliance in Implementing Standard Precautions to Prevent HAIs				Total		P-Value
	Obedient		Not obey		n	%	
	n	%	n	%			
Tall	51	46.4	21	19.1	72	65.5	P= 0.752
Low	28	25.5	10	9.1	38	34.5	
Total	79	71.8	31	28.2	110	100	

Table 14 explains the results of the bivariate analysis of workload on nurses' compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. The cross-tabulation results show that respondents in this study who said that the workload was high and who complied with standard precautions to prevent HAIs were 51 with a percentage of (46.4%) and those who did not comply were 21 with a percentage of (19.1%). Meanwhile, respondents in this study who said that the workload was low and who complied with standard precautions to prevent HAIs were 28 with a percentage of (25.5%) and those who did not comply were 10 with a percentage of (9.1%).

From the results of the chi square test, a significance value of $0.752 < 0.05$ was obtained, which means that there is no influence of workload on nurses' compliance in carrying out standard precautions to prevent Healthcare Associated Infections (HAIs) at Rumah Sakit Imelda Pekerja Indonesia (RSU IPI) Medan. These findings align with the study conducted by I Gusti & Muliawan (2021), which also found no significant relationship between workload and nurse compliance in implementing standard precautions ($p = 0.734$). High workload may cause stress among nurses, potentially leading to non-compliance with universal precautions. This variability in compliance may be influenced by differences in the characteristics of nursing work units and patient types, which can result in fluctuating workloads for nurses at any given time.

Multivariate Analysis Results

Table 15 . Variable Selection for Multivariate Analysis

Variables	P-Value	Candidate
Knowledge (X1)	0,000	Yes
Information and Training (X2)	0,000	Yes
Facilities and Amenities (X3)	0,000	Yes
Management Support (X4)	0,000	Yes
Perception of Risk (X5)	0,002	Yes
Workload (X6)	0,752	No

From Table 15, it can be seen that the independent variables in this study that have a p value < 0.05 are the variables of knowledge, information and training, means and facilities, management support, and perception of risk. From these results, the independent variables in this study that enter the multivariate testing model in Table 16 below are the variables of knowledge, information and training, means and facilities, management support, and perception of risk:

Table 16
Independent Variables That Have the Most Influence on Dependent Variables

Variables	Odds Ratio
Knowledge (X1)	5.971
Information and Training (X2)	6.234
Facilities and Amenities (X3)	5.003
Management Support (X4)	2.433
Perception of Risk (X5)	1.041

Table 17 explains the results regarding the independent variables that are most related to the dependent variable. From the research results, it can be seen that the highest odds ratio value is found in the information and training variable (X2), which is 6.234. From these results, it can be concluded that the independent variable that is most related to the dependent variable in this study is the information and training variable (X2).

CONCLUSIONS AND SUGGESTIONS

1. Respondents who complied with implementing standard precautions to prevent HAIs at the Imelda Buruh Indonesia General Hospital were 79 with a percentage of (71.8%), and those who did not were 31 with a percentage of (28.2%).
2. There is an influence of the level of knowledge on nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at the Imelda Buruh Indonesia Hospital (IPI Hospital) Medan.
3. There is an influence of information and training on nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at the Imelda Buruh Indonesia Hospital (IPI Hospital) Medan.
4. There is an influence of facilities and infrastructure on nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at the Imelda Buruh Indonesia Hospital (IPI Hospital) Medan.
5. There is an influence of providing management support on nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at the Imelda Buruh Indonesia Hospital (IPI Hospital) Medan.
6. There is an influence of perceptions about risk on nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at the Imelda Buruh Indonesia Hospital (IPI Hospital) Medan.
7. There is an influence of workload on nurses' compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at the Imelda Buruh Indonesia Hospital (IPI Hospital) Medan.
8. The most influential factor on nurse compliance in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) at the Imelda Buruh Indonesia Hospital (IPI Hospital) Medan is information and training (X2).

SUGGESTIONS

1. For Hospitals : From the results of this study, there are suggestions for RSU Imelda Buruh Indonesia (RSU IPI) Medan for the future to provide more frequent training to nurses in implementing standard precautions to prevent Healthcare Associated Infections (HAIs) and also always conduct evaluations related to the implementation of standard precautions to prevent Healthcare Associated Infections (HAIs) at RSU Imelda Buruh Indonesia (RSU IPI) Medan whether it has been running in accordance with the SOP and the specified targets or not.
2. For Nurses : It is recommended that nurses in the future understand more about standard precautions to prevent Healthcare Associated Infections (HAIs), such as how to prevent them and how to manage them so that nurses can avoid Healthcare Associated Infections (HAIs) while working.
3. For Patients : Advice for patients to pay more attention to personal safety when using health services, such as always wearing a mask when in the hospital and also using cleaning fluids every time they do activities that involve contact with nurses so that patients and nurses avoid Healthcare Associated Infections (HAIs).
4. For Further Researchers : For further researchers who want to conduct the same research with this research topic, it is suggested to conduct research development such as using the mix method for the future and also to add other variables or factors that were not examined in the study so that in the future the factors related to the occurrence of Healthcare Associated Infections (HAIs) can be more widely known and can be used as evaluation material for hospitals, nurses and patients.

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