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Original Research

IJNHS

The compliance of hand hygiene among Professional nurses influenced by knowledge of precaution standards, attitude, and motivation

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Article information

Article history:
Received: February 05th, 2024
Revised: June 30th, 2024
Accepted: July 20th, 2024

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International Journal of Nursing and Health Services (IJNHS), Volume 7, Issue 4, August 20th, 2024
DOI: 10.35654/ijnhs.v7i4.779
E-ISSN: 2654-6310

Abstract

Background: Hospital infections are one of the most important issues in patient safety aspects in hospitals. The standard precautions are designed to reduce the risk of infection with infectious diseases to be applied routinely in the care of the entire patient in the hospital. **Objective**: The aim of this study is to examine the association between standards of knowledge, attitudes, and motivation of nurses on compliance with hand hygiene. **Method**: A cross-sectional study was apllied in this study. We involved 45 professiona nurses who has working at inpatients room at Sentra Medika Hospital, Karawang, Indonesia. **Result**: There is a significant influence of knowledge of precaution standards, attitude and motivation of nurses work on the observance of performing hand hygiene simultaneously (p-value<0.05). **Conclusion**: The standard knowledge of precaution, attitude, and nurses' motivation is crucial point to prevent the infection. The massive contribution of the influence of standard knowledge of precaution, attitude, and motivation of nurses to the observance of hand hygiene was 93.7%. **Implication**: For clinical practice need to regular training for all nurses to enhance knowledge, the need for management support in organizing and motivating nursing to follow basic infection prevention and control nurses (IPCN). Further study also needs to explore deeply the effect of those factors in qualitatively and develop some program to ensure hand hygiene implementation regularly implemented through hospital unit.

Keywords: knowledge, standard caution, attitude, work motivation, compliance, handwashing, nurse

BACKGROUND

Hand hygiene is a critical aspect of infection prevention and control in healthcare settings. However, studies have shown that hand hygiene adherence among healthcare workers, including nurses, is often suboptimal (1-2).

This highlights a significant concern regarding hand hygiene adherence among inpatient nurses at the hospital. Several factors, including knowledge, attitude, and motivation, are known to influence hand hygiene adherence among healthcare workers (3)

Understanding the interplay of these factors is crucial for improving adherence rates and, ultimately, patient safety. Nurses with positive attitudes towards hand hygiene may be more likely to adhere to guidelines and promote a culture of safety in their workplace (1).

The Sentral Medika Hospital in Karawang is a healthcare facility that provides inpatient care to a diverse patient population. A study conducted in Indonesia found that the compliance of hand hygiene among nurses was only 28.6% (1). Another study has emphasized the importance of knowledge, attitude, and motivation in shaping hand hygiene practices (4).

Additionally, a study on patient safety culture in Indonesian hospitals found differences in safety culture across urban, sub-urban, and rural areas, indicating the influence of various factors on healthcare practices (5).

Although several studies have been conducted on this issue. However, it is important to understand the factors that influence hand hygiene adherence among inpatient nurses at this hospital to improve patient safety and prevent healthcare-associated infections. By identifying and addressing the factors that influence hand hygiene adherence, healthcare facilities can develop targeted interventions to improve adherence rates and promote a culture of safety, ultimately enhancing patient outcomes.

Analysis Data

The descriptive statistic with frequency and percentage was used to describe the characteristic of respondents. The three-box method analysis described the mean and presenting the data using the index number. The linear regression was used to measure the association between the independent variable with the dependent variable. The model regression was explained below

$$Y=a+\beta X1 +\beta X2+\beta X3+e$$

The determination coefficient (R^2) was used to measure the how far the model of regression explains the variation of the dependent variable

OBJECTIVE

The study aimed to examine the association between standards of knowledge, attitudes, and motivation of nurses on compliance with hand hygiene.

METHOD

Design

This study applied the observational study with cross-sectional approach to Influence of standard knowledge, attitude, and motivation of nurses on compliance with hand hygiene. The study was conducted at Sentra Medika Hospital, Karawang within October 2022

Sample, sample size, & sampling technique

Forty-five professional nurses were involved in this study. We selected them using the purposive sampling technique based on the inclusion and exclusion criteria. The inclusion criteria such as 1) professional nurses who has been working at least one year in the Sentral Medika hospital, Karawang; 2) and willingness to participate in this study until the end. Nurses who were not in the office or on duty outside the office were excluded from this study.

Data Collection process

The researcher gathers the data within 1 month. The process of data

collection was conducted by the researcher and assisted by the research assistant. We gather the information from respondents using the questionnaire. Some instruments were used to measure the variables and had been validated by 30 respondents. Details of the instruments would be explained below

No	Instruments	Cronbach-alpha
1	Questionnaire of compliance of hand hygiene	0.937
2	Knowledge of standard precaution questionnaire	0.927
3	Attitude questionnaire	0.920
4	Working motivation questionnaire	0.908

Questionnaire of compliances of hand hygiene. This questionnaire was used to measure the compliance of hand hygiene. This questionnaire consisted of 3 dimensions such as 1) individual factor, 2) phycological factor, and 3) organizational factor. The total item questionnaires were 21 with Likert scale approach including strongly agree=4, agree=3, disagree=2, strongly disagree=1.

Knowledge of standard preauction questionnaire. This questionnaire was used to measure the understanding of client for standard preauction among nurses. It has 6 dimensions with Likert scale approach including strongly agree=4, agree=3, disagree=2, strongly disagree =1. The high score indicated that good knowledge of standard preauction. The lowest score of knowledge indicated the bad understanding on standard preauction**.**

Attitude questionnaire of hand hygiene was used to measure the attitude of nurses for implement the hand hygiene behavior. The questionnaire consisted of 3 dimension such as 1) cognitive, 2) affective, and 3) conative. The scale used of Likert scale approach including strongly agree=4, agree=3, disagree=2, strongly disagree =1. The high score indicated that good attitude of standard preauction. The lowest score of indicated the bad attitude in implementing the standard preauction**.**

Job motivation questionnaire was used to measure the motivation of nurses to implement the hand hygiene. The questionnaire consisted of 2 dimensions including 1) intrinsic factors, and 2) extrinsic factors. The scale used of Likert scale approach including strongly agree=4, agree=3, disagree=2, strongly disagree =1. The high score indicated that good motivation of standard preauction. The lowest score of motivation indicated the bad motivation on standard preauction implementation**.**

RESULT

The result of this study explains the association between the independent variables with the dependent variable simultaneously and partially. The findings are explaining below.

The association between knowledge of precaution standards, attitude and motivation of nurses to comply with the implementation of hand hygiene simultaneously

Table 1 described the association between knowledge of precaution standards, attitude and motivation of nurses to comply with the implementation of hand hygiene simultaneously. The result showed that there is the positive association between the knowledge of precaution standards, attitude and motivation of nurses to comply with the implementation of hand hygiene simultaneously with p-value <.05; F= 203.010

Table 1 Hypothesis testing for simultaneously

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6948.430	3	2316.143	203.010	.000[b]
	Residual	467.769	41	11.409		
	Total	7416.199	44			
a. Dependent Variable: comply with the implementation of hand hygiene						
b. Predictors: (Constant), working motivation, attitude, knowledge of standard precaution						

The result of linear regression equation such as

$$Y = a + bx1 + bx2 + bx3 + e$$

$$\mathbf{Y = 4.532 + 0.799\ x_1 + 0.696\ x_2 + 0.416\ x_3 + e}$$

Hypothesis testing for partially

Table 2 showed the association between the knowledge of standard prequation, attitude and motivation on implementation of hand hygiene partially. The results found that there are the positive association between between the knowledge of standard prequation (p-value=.05), attitude (p-value=.05), and motivation (p-value=.05) with implementation of hand hygiene partially. Details explanation could be found in the table 2.

Table 2. Hypothesis testing for partially

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.532	2.467		1.837	.073
	Knowledge of Standard Precaution	.799	.181	.363	4.411	.000
	Attitude	.696	.134	.353	5.197	.000
	Motivation	.416	.125	.321	3.333	.002
a. Dependent Variable: Kepatuhan Melaksanakan Hand Hygiene						

Coefficient determination testing

The result of the determination coefficient (r-square) in this study was 0.937 or 93.7%, showing that as much as 93.7% of the contribution of the influence variable independent of the knowledge of the precaution standard, the attitude of nurses and the motivation of work towards the variable dependent on compliance performing hand hygiene, while the remaining 6.3% is a constitution of influence from other variables not studied in the study.

DISCUSSION

The result conclude that There is a significant influence on the knowledge of precaution standards, attitude and motivation of nurses to comply with the implementation of hand hygiene simultaneously in the *Sentral Medika* Hospital of Karawang**.** It was indicated that the adherence to hand hygiene among nurses can be influenced by their knowledge, attitude, and working motivation towards Standard Precautions.

Standard Precautions are a set of infection control practices used to prevent transmission of diseases that can be acquired by contact with blood, body fluids, mucous membranes, non-intact skin, or contaminated equipment (6).

The effect of knowledge of precaution standards on implementation of hand hygiene

Regarding the effect of knowledge of precaution standards on implementation of hand hygiene is well documented. Proper hand hygiene is a critical measure to prevent the spread of infections among patients and healthcare personnel. The Centers for Disease Control and Prevention (CDC) emphasizes that healthcare personnel should use an alcohol-based hand rub or wash with soap and water in accordance with their recommendations, and that supplies necessary for adherence to hand hygiene should be readily accessible in all areas (7).

A systematic review of hand hygiene compliance in healthcare facilities emphasized the importance of understanding and measuring hand hygiene compliance to facilitate change and measure the impact of interventions (8). Additionally, a study assessing the knowledge, attitude, and practice of standard precautions among medical and nursing students found that while theoretical knowledge about hand hygiene was good, its implementation was poor, highlighting the need for improved adherence (9). These studies collectively demonstrate the significance of attitude in the implementation of effective hand hygiene practices.

The association between the attitude with implementation of hand hygiene

The result of this study concludes that the is a positive association between the attitude with implementation of hand hygiene. Several studies have explored the

relationship between attitude and the implementation of hand hygiene. A systematic review of hand hygiene improvement strategies highlighted the importance of attitude, as it reflects the beliefs and behaviors of individuals towards hand hygiene practices (10).

Another study assessed hand hygiene knowledge, attitude, behaviors, and adherence among nursing assistants, emphasizing the need to understand and measure these factors to facilitate change and measure the impact of interventions (11). Additionally, a qualitative assessment of hand hygiene knowledge, attitudes, and practices among healthcare workers emphasized the fundamental role of attitudes in sustaining and improving hand hygiene practices (12).

The association between the working motivation with implementation of hand hygiene

Regarding the working motivation also showed the positive association between working motivation with implementation of hand hygiene. A previous study mentioned that both opportunity and motivation directly affected hand hygiene behavior, with capability and opportunity being indirectly linked to hand hygiene behavior through motivation. The results emphasize the significance of motivation in influencing hand hygiene behavior among healthcare workers, highlighting the need for efforts focused on motivation enhancement to improve hand hygiene practices (13).

This empirical evidence highlights the significant association between working motivation and the implementation of hand hygiene among healthcare workers. Furthermore, A study has shown that self-regulatory interventions and motivational modules can help individuals exhibit more consistent hand hygiene practices, further underscoring the impact of motivation on hand hygiene implementation (14).

The COM-B model also indicates that motivation was most strongly associated with the likelihood to report frequent handwashing and hand sanitizer use, emphasizing the dominant influence of motivation on hand hygiene behaviors (15). Therefore, the evidence suggests that motivation plays a pivotal role in driving the implementation of effective hand hygiene practices.

CONCLUSION

In conclusion, the compliance with the implementation of hand hygiene among nurses is influenced by their knowledge of precaution standards, attitude, and motivation. While nurses generally exhibit a positive attitude toward hand hygiene, there is often a discrepancy between their theoretical knowledge and actual implementation of hand hygiene practices. Addressing this gap and enhancing motivation through effective training strategies and programs are crucial for improving hand hygiene compliance among nurses and ultimately preventing healthcare-associated infections.

IMPLICATION

The implications of these findings underscore the need for comprehensive training strategies, cultural awareness initiatives, and the consideration of emotional motivators in motivational strategies to improve hand hygiene compliance among nurses. These implications are essential for enhancing patient safety and reducing healthcare-associated infections in healthcare settings.

Acknowledgement

The author would like to thank: Dr. Dr. Rina Mutiara, Apt, M.Pharm, Dr. dr. Andry, MM,MH.Kes, Dr Rokiah Kusumapradja, SKM, MHA, and Dr. Ir. Nofierni,MM for their valuable advice and input to this research. During the writing of this study, I would like to express my gratitude to all the respondents of the nurses of the Central Medical Hospital of Karawang.

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