Original Article

Nurse Hand Hygiene Behavior with Prevention of Surgical Site Infection In Surgery Room

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ABSTRACT

Background: The Surgical Site Infection (SSI) is caused by several factors including surgery, invasive measures, equipment and use of antibiotics. The SSI is an infection problem that occurs in patients during the treatment process in hospitals or other health facilities. These infections that are obtained at the hospital both occur in patients when receiving care, health workers who work in hospitals and visitors to hospitals. The purpose of this research is to find out the relationship between Nurses Behavior and Prevention of in the Mokoyurli Hospital Surgery Room, Buol Regency.
Methods: The design used in the study is crossectional analytic. The population is All Nurses in the Surgery Room. The sample size was 19 respondents using the Total Sampling technique. Independent variable of research is the behavior of hand washing. The dependent variable is prevention of infection. Data was collected using observation sheets, then the data were analyzed using the Chi-Square test with a significance level of $\alpha \leq 0.05$.
Results: The results showed that more than half of the respondents had good hand washing behavior as many as 10 respondents (52.6), Enough as many as 7 respondents (36.8%), Less as many as 2 respondents (10.5%). Non-infectious events were 14 respondents (73.3%), and the incidence of infection was 5 respondents (26.3%). The results of statistical tests obtained $p = 0.023$ with <0.05, which means that there is a significant relationship to the variable handwashing behavior with infection.
Conclusion: Washing hands during the implementation of nursing actions is the most effective way to prevent the occurrence of the Surgical Site Infection in the hospital environment.

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Introduction

Wash hands (hand hygiene) is an effort or action to clean hands, either by using an antiseptic soap under running water or using hand rub-based alcohol with a step-by-step systematic order, so that it can reduce the number of bacteria in the hand. Healthcare Associated Infections (HAIs) or often referred to as nosocomial infections are important problems throughout the world and become an interesting issue to study, especially regarding efforts to prevent such

infections. The World Health Organization (WHO, 2009) states that HAIs are an infection problem that occurs in patients during the treatment process in hospitals or other health facilities. These infections that are obtained at the hospital both occur in patients when receiving care, health workers who work in hospitals and visitors to hospitals (CDC, 2016). Post Infection The most common surgery and a problem that must be addressed immediately.

Based on data released by the CDC, in 2011 there were 722,000 HAIs that occurred in the United States and 75,000 of them died during treatment (CDC, 2016). This continues to increase every year and results in an increase in the financial burden on hospital care costs arising from these HAIs between 28 billion dollars and 33 billion dollars annually (Agency for Healthcare Research and Quality, 2009). Based on a report from the Infectious Disease Society of America, the incidence of HAIs has increased to 2 million cases, 70% of which are resistant to at least one type of drug (Keevil, 2011; Warnes & Keevil, 2011).

The EU region is based on records Europa Central Disease Control (ECDC), each year between 8% and 12% of patients treated in EU hospitals are infected with HAIs with a total of 4.1 million cases (equivalent to one in twenty hospitalized patients). stay). In the United Kingdom (UK) itself shows 9% or around 300,000 cases, 5000 of them experience death due to infection with these HAIs (Keevil, 2011). The number of HAIs in Indonesia is not yet clearly known, but there are data on HAIs from 10 education public hospitals, the incidence of HAIs in Indonesia is quite high, ranging from 6-16% with an average of 9.8%. The most common infection is surgical wound infection (ILO). Other research results show that the incidence of ILO in hospitals in Indonesia varies between 2-18% of all surgical procedures (ARINI, 2013). The results of the preliminary study found that on average the patients in the Mokuyurli Regional Hospital Surgical Room in the last 3 months were 30 patients and the incidence of HAIs was 7% or around 2-3 HAIs in the hospital (PPI data at Mokuyurli Hospital Buol Regency, 2017) These problems have an impact on the quality of care and health of patients in the operating room. Nurses of the Central Surgery Installation always wash their hands before and after performing surgery.

The infection is caused by several factors including surgery, invasive measures, equipment and use of antibiotics (Fauzia, 2014). Other factors are nursing factors such as length of stay, decreased standard of care for nurses and congestion in one room; pathogenic microbial factors such as the level of ability to damage tissue, the length of exposure between sources of transmission with patients (Darmadi, 2008). The number of losses caused by HAIs, then an effort is needed to reduce the incidence, one of which is by cleaning hands, because 80% of infections are spread by hand (Keevil, 2011). HAIs criteria are infections that occur or are obtained in hospitals or health care facilities after 48 hours or more, and are not an impact of the signs and symptoms of previous infections. This infection can increase the cost of patient care and will also extend hospital care and incur costs for diagnostic tests and other treatments (Soedarmo et al., 2008).

The Pratami study (Pratami., 2013) found that the average number of germs obtained from the hands of medical personnel and paramedics was 1.59 CFU / cm2 with various types of bacteria obtained. Some pathogens that cause HAIs have a high enough frequency in the hands, such as: Staphylococcus aureus which is the main cause of wound infections after surgery and pneumonia has a frequency of

around 10-78% in the hand, Pseudomonas spp is a pathogen causing lower respiratory infections with a frequency of about 1-25% in the hands, mushrooms including Candida sp are around 23-81% and can last for one hour in the hand. The risk of transmission or transmission of infection among postoperative patients, staff, health professionals and visitors can occur at various installations in the hospital. Infection occurs due to the transmission of pathogenic microbes. The impact of the infection includes increasing the length of care of the patient, the more severe the condition of the patient's disease and the more costs incurred.

The most important basic technique in preventing and controlling infection transmission is by washing hands. Washing your hands appropriately is one way that can be done to reduce the incidence of HAIs. A simple but effective step in protecting patients from infection is hand washing (Schilling McCann, 2006). Hand hygiene is a term used to wash hands using hand washing antiseptics. In 2009, the WHO sparked a global patient safety challenge with clean care is safe care, which was to formulate a strategy for implementing hand hygiene strategies for health workers with My Five Moments for hand hygiene, namely washing hands before coming into contact with patients, before performing a clean and sterile procedure , after coming into contact with the patient's body fluids, after touching the patient, after coming into contact with the environment around the patient (Jamaluddin et al, 2012).

Nurse hand hygiene is one of the most important ways to prevent the spread of infection. Health care providers must practice and familiarize themselves with hand hygiene at key points before contact with patients, after contact with body or blood fluids or contaminated surfaces, before invasive procedures, and after removing handsomeness (CDC, 2016). However, the application of hand washing according to procedures by health workers is still low. In general, the level of fulfillment of hand washing according to procedures by health workers is below 50% (Kosoko et al., 2019). In a meta-analysis of several studies it was concluded that hand hygiene can reduce the rate of infection (D, 2001). Fauzia's research (2014) found that behavior in hand hygiene nurses 'accordance with the SPO in effect in the hospital as a whole was 36% with low compliance especially in the details of hand washing techniques. The Erawati (Smeltzer & Bare, 2014) study found that compliance was hand hygiene hospital inpatient nurses 'still low (35%). Washing hands during the implementation of nursing actions is the most effective way to prevent infection in the hospital environment. Nurses have a significant role in contributing to the prevention of nosocomial infections (Abidin, 2018). Based on this background the researcher was interested in researching with the title of the Behavior of Hand Washing Nurses by Preventing Surgical Wound Infections in the Surgery Room of Mokoyurli Regional Hospital, Buol District.

Method

Design used in the study was cross-sectional analytic. The population is All Nurses in the Surgery Room. The sample size was 19 respondents using the Total Sampling technique. Independent variable of research is the behavior of hand washing. The dependent variable is prevention of infection. Data was collected using observation sheets, then the data were analyzed using thetest Chi-Square with a significance level of $\alpha \leq 0.05$ (Nursalam, 2017; Sugiyono, 2013).

Results

Table 1. Frequency Distribution of Characteristics of Respondents by Age in the Surgical Room of Mokoyurli Regional Hospital, Buol Regency on 9 July-9 August 2018 (n = 19)

No	Age	Frequency	Percentage
1	22-25 years	5	26.3
2	26-35 years	6	31.6
3	36-45 years	8	42.1
	Total	**19**	**100**

The results of the study showed that most of the respondents aged 26-35 years were 8 respondents (42.1%), and the least were aged 17-25 years as many as 5 respondents (26.3%).

Table 2. Distribution of Frequency Characteristics of Respondents by Gender in the Surgical Room of Mokoyurli Regional Hospital, Buol Regency on 9 July-9 August 2018 (n = 19)

No	Gender	Frequency	Percentage
1	Male	5	26.3
2	Female	14	73.7
	Total	**19**	**100**

The results of the study showed that most of the respondents were female as many as 14 respondents (73.7%), and the least were male respondents as much as 5 respondents (26.3%).

Table 3. Distribution of Frequency Characteristics Respondents are based on education in the Surgical Room of Mokoyurli Regional Hospital, Buol Regency on 9 July-9 August 2018 (n = 19)

No	Education	Frequency	Percentage
1	SPK	4	21,1
2	DIII	12	63,2
3	S1	3	15, 8
	Total	**19**	**100**

The results of the study showed that most of the respondents had DIII education as many as 12 respondents (63.2%), and the least were having SPK education as much as 4 respondents (21.1%).

Table 4. Distribution of Frequency Characteristics Respondents were based on length of time working at Mokoyurli Hospital in Buol Regency on 9 July-9 August 2018 (n = 19)

No	Length of Work in Hospital	Frequency	Percentage
1	2 Year	3	15.8
2	3 Year	3	15.8
3	5 Year	8	42,1
4	8 Year	2	10,5
5	9 Year	1	5.3
6	10 Year	2	10,5
	Total	**19**	**100**

The results of the study showed that more than half of the respondents had worked for 5 years as many as 8 respondents (42.1%), and the least is having 9 years of working time as much as 1 respondent (5.3%).

Table 5. Distribution of Frequency Characteristics Respondents are based on the length of time

working in the Surgical Room at Mokoyurli Regional Hospital in Buol Regency on 9 July-9 August 2018 (n = 19)

No	Length of Work in Surgical Room	Frequency	Percentage
1	1 Year	1	5.3
2	2 Year	3	15 , 8
3	3 Year	5	26.3
4	4 Year	3	15.8
5	5 Year	2	10.5
6	6 Year	1	5.3
7	7 Year	4	21.1
	Total	**19**	**100**

The results of the study showed that more than half of the respondents had the duration of working in the operating room for 3 years is 5 respondents (26.3%), and the least is having a long working time in the surgical room for 6 years as much as 1 respondent (5.3%).

Table 6. Frequency Distribution of Respondents by Handwashing Behavior in the Surgical Room of Mokoyurli Regional Hospital, Buol Regency on 9 July-9 August 2018 (n = 19)

No	Handwashing Behavior	Frequency	Percentage
1	Less	2	10.5
2	Enough	7	36.8
3	Good	10	52.6
	Total	**19**	**100**

The results of the study showed that more than half of the respondents had good hand washing behavior of 10 respondents (52.6%), and at least had less handwashing behavior as much as 2 respondents (10.5%).

Table 7. Frequency Distribution of Respondents based on Infection in the Surgical Room of Mokoyurli Regional Hospital, Buol Regency on 9 July-9 August 2018 (n = 19)

No	Infection	Frequency	Percentage
1	Infection	5	26.3
2	No Infection	14	73.7
	Total	**19**	**100**

Results The study found that more than half of the respondents had an incidence of non-infection as many as 14 respondents (73.3%), and at least had an infection incidence of 5 respondents (26.3%).

Table 8. Statistic Test Test Results

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7,581[a]	2	,023
Likelihood Ratio	9,567	2	,008
Linear-by-Linear Association	5,458	1	,019
N of Valid Cases	19		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is ,53.

The results of statistical tests obtained p = 0.023 with a = 0.05, so H1 was accepted and H0 was rejected, which means that there was a significant relationship on the variable handwashing behavior with infection in respondents in the Surgical Room at Mokoyurli Regional Hospital, Buol Regency.

Discussion

The results of the statistical test obtained p = 0.023 with a = 0.05, which means that there is a significant relationship to the variable handwashing behavior with infection. Washing your hands is done before and after carrying out nursing actions despite wearing gloves and

other personal protective equipment. This action is to reduce the microorganisms in the hand so that the spread of infection can be reduced.

Hand washing is a process that mechanically releases dirt and debris from the skin of the hand using ordinary soap and water (Dinkes, 2008). According to Susiati (Susanti, 2011), the purpose of doing hand washing is to lift existing microorganisms in the hands, making the condition of the hands sterile so that cross infection can be prevented. Preventing or limiting transmission of infection in health care facilities requires the application of procedures and protocols called "controls" (Pratami., 2013; Warnes & Keevil, 2011). In a hierarchical manner this has been arranged in accordance with the effectiveness of infection prevention and control (Infection Prevention and Control-IPC), which includes: administrative controls, control and infectious diseases is still one of the health problems in the world, including Indonesia. Preventing or limiting transmission of infection in health care facilities requires the application of procedures and protocols called "controls". Hierarchically this has been arranged according to the effectiveness of infection prevention and control (Infection Prevention and Control - IPC), which includes: administrative controls, controls

Based on the results of the study there is a relationship between handwashing behavior and the incidence of infection. Standard precautions in hand washing are caution in routine infection prevention and control and must be applied to all patients in all health facilities. In accordance with the results of research conducted that the incidence of infection in patients is due to nurses having poor handwashing behavior (Akib, 2008; Cahyo, 2014; Duerink, 2010; Usiati, 2011). The standard precaution of hand washing is the one that must continue to be done, namely infection control measures carried out by all health workers to reduce the risk of spreading infection and based on the principle that blood and body fluids can potentially transmit diseases, both from patients and health workers.

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Conclusion

Based on the results of the study it was found that more than half of the respondents had good hand washing behavior as many as 10 respondents (52.6%), and at least had less handwashing behavior as much as 2 respondents (10.5%). The results showed that more than half of the respondents had an incidence of non-infection as many as 14 respondents (73.3%), and at least had an infection incidence of 5 respondents (26.3%). The results of statistical tests obtained p = 0.023 with a = 0.05, which means that there is a significant relationship to the variable handwashing behavior with infection.

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