



Organizational Climate and Work Environment with Prevention from Infection

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ABSTRACT

Prevention of infection is an action taken to reduce the incidence of infection in hospitals. Management of infection is assessed based on organizational climate and the nurse's work environment that shapes nurse behavior in preventing infection in the hospital. The study aimed to analyze the relationship between organizational climate and nurses' work environment in the prevention of infection in hospital Universitas Sumatera Utara. The study was a descriptive correlative. Data were collected using a questionnaire and analyzed using multiple linear regression. The sample was 135 nurses. The results show that the factor most associated with the prevention of infection is work environment ($p=0,01$; $OR=2,76$; $95\% CI=1,22-6,27$) and organizational climate ($p=0,02$; $OR=2,65$; $95\% CI=1,13-6,21$). The work environment had the most dominant relationship with the prevention of infection in Hospital Universitas Sumatera Utara. It is expected that in the future hospital to improve the organizational climate by increasing the awarding and appreciation of nurses' work and creating a better and more conducive work environment, especially in the psychological environment of nurses, so that nurses remain motivated to work especially in preventing infections in hospitals.

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ABSTRAK

Pencegahan infeksi adalah tindakan yang dilakukan untuk mengurangi kejadian infeksi di rumah sakit. Penatalaksanaan infeksi dinilai berdasarkan iklim organisasi dan lingkungan kerja perawat yang membentuk perilaku perawat dalam pencegahan infeksi di rumah sakit. Penelitian ini bertujuan untuk menganalisis hubungan iklim organisasi dan lingkungan kerja perawat dengan pencegahan infeksi di Rumah Sakit Universitas Sumatera Utara. Penelitian ini merupakan penelitian deskriptif korelatif. Data dikumpulkan dengan menggunakan kuesioner dan dianalisis menggunakan regresi linier berganda. Sampel penelitian adalah 135 perawat. Hasil penelitian menunjukkan bahwa faktor yang paling berhubungan dengan pencegahan infeksi adalah lingkungan kerja ($p=0,01$; $OR=2,76$; $95\% CI=1,22-6,27$) dan iklim organisasi ($p=0,02$; $OR=2,65$; $95\%CI=1,13-6,21$). Lingkungan kerja memiliki hubungan paling dominan dengan pencegahan infeksi di Rumah Sakit Universitas Sumatera Utara. Diharapkan kedepannya rumah sakit dapat meningkatkan iklim organisasi dengan meningkatkan penghargaan dan apresiasi terhadap kerja perawat serta menciptakan lingkungan kerja yang lebih baik dan kondusif khususnya di lingkungan psikologi perawat, sehingga perawat tetap termotivasi untuk bekerja khususnya dalam pencegahan infeksi di RS. Rumah sakit.

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INTRODUCTION

Incidence of infection in the hospital is an infection that occurs in a patient during hospitalization where when the patient enters the hospital there is no infection and is not in the incubation period, including infections that occur in the hospital that appear after the patient returns home, as well as infections due to the work of paramedics, hospital staff or nurses related to the process of health services in health care facilities (Weston, 2013). The World Health Organization (2011) states that the incidence of infection in high-income countries varies between 3.5-12% and in low-income countries between 5.7 to 19.1%. The prevalence of infection in Indonesia, including in middle-income countries, is around 7.1%. Weston (2013) states that 9% or equal to 100,000 patients per year have infections originating from in-hospital services, and estimates that hospital-acquired infections kill around 5,000 patients per year in the United Kingdom.

The high incidence of infections in hospitals and the magnitude of the impact caused by infections that occur in hospitals make infection prevention one of the main focuses that must be handled properly by hospitals (Permenkes No. 27, 2017). The World Health Organization (2013) states that standard precautions are needed to prevent infection, which include hand hygiene and the use of personal protective equipment (PPE) to avoid direct contact with blood, body fluids, secretions (including respiratory secretions), and injured skin, as well as prevention of injuries from sharp objects and needles, safe waste management, cleaning, disinfection, sterilization of linen and patient care equipment, and environmental cleaning and disinfection.

The existence of an organization is believed to be one of the key factors in the success or failure of infection prevention (Gilmartin, Sousa, & Battaglia, 2016). This is following the results of research by Fauzi, Ahsan, and Azzuhri (2015) which states that the organization influences nurse compliance in the implementation of hand hygiene in hospitals in preventing infection. The number of respondents studied was 71 people, and the results of the study stated that 55 respondents (77.4%) strongly agreed that organizational variables could affect nurse compliance in the implementation of hand hygiene in hospitals. The results of this study are the results of research by Castro-Sánchez and Holmes (2015) which state that organizations have an impact on infection prevention.

A good work environment has the potential to increase the level of infection prevention in a hospital. The results of research by Kelly, Kutney-Lee, Lake, and Aiken (2013) state that when compared with a bad work environment, a good work environment has 31% to 41% of nurses reporting the incidence of infection in the hospital. Research conducted by Gilmartin, Pogorzelska-maziarz, Thompson, and Sousa (2015) states that the work environment has a significant influence on infection prevention.

Organizational climate is believed to be one of the important factors that need to be considered in reducing the incidence of infections that occur in hospitals (Gilmartin et al., 2015). Schneider and Barbera (2014) state that organizational climate is a nurse's perception of the organization in terms of practices, organizational policies, procedures, routines, and rewards. Nelson (2013) states that a good organizational climate will be able to influence individual behavior to practice and increase the ability in reducing the high incidence of infection in hospitals which has an impact on individual performance. A good organizational climate can be assessed through a survey of

nurses in terms of openness, friendship, collaboration, enthusiasm, individual freedom, and trust which lead to an increase in nurses' cognitive and affective levels (Ashkanasy, Wilderom, & Peterson, 2011).

Research conducted by Nelwan, Mandagi, and Boky (2017) states that one of the factors causing the implementation of infection prevention programs in hospitals is the leading factor in an organization. This is following the results of research by (Antonio, Anggraeni, and Noor (2014) which showed that of the 52 room heads who had good effective leadership, the majority of the nurses had good infection prevention measures, namely 44 people (84.6%). This shows that effective leadership has an influence on infection prevention in hospitals. The purpose of the study was to analyze the relationship between organizational climate and nurses' work environment in the prevention of infection in hospital Universitas Sumatera Utara.

METHOD

Participant Characteristics and Research Design

The inclusion criteria of the sample were 1) nurses who worked at USU Hospital with a minimum working period of 1 month, and 2) nurses who were not on leave. The study was a correlation description with a cross-sectional approach.

Sampling Procedures

Sampling in this study was carried out using a probability sampling technique, namely proportional random sampling, and was based on the inclusion criteria, exclusion criteria, and dropout criteria made by the researcher. The study was conducted at USU Hospital from January to March 2019.

Sample size, power, and precision

The research sample will be determined based on the power analysis method with a significant value (α) of .05, $\sqrt{\text{power}}$ of .80, and $1-\beta$ (effect size) of .25, so the sample in this study was 123 respondents. To prevent dropout, 10% of the total sample is added. So the total sample is 135 respondents.

Procedure

Researchers distributed research questionnaires to respondents in each room. Researchers distributed questionnaires according to the number of respondents in each room. The researcher asked permission first from the head of the room and then met the respondent by first introducing himself, the purpose of the study, and asking about the nurse's willingness to be a respondent. For nurses who agreed to be respondents, researchers submitted informed consent to be signed as evidence of the nurse's approval to become respondents. Respondents were allowed to fill out the questionnaire after the researcher explained how to fill out the questionnaire. After the questionnaire was filled out by the respondents, the researcher checked the completeness of filling out each questionnaire item. Next, the researchers carried out the data processing and analysis.

Measures

The study used a measuring instrument that was standard and has proven its validity and reliability. Data were collected using an organizational climate, work environment, and infection prevention in hospitals questionnaires. The questionnaires have been tested for validity using the content validity index (CVI) which were organizational climate (0.82), work environment (0.84), and infection prevention (0.85) while the reliability test using Cronbach's alpha was organizational climate (0.948), work environment (0.862) and infection prevention (0.989).

Data Analysis

Demographic data was presented in the form of numbers and presentations. Data were analyzed using multiple logistic regression, with the help of IBM software 20.

RESULTS AND DISCUSSION

Table 1.
Frequency Distribution of Respondents' Characteristics at USU Hospital (n=135)

Variable	F	%	Total	
			F	%
Gender			135	100
Male	32	23.7		
Female	103	76.3		
Age (years)			135	100
20-30	84	62.2		
31-40	38	28.1		
41-50	13	9.6		
Education			135	100
Diploma 3 of Nursing	71	52.6		
Bachelor of Nursing	63	46.7		
Master of Nursing	1	7		
Length of work (years)			135	100
< 5	71	52.6		
> 5	64	47.4		

The subjects in this study were nurses who worked at the USU Hospital. Characteristics of respondents who analyzed the frequency distribution in this study consisted of gender, age, last education, and length of work. The results of the frequency distribution showed that as many as 76.3% of nurses were female nurses aged 20-30 years as many as 62.2%, nurses with diploma 3 of nursing were 52.6%, and nurses with 5 years of service were 52.6 %. Data on the frequency distribution of respondents' characteristics can be seen in table 1.

Based on table 2 of the two candidate variables, two variables are significant ($p < 0.05$), which means that both variables influence the prevention of infection in hospitals, namely organizational climate $p=0.01$ and work environment $p=0.02$. Based on the strength of the relationship between the two variables seen from the Odds Ratio (OR) value, the variable that has the most influence on infection prevention is the work environment with the greatest relationship strength, $OR=2.76$. The following is the interpretation of the Odds Ratio (OR) value based on the Exp value (B): A good work environment will increase infection prevention measures twice in a hospital compared to a bad nurse's work environment.

Table 2.
Independent variable logistic regression test

Variable	p-value	Exp. B (OR)	95% CI for Exp. (B)	
			Lower	Upper
Organizational climate	0.02	2.65	1.13	6.21
Work environment	0.01	2.76	1.22	6.27
Constanta	0.7			

Based on the results of the study, it was found that the organizational climate and work environment affected the dependent variable, namely infection prevention. The results of this study are following the results of research conducted by Gilmartin et al. (2016) regarding the trial of testing the Quality Health Outcomes Model (QHCM) to be applied to infection prevention. The model tested is a test of the organizational context which consists of the organizational climate and work environment on the prevention of infection using a central intravascular device. The results showed that the organizational climate and work environment were able to influence infection prevention measures. The results of this study are following the results of research conducted by Castro-Sánchez and Holmes(2015) which states that organizations have a significant influence on infection prevention measures.

Based on the Odds Ratio (OR) value, it was found that the biggest role (influence) on infection prevention was the nurse's work environment ($p=0.01$; $RR=2.76$). This shows that the work environment variable has a stronger or dominant influence when compared to the organizational climate variable. The better the nurse's work environment, the better infection prevention measures in the hospital will be.

The results of this study are by the results of research conducted by Gilmartin et al.(2015) which states that a good work environment has the potential to affect the level of infection prevention in hospitals. The research found that the work environment has a significant influence on infection prevention. The results of research by Kelly et al. (2013) state that when compared with a bad work environment, a good work environment has 31% to 41% of nurses reporting the incidence of infection in the hospital.

A comfortable and safe work environment is very important for every nurse who works in a hospital. Creating a good work environment is one of the efforts to guarantee and protect occupational safety and health in the workplace (Permenaker No.5, 2018). Sundstrom and Sundstrom (2005) stated that the work environment consists of three, namely the physical environment, the psychological environment, and the social environment. Muzammil, Hendriani, and Noviasari(2014) found that the working environment of nurses in hospitals was not good, this was caused by the physical environment (lighting) which was still not good. Components of the physical environment must be able to create a good environment for every nurse who works in the hospital.

The hospital's physical environment is very important because the physical environment not only affects infection prevention measures, but the work environment is also able to affect the commitment of nurses to work. The results of research conducted by McCaughey, McGhan, Walsh, Rathert, and Belue (2014) found that there is an influence of the physical environment on organizational commitment. The results of this study are following the results of research conducted by Janakiraman, Parish, and Berry(2011) found that there is a significant influence between the physical environment on the commitment of nurses in the hospital.

The importance of the physical environment in the organization can influence many things including the performance of nurses in working to provide nursing care (Cahyani & Ardana, 2013). The results of this study are following the results of research conducted by Norianggono (2014) which states that there is an influence of the physical environment on performance. The results of research by Muzammil et al. (2014) state that the work environment affects the performance of nurses. From the results of the study, it was found that a bad work environment will make the nurse's performance not good.

In addition to the physical environment, the psychological environment is an important component that needs to be considered in the organization. A psychological environment is an environment that affects labor activities caused by interpersonal relationships at work, roles, and responsibilities towards work. The work environment can provide a danger to the psychology of workers. This is caused by unclear roles, role conflicts, excessive workload, career development, and responsibilities towards others (Permenaker No.5, 2018).

CONCLUSIONS AND SUGGESTIONS

The factors most related to infection prevention measures are the work environment and organizational climate. A good work environment will double the infection prevention measures in a hospital compared to a bad nurse's work environment. It is hoped that the hospital will improve the organizational climate by increasing the award or appreciation of every nurse's achievement at work, so that nurses are motivated to do work and produce satisfactory work results, especially in terms of preventing infection in hospitals.

ETHICAL CONSIDERATIONS

This study was approved by The Research Ethics Committee, Faculty of Nursing, Universitas Sumatera Utara No. 1607/I/SP/2019.

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Conflict of Interest Statement

The author declares that there is no potential conflict of interest concerning the authorship and publication of this article.

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