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Analysis of the Effect of the Head of Room's Leadership Style and Nurse's Hand Hygiene Compliance on the Prevention of Nosocomial Infections in Hospital

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ABSTRACT
This study aims to analyze the influence of the leadership style of the head of the room and nurses' handwashing compliance on the prevention of nosocomial infections in hospitals—quantitative research with a survey approach involving 123 respondents with a proportional random sampling method. Data acquisition was done using a questionnaire instrument to measure the perception of leadership style, compliance, and prevention of nosocomial infections, and it was analyzed using a correlation test. The results of the T-test showed a Sig. Value of 0.001 <0.05, and the F test showed a Sig. Value of 0.002 <0.05 with a calculated F value of 41.437 indicating a significant influence between the leadership style of the head of the room and handwashing compliance on the prevention of nosocomial infections. This study concludes that the leadership style of the head of the room and nurses' hand hygiene compliance plays an important role in efforts to prevent nosocomial infections.

Keywords:
Leadership Style, Hand Hygiene Compliance, Nosocomial Infection.

INTRODUCTION

The Ministry of Health of the Republic of Indonesia has explained that general hospitals have the task of implementing health efforts in an efficient and effective manner by prioritizing curative and rehabilitative efforts that are carried out in a harmonious and integrated manner with promotive and preventive efforts and implementing referral efforts (Ahmad, Haryanto, & Habibi, 2021). As a health service facility, hospitals have quality indicators, one of which is the percentage of nosocomial infection incidence. The incidence of nosocomial infections can reduce the image and quality of hospital services because the nosocomial infection control program is one of the benchmarks for quality control of services. Prevention and control of nosocomial infections in hospitals is very important because the incidence of nosocomial infections reflects the quality of hospital services. Minimizing the risk of infection in hospitals and other health care facilities requires the implementation of infection prevention and control, the activities of which include planning, implementation, coaching, education and training, monitoring and evaluation. The main role of a ward head is to manage all resources in the care unit to produce quality services. The head of the room is responsible for supervising nursing services for patients in the treatment room he leads. To manage nursing care in the room, professional nurses need to be prepared. The quality of nurses will be better if accompanied by nursing care provided to patients. The quality of nursing care generally includes love, namely a sense of mutual affection between individuals involved in providing nursing care and the need for personal treatment. Delegation of authority and responsibility for implementing care, patterns of cooperation in providing nursing care, and supervision and evaluation used in implementing nursing care also affect the quality of care provided (Siagian & Harefa, 2018).

Transformational leadership style is a relational leadership style in which followers have trust and respect for the leader and are motivated to do more than is formally expected to achieve organizational goals (Boamah et al., 2017).

Compliance is the behavior of individuals who are loyal, obedient to do what is ordered to them to carry out fixed procedures that have been made. Compliance is initially the individual obeys and often compliance is done because they want to avoid punishment or sanctions if they do not obey. In the field of health behavior, this theory is also called the Precede-Proceed behavior change model from Lawrence Green and M. Kreuter in Notoadmojo (2012), that health behavior is influenced by individual and environmental factors, and therefore has two main different parts. The first part is PRECEDE consisting of Predisposing, Reinforcing, Enabling, Constructs in, Educational/Ecological, Diagnosis, and Evaluation. The second part is PROCEED which consists of Policy, Regulatory, Organizational, Constructs in, Educational, Environment, and Development) (Marina Pakpahan, et al 2021).

Nosocomial infection is a serious problem that is a direct or indirect cause of patient death. This infection can be transmitted from patients to officers or vice versa, patients to visitors or vice versa, and between people in the Sick environment. The danger of nosocomial infections is an increase in morbidity and mortality rates and can prolong patient care in hospital and can affect the quality of hospital services (Costy P, 2013).

METHOD

This study was conducted in 8 inpatient rooms. The research was conducted on November 20, 2024. This research method uses a quantitative approach and a cross-sectional research design, namely conducting measurements or research at one time. This study uses a cross-sectional approach with the intention of analyzing the effect of the Head of Room Leadership Style and Nurse Hand Hygiene Compliance on the Prevention of Nosocomial Infections in Hospitals in 1 measurement using a questionnaire measuring instrument. The type of questionnaire method in this study is a closed questionnaire that already has answers so that respondents will only choose the desired answer, each variable consists of 7 questions, with a total of 15 questions in the form of a Likert scale. The population in this study were nurses working in the inpatient room totaling 176 people. The sample was taken by proportional random sampling which was calculated using the Slovin formula, where sampling was carried out randomly and then a sample of 123 respondents was determined.

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RESULTS AND DISCUSSION

Results

1. Statistic Descriptive

Table: I

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Leadership Style	123	16.00	28.00	24.0488	2.15716
Compliance	123	15.00	28.00	24.2358	2.39220
Prevention Of Nosocomial Infection	123	17.00	28.00	24.5447	2.54227
Valid N (listwise)	123				

Based on the results of the descriptive test above, it can be described that the distribution of data obtained from the leadership style variable can be described that the minimum value is 16.00, while the maximum value is 28.00 with an average leadership style of 24.0488 and a standard deviation of 2.15716, on the Hand Hygiene compliance variable from the data it can be described that the minimum value is 15.00, while the maximum value is 28.00 with an average leadership style of 24.2358 and a standard deviation of 2.39220, and on the nosocomial infection prevention variable from the data it can be described that the minimum value is 17.00, while the maximum value is 28.00 with an average leadership style of 24.5447 and a standard deviation of 2.254227.

2. Validity Test

Table: II Questionnaire Validity Test

Questionnaire	r product moment	r tabel 5%	Result
Leadership Style			
LS1	0,560	0,175	Valid
LS2	0,517	0,175	Valid
LS3	0,196	0,175	Valid
LS4	0,295	0,175	Valid
LS5	0,359	0,175	Valid
LS6	0,209	0,175	Valid
LS7	0,597	0,175	Valid
Compliance			
C1	0,212	0,175	Valid
C2	0,212	0,175	Valid
C3	0,600	0,175	Valid
C4	0,543	0,175	Valid
C5	0,606	0,175	Valid
C6	0,356	0,175	Valid
C7	0,560	0,175	Valid
Prevention of Nosocomial Infection			
PNI1	0,303	0,175	Valid
PNI2	0,355	0,175	Valid
PNI3	0,576	0,175	Valid
PNI4	0,603	0,175	Valid
PNI5	0,337	0,175	Valid
PNI6	0,299	0,175	Valid
PNI7	0,571	0,175	Valid

It can be seen from the information above that all questionnaires are declared valid.

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3. Reliability Statistic

Table: III

Reliability Statistics

Cronbach's Alpha	N of Items
.779	21

The results of the reliability test showed that all questionnaires were declared reliable because the reliability coefficient value was greater than 0.6. In accordance with the opinion of Ghozali (2001) that the statement is declared reliable if the Cronbach Alpha value is greater than 0.6. The results of the reliability test showed that all questionnaires were declared reliable.

4. Normality Test

Table: IV

One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			123
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		1.95523812
Most Extreme Differences	Absolute		.077
	Positive		.050
	Negative		-.077
Test Statistic			.077
Asymp. Sig. (2-tailed)[c]			.074
Monte Carlo Sig. (2-tailed)[d]	Sig.		.074
	99% Confidence Interval	Lower Bound	.067
		Upper Bound	.081

a. Test distribution is Normal.

b. Calculated from data.

From the results of the Kolmogorov-Smirnov test calculation, it can be seen that the p-value of the unstandardized residual obtained a result of 0.86 which is greater than (p>0.05), so that all of the data is stated to have a normal distribution or has a normal data distribution.

5. Hypothesis Test

Table: V

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.639[a]	.408	.399	1.971	2.240

a. Predictors: (Constant), C, LS

b. Dependent Variable: PNI

The test results show that the D-W value is in the autocorrelation-free area, namely the du value < D-W < 4-dU, namely 1.7559 < 2.240 < 2.2441, so it can be stated that there is no autocorrelation interference in the regression model.

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Table: VI T Test

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	6.410	2.002		3.201	.002
	Leadership Style	.589	.172	.500	3.433	.001
	Compliance	.164	.155	.154	1.057	.293

a. Dependent Variable: Prevention of Nosocomial Infection

Table: VII F Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	322.103	2	161.052	41.437	.002[b]
	Residual	466.401	120	3.887		
	Total	788.504	122			

a. Dependent Variable: Prevention of Nosocomial Infection

b. Predictors: (Constant), Compliance, Leadership Style

The basis for decision making in the F Test is if the sign value <0.05 or the calculated t value > table, then there is a significant influence of variable X1 on variable Y (and vice versa). It is known that the sign value is 0.002 <0.05 and the calculated f value is 41.437, so it can be concluded that Hypothesis 3 (H3) is accepted, which means that there is an influence of variables X1 and X2 on Y.

6. Coefficient of Determination

Table:VIII **Model Summary[b]**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.639[a]	.408	.399	1.97146

a. Predictors: (Constant), Compliance, Leadership Style

b. Dependent Variable: Prevention of Nosocomial Infection

The R Square value is known to be 0.408 or 40.8%, which shows that there is a sufficient simultaneous influence between variables X1 and X2 on Y of 40.8% and the remaining 50.2% is influenced by other factors.

Discussion

These results support previous research by Nita Theresia (2019) which stated that there was a significant influence between the leadership of the head of the room and nurses' compliance in washing hands towards preventing nosocomial infections. In the world of health, this approach provides space for health workers, especially the head of the room and nurses, to improve self-protection and patient protection, maintain the image of the hospital, carry out infection prevention and control, and improve the quality of service. However, this study found that the involvement of the head of the room and the compliance of nurses in maintaining hand hygiene greatly influenced the prevention of nosocomial infections that occurred in hospitals.

CONCLUSION

Transformational leadership style carried out by the head of the room and compliance actions carried out by nurses by maintaining hand hygiene have a significant role in improving the prevention of nosocomial infections in hospitals. Implementation of a good transformational leadership style can be an effective strategy

for the head of the room to emphasize and motivate colleagues to improve hand hygiene compliance in order to improve nosocomial prevention, which can thus improve one of the indicators of the quality of the hospital's image. The results of this study are not in line with Goleman's theory (2000) on the leadership style of the pacemaker setting high work standards for themselves and the people they lead, and previous research by Sari & Wulandari (2018) which showed that the leadership style of the head of the room who pays attention to emotional intelligence can improve hand hygiene compliance, which in turn contributes to the prevention of nosocomial infections in hospitals. This is due to different work environment conditions or lack of nurse compliance when performing hand hygiene. Thus, the hypothesis of this study is not supported by empirical data.

This is due to the possibility that the role of leadership style and nurse compliance in hand hygiene has not been carried out optimally. (this is a negative research result). However, the role of the leadership style of the head of the room and the compliance of hand hygiene of nurses has a positive effect on the prevention of nosocomial infections in hospitals. The results of this study support Bernard M. Bass's (1985) theory about Leaders as agents of change, namely someone who acts to influence others more than the actions of others influence him, as well as previous research by Suryani & Fitriani (2019) which showed that the transformational leadership style of the head of the room, especially the dimensions of idealized influence and inspirational motivation, has a positive effect on increasing hand hygiene compliance among nurses. In addition, higher hand hygiene compliance is significantly associated with a decrease in the number of nosocomial infections. This study reveals that the head of the room who can provide exemplary examples and inspire nurses to comply with hand hygiene procedures can reduce the risk of nosocomial infections in hospitals. This is because the role of the head of the room as a motivator and an inspiring figure provides an exemplary example for other colleagues, and increases the sense of responsibility for compliance with these preventive measures. Thus, the hypothesis of this study is supported by empirical data.

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