



THE RELATIONSHIP OF ORGANIZATIONAL FACTORS AND COMPLIANCE LEVEL IN THE APPLICATION OF STANDARD PRECAUTIONS

HUBUNGAN FAKTOR ORGANISASI DENGAN TINGKAT KEPATUHAN PENERAPAN KEWASPADAAN STANDAR

Research Report
Penelitian

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ABSTRACT

Background: Infection prevention around health care facilities is one of the efforts to minimize infection in patients, officers, visitors, and communities. One of the efforts to prevent infection is to apply standard precautions. **Purpose:** To determine the effect of organizational factors on the level of compliance of health workers in implementing standard precautions. **Method:** There were 83 respondents. The sampling technique uses simple random sampling. The dependent variable is the level of compliance with the application of standard precautions. The independent variables are policies, procedures, facilities, training, monitoring, and safety climate. Data analysis using correlation test and regression test to determine the effect between variables. **Result:** There was a relationship between facilities and the level of compliance ($p = 0.030$), there was a relationship between training and compliance ($p = 0.027$), there was a relationship between the safety climate and the level of compliance ($p = 0.009$). The influence test shows that the climate safety factor ($p = 0.007$) and facilities ($p = 0.020$) have a significant effect on the level of compliance. **Conclusion:** There is a relationship between facilities training and safety climate with the level of compliance of officers in the application of standard precautions in hospitals. The factor that most influences the level of compliance with the application of standard precautions is the safety climate.

ABSTRAK

Latar belakang: Pencegahan infeksi di sekitar fasilitas pelayanan kesehatan merupakan salah satu upaya meminimalkan infeksi pada pasien, petugas, pengunjung, dan masyarakat. Salah satu upaya pencegahan infeksi adalah menerapkan kewaspadaan standar. **Tujuan:** Untuk mengetahui pengaruh faktor organisasi terhadap tingkat kepatuhan petugas kesehatan dalam menerapkan kewaspadaan standar. **Metode:** Responden berjumlah 83 orang. Teknik pengambilan sampel menggunakan *simple random sampling*. Variabel terikatnya adalah tingkat kepatuhan penerapan kewaspadaan standar. Variabel bebasnya adalah kebijakan, prosedur, fasilitas, pelatihan, pemantauan, dan iklim keselamatan. Analisis data menggunakan uji korelasi dan uji regresi untuk mengetahui pengaruh antar variabel. **Hasil:** Ada hubungan fasilitas dengan tingkat kepatuhan ($p = 0,030$), ada hubungan antara pelatihan dan kepatuhan ($p = 0,027$), ada hubungan antara iklim keselamatan dengan tingkat kepatuhan ($p = 0,009$). Uji pengaruh menunjukkan bahwa faktor iklim keselamatan ($p = 0,007$) dan fasilitas ($p = 0,020$) berpengaruh signifikan terhadap tingkat kepatuhan. **Kesimpulan:** Ada hubungan antara pelatihan dan iklim keselamatan dengan tingkat kepatuhan petugas dalam penerapan kewaspadaan standar di rumah sakit. Faktor yang paling mempengaruhi tingkat kepatuhan penerapan kewaspadaan standar adalah iklim keselamatan.

ARTICLE INFO

Received 07 July 2021

Revised 18 August 2021

Accepted 20 October 2021

Online 08 November 2021

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Keywords:

Hospital, Infection prevention and control, Standard precautions, Level of compliance

Kata kunci:

Rumah sakit, Pencegahan dan pengendalian infeksi, Kewaspadaan standar, Tingkat kepatuhan



INTRODUCTION

Hospital is one of the health facilities that is obliged to implement the Infection Prevention and Control program. Guidelines for infection prevention and control in health care facilities aim to improve the quality of services in health care facilities, thereby protecting human health resources, patients, and the community from infectious diseases related to health services by breaking the chain of infection through standard precautions and precautions based on transmission (Kementrian Kesehatan RI, 2017). Hospital is a health service institution that provides complete individual health services that provide inpatient, outpatient, and emergency services (Kementrian Kesehatan RI, 2017). Hospitals have special characteristics. They absorb a lot of labor, are capital intensive, possess technology-intensive, expert density, work fields with high human involvement, open access for non-hospital workers (patients, deliverymen, visitors), and continuous activities every day. Hospital staff, patients, and visitors must receive optimal protection from health problems and accidents, both as a result of the process of providing services and conditions of facilities and infrastructure that do not meet standards (Kementrian Kesehatan RI, 2017). One of the principles that must be applied in the protection framework, especially from infectious diseases, is to use the principle of standard precautions.

Several studies on the application of standard precautions in hospitals show low adherence to this principle and the lack of support provided by management in its application. According to the study findings, the overall level of compliance with safety standards among health workers is still very low (Kermode et al., 2005; Porto and Marziale, 2016). Research by Satiti et al. (2017) shows that the application of standard precautions has been carried out in hospitals but is constrained by the behavior of human resources, which are not compliant, so that its application is still below standard. In addition to this, in the management analysis carried out, management functions are ineffective in planning, organizing, implementing, and evaluating processes (Satiti et al., 2017). Research conducted by McGovern et al. (2020) shows that knowledge significantly influences the low compliance behavior with the implementation of standard precautions led by health officers (McGovern et al., 2020). Research conducted by Ariyani (2011) states that knowledge, midwife status influence the application of standard precautions/universal precautions (Iswanti et al., 2018). Yotley (2019) shows that increased knowledge, information, and training will increase nurse compliance in implementing standard precautions. Research by Lelonowati et al. (2015) on the Causes of Lack of Performance in Nosocomial Infection

Surveillance, found that the results showed that most components of nosocomial infection surveillance had not been appropriately implemented. This is due to the absence of a policy to socialize the program to the infectious disease control team, lack of management support for programs and supporting facilities, and the absence of a supervisory function to implement the nosocomial infection surveillance program (Lelonowati et al., 2015).

Audit results from the hospital infection prevention and control team in 2016-2017 in the research object showed that compliance with standard precautions was still lacking. In interviews conducted with hospital nurses and hospital health and safety committee secretaries, it was found that management had required the implementation of standard precautions through establishing an infection prevention and control committee, training and outreach to officers, standard operating procedures, and facilities. However, compliance with the implementation of standard precautions on officers is still below the indicators set by the hospital, and there are still cases of work accidents and officers infected with infectious diseases. Therefore, researchers are interested in research on factors related to the level of compliance of officers in implementing standard precautions in hospitals.

MATERIAL AND METHOD

This research is quantitative. Based on the data collection aspect, this research is an observational study because, in this study, only observations were made, without giving any treatment to the object of the study. Research design using the cross-sectional approach. This research was conducted at the Regional General Hospital in West Nusa Tenggara Province. The population in this study were all hospital employees. The inclusion criteria in this study were health workers who, in carrying out their work, had direct contact with the patient or with the patient's environment. Based on the inclusion criteria, the total population was 482 people. The sampling technique in this study used a simple random sampling technique so that the sample was found as many as 83 people.

The independent variables in this study are organizational factors (policies, standard operating procedures, facilities, training, safety climate, and supervision). The dependent variable is the level of compliance with standard precautions. The analysis was performed using SPSS software. A correlation test is used to determine the relationship between variables, while a regression test determines the effect between variables. The p-value is considered significant if it is below 0.05.

RESULT

• Research variable frequency distribution

Table 1 shows the distribution of the variables of compliance level, policy, Standard Operating Procedure (SOP), facilities, training, climate, and supervision. Based on Table 1 above, it can be seen that the level of compliance of officers to the implementation of the highest standard precautions is at a moderate level of compliance (62.7%), from the results of filling out the questionnaire and observations made, it was found that only one officer had a low level of compliance. The high level of compliance is 36.1%. 90.4% of respondents

stated that the organization had a good safety policy and standard precautions in terms of organizational factors. 97.6% of respondents stated that the organization had established OHS procedures and standard precautions, which respondents know and implement. Judging from the facility variable, 67.5% of respondents stated that the facilities in implementing standard precautions were good. Only 63.9% stated that the standard awareness training obtained and implemented was excellent and beneficial for the respondent. Most respondents felt that the supervision carried out by the organization was good (89.2%). Meanwhile, 74.7% of respondents stated that the safety climate in the organization was good.

Table 1. Frequency distribution of compliance level variables, policies, standard operating procedure, facilities, training, safety climate, and supervision

Variable	Category	n	%
Compliance level	High	30	36
	Moderate	52	62.7
	Low	1	1.2
Policy	Adequate	75	90.4
	Inadequate	8	9.6
Standard Operating Procedure (SOP)	Available	81	97.6
	Unavailable	9	2.4
Facility	Available	56	67.5
	Unavailable	27	32.5
Training	Yes	53	63.9
	No	30	36.1
Safety climate	Good	62	74.7
	Poor	21	25.3
Supervision	Good	44	89.2
	Poor	9	10.8

• Correlation between compliance level of standard precautions implementation and organizational factors

Table 2 shows, that there is a statistically significant relationship between the level of compliance with standard precautions and facilities ($p = 0.03$), training ($p = 0.027$), and safety climate ($p = 0.009$). There is no statistically significant relationship with other organizational factors.

• Results of the test of the influence of organizational factors on the compliance level of officers in the application of standard precautions

The effect test was conducted to determine what factors affect the level of compliance of officers

in implementing standard precautions, to find out what factors influence, the linear regression test was performed. The independent variables in this study are policies, procedures, facilities, training, climate safety and supervision. Table 1 shows, that the safety climate variable ($p = 0.070$) and facilities ($p = 0.02$) have a statistically significant effect on the level of compliance with the application of standard precautions on health workers in hospitals. While for the independent variable it does not indicate a statistically significant effect. Table 3 shows the recapitulation of the results of the test of the effect of each independent variable on the level of compliance with the application of standard precautions.

Table 2. Correlation between compliance level of standard precautions with organizational factors

Variable	Compliance level						Total		r	p-value
	High		Moderate		Low		n	%		
	n	%	n	%	n	%				
Policy										
Adequate	28	37.3	47	62.7	0	0.0	75	90.4	0.123	0.269
Inadequate	2	25.0	5	62.5	1	12.5	8	9.6		
Standard Operating Procedure (SOP)										
Available	30	37.0	50	61.7	1	1.3	81	97.6	0.113	0.309
Unavailable	0	0.0	2	100.0	0	0.0	2	2.4		
Facility										
Available	25	44.6	30	53.3	1	1.9	56	67.5	0.238	0.030*
Unavailable	5	18.5	22	81.5	0	0.0	27	32.5		
Training										
Yes	14	26.4	39	73.6	0	0.0	53	63.9	-0.242	0.027*
No	16	53.3	13	43.3	1	3.4	30	36.1		
Safety climate										
Good	27	43.5	35	56.5	0	0.0	62	74.7	0.286	0.009*
Poor	3	14.3	17	80.9	1	4.8	21	25.3		
Supervision										
Good	26	35.1	47	63.5	1	1.4	74	89.2	-0.064	0.563
Poor	4	44.4	5	55.6	0	0.0	9	10.8		

Percentages are represented as row percentage except for the total column percentage

*Significant at $p < 0.05$

Table 3. Recapitulation of the results of the test of the effect of each independent variable on the level of compliance with the application of standard precautions

Model	Unstandardized	Standardized	Beta	t	Sig
	Coefficients	Coefficients			
	B	Std. Error			
(constant)	59.894	4.545		13.179	.000
Safety climate	3.669	1.323	.298	2.773	.007
Supervision	-466	1.855	-.028	-.251	.802
Training	-1.163	1.277	-.104	-.911	.365
Facility	2.939	1.236	.257	2.377	.020
Standard Operating Procedure (SOP)	-2.179	3.795	-.062	-.574	.567
Policy	2.067	1.949	.114	1.060	.292

Dependent variable: compliance

DISCUSSION

The main driver of unsafe actions and unsafe conditions is organizational factors. When linked with the theory of behavior from Lawrence Green, organizational factors indirectly cause work accidents by creating enabling factors that trigger workers to take unsafe actions (predisposing factors). One such

dangerous act is workers' non-compliance with work procedures and safe work principles. Organizational factors can also directly damage the defense system's effectiveness, resulting in system failures (reinforcing factors), such as the lack of strict application of occupational health and safety rules and procedures (Suyono and Nawawinetu, 2013).

• **Relationship between OHS policy and infection prevention and control with compliance level of standard precautions implementation**

This study indicates that there is no significant relationship between OHS policies and Infection Prevention and Control with the level of compliance with the implementation of standard precautions. Based on the tabulation results, the respondent's assessment of occupational health and safety policy and the organization's infection prevention and control was quite good. Even though the assessment was good, most of the respondents were still not obedient. This shows that organizational commitment in the form of organizational policies does not encourage personal responsibility from officers to behave in compliance with the principles of standard precautions in the hospital. The results of this study are in line with research conducted by (Damanik et al., 2012), which states that there is no relationship between hospital policies and compliance with hand hygiene at Immanuel Hospital Bandung (Damanik et al., 2012).

Management commitment related to occupational health and safety must be demonstrated clearly in daily activities and attitudes in organizational activities. Management commitment must be seen (Visible commitment) and felt by all elements of the organization. Commitment is very decisive because it becomes a reference and guide in implementing occupational health and safety in an organization (Ramli et al., 2010). The real form of organizational commitment is a policy, in this case, an OHS policy and Infection Control Prevention. Organizations must enforce strong policies to monitor the compliance of workers (Lim et al., 2021).

• **Relationship of standard operating procedures with the level of compliance with the application of standard precautions**

The results of the cross-tabulation between the standard operating procedure and the level of compliance with the implementation of standard precautions show that 81 respondents know and feel that the standard operating procedures made by the organization are quite complete, easy to follow, and easy to implement. Even so, most of the respondents know this only 37% apply standard precautions well. Analysis of the relationship between the standard operating procedure for OHS and standard operating procedure for Infection Prevention and Control with the level of compliance of officers is not significant. The results of this study are in line with the results of research by Ayu et al. (2018) concerning the analysis of factors related to compliance with the use of PPE in welding workers, which states that there is no significant relationship between the standard operating procedure and compliance with using PPE according to standard operating procedure (Ayu et al., 2018).

The standard operating procedure is a standard method or stage, which every job must carry out in

the process of certain activities. Implementing standard operating procedures is to create order, performance, and work safety for employees in the organization. According to the ILCI Loss Caution Model, an inadequate standard is a form of weakness in the organization's control. If the standard operating procedure is made non-specific, not following the needs, difficult to understand, and not sufficiently socialized/communicated to workers, it will be the basic cause of accidents or occupational diseases.

OHS standard operating procedure socialization and infection prevention and control must be carried out at all levels in the organization, both managerial levels, medical and non-medical officers, visitors, and third parties. The description of the lack of socialization of standard OSH procedures and prevention of infection control can be seen from the level of officers' compliance with standard precautions, which is still at a moderate level.

• **Relationship between facility and compliance level with standard precautions**

The results of statistical analysis of the relationship between the supporting facilities for implementing standard precautions with the level of compliance of officers show that there is a significant relationship between the level of compliance with the Infection Prevention and Control policy. The positive correlation coefficient value shows a unidirectional relationship between the two variables. The better the facilities provided by the organization, the better the level of compliance of officers to the implementation of standard precautions in the hospital. The results of this study are in line with the research results by (Gultom et al., 2016). It is concluded that there are most dominant variables about the application of universal precautions by nurses, namely the variable availability of facilities with the behavior of nurses in implementing standard safeguards at Prof. Dr. R. D. Kandou Manado (Gultom et al., 2016).

According to Green's behavior theory, facilities are one of the enabling factors for behavior change. In addition to knowledge and attitudes, which become individual factors for officers' compliance behavior, adequate facilities shape individual behavior. Although officers' motivation is high in implementing standard precautions, if the organization does not provide adequate facilities, it will be difficult for officers to carry out activities according to standards. The results of this study indicate a unidirectional relationship between motivation and the level of compliance of officers. This indicates that compliance behavior is not sufficiently caused by good self-motivation from the officers themselves. Still, the organization must support this motivation by providing adequate facilities to support the desired compliance behavior. The availability of facilities is a factor in compliance with standard safety precautions. Sufficient environmental conditions and the availability of standard preventive facilities in

health care facilities are significant for the safety of patients, health workers, and the visiting community (Cronk and Bartram, 2018).

• Relationship of training with level of compliance with the application of standard precautions

The correlation test results show that there is a significant relationship between occupational health and safety training and standard precautions with the level of compliance of officers in implementing standard precautions. The negative correlation coefficient value indicates a unidirectional relationship. The better the staff's perception of the training that has been carried out by management, the lower the level of compliance with the implementation of standard precautions. The results of this study are in line with the research conducted by Candra (2015) regarding the relationship between forming behavioral factors and compliance with the use of PPE for Ampenan power plant workers, who stated that there was a relationship between training and compliance with the use of ear protection devices for workers (Candra, 2015). Another research result that is also in line with this study is a study conducted by Guo et al. (2010) regarding the factors that influence officers' compliance with standard precautions in 18 hospitals in Hunan, China, which states that training has a strong influence on officers' compliance in implementing standard precautions (Guo et al., 2010).

Type of work is one of the causal factors that significantly affect the level of perception and compliance of hospital workers with standard precautions (Abuduxike et al., 2021; Kasa et al., 2020). Hospitals should implement considerable other precautions with training or workshops to support health care workers when handling especially high-risk medical care procedures (Wong et al., 2021; Givi et al., 2020; Saadi et al., 2020). Training is one way to keep staff skills at the desired level. Training can be one of the ways that an organization can take to correct the obedient behavior of officers to meet organizational needs, officers must have the knowledge, attitudes, and skills acquired from the training program.

• The relationship between safety climate and the level of compliance with standard precautions

The correlation test results show that there is a significant relationship between the safety climate of the organization and the level of compliance of officers. The positive correlation coefficient value shows a unidirectional relationship between the two variables. The better the safety climate in the organization, the better the level of officers' compliance to applying standard precautions in the hospital. The results of this study are in line with the research conducted by Yoon and Park (2018), which states that there is a significant relationship between compliance with standard precautions and the organization's safety climate (Yoon and Park, 2018).

According to DeJoy's model of determinants of compliance behavior, climate safety is one of the factors

in an organization that can affect compliance with the application of standard precautions. Climate safety relates to policies, procedures, and actions taken by the organization regarding the safety of its members. Organizations have a very important role in shaping the climate of safety. In encouraging a safety climate in the organization, there must be a committed leader, an effective OHS management system to identify risks, investigate accidents, and monitor irregularities.

• Relationship between supervision and level of compliance with the application of standard precautions

The results of statistical analysis state that there is no statistically significant relationship between the supervision carried out by the organization and the level of officers' compliance in observing standard precautions. Supervision is one of the tools in management to ensure that members of an organization implement policies or procedures. Supervision is carried out in stages, starting from peer review to top management. In DeJoy's model of compliance with standard precautions, peer review is a factor within the organization that influences staff compliance in applying standard precautions. Peer reviews in hospital infection prevention and control management can be interpreted as Infection Prevention and Control Link Nurse (IPCLN). Inadequate supervision is one of the primary causes in the ILCI Loss Causation Model, which can lead to substandard practices and substandard conditions that become antecedent behavior of disobeying the application of vigilance standards in the hospital.

• The influence of organizational factors on officer compliance level in implementing standard precautions

The test results of each research variable indicate that two factors influence compliance with the application of standard precautions, namely the safety climate and facilities, and the variable with the most significant influence is the climate safety factor. According to the theory of the model of determinate of compliance of behavior, three factors that affect the level of compliance with standard precautions, namely individual factors, occupational factors, and organizational factors, have a positive influence on each factor and collectively affect the compliance of officers in compliance behavior. However, three-factor inputs can contradict each other, for example, when a person realizes the risk of not using PPE but not doing so because the possibility of PPE needed is not available. According to the ILCI Loss caution model theory, organizational lack of control is the first domino cause of substandard practices, behavior, and conditions that lead to incidents. Organizational factors are a significant factor in influencing the occurrence of work accidents. Research conducted by Nichol et al. (2013) on 1074 nurses at six hospitals in Ontario, Canada, regarding compliance with Facial Protective Equipment in infection prevention through a respiratory system shows that organizational factors have a strong influence on the

level of application compliance. Standard precautions in health care facilities. The four organizational factors are facilities, training, organizational commitment to health and safety, and good communication (Nichol et al., 2013). Obedience or obedience is something dynamic so that a person's obedience and compliance with the provisions that apply in their environment does not always happen or change. Internal and external factors that cause a person to comply with the provisions in their environment have a dynamic impact on the consistency of their compliance.

Based on the results of this study, climate safety is the most influential factor with the level of compliance of officers in implementing standard precautions in their daily duties. The positive influence value shows that the better the safety climate provided, the higher the level of compliance with the application of standard precautions. Management must promote a good safety climate in the organization to encourage officers' compliance in applying standard precautions. Climate safety relates to policies, procedures, and actions taken by the organization regarding the safety of its members. Establishing a safety culture is not enough to change the attitude or behavior of workers. Still, it is done in line with the creation of a safe climate in the organization. This effort is a dynamic cycle and must be carried out continuously. The thing that often causes the failure of an organization to change the attitude and behavior of its members is the inconsistency of management in making good work safety efforts in organizational activities (Cooper et al., 2001).

CONCLUSION

In this study, it can be concluded that the factors that influence the level of compliance of officers in implementing precautions in the hospital are the safety climate and facilities. The variable with the strongest influence is the safety climate variable. The relationship between the officer's perspective regarding the organization's safety climate with the level of compliance of officers in implementing standard precautions also has a relationship that shows a unidirectional relationship between the two variables; the better the safety climate in the organization, the better the level of compliance of officers with the application of standard precautions in the hospital. The facility factor affects the level of compliance of officers in the hospital, the better the facilities provided by the organization, the better the level of officers' compliance with the implementation of standard precautions in the hospital.

ACKNOWLEDGMENTS

The author would like to thank the hospital director who facilitated this research and also to the Universitas Nahdlatul Ulama Surabaya for providing support in this

research. The author states there is no conflict of interest with the parties involved in this study.

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