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The Strategy of Developing Patients' Safety Culture in Hospital

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ABSTRACT

The important factor affecting patients' treatment and safety service quality is patients' safety culture. This research aimed to identify the most effective strategy to develop the patients' safety culture to prevent nursing error in the highest referral hospital in East Kalimantan Province. This research is a mix method. The population in this study were all nurses in the inpatient room totaling 342 people and a sample of 119 people obtained by proportional random sampling. In quantitative research, data were obtained using questionnaires and then analyzed using multiple linear regression. While qualitative data were obtained through in-depth interviews with 3 informants, namely the implementing nurse, the head of the inpatient room and the chairman of the patient safety committee. The results of the analysis show that there are two environmental factors that influence patient safety culture, namely lifesaving control (*p value* = 0.002) and patient safety (*p value* = 0.041). Through in-depth interviews, it is known that individual, organizational, and environmental factors are effective in developing a patient safety culture.

Keywords: strategy; development; patients safety culture

INTRODUCTION

Patient safety incidents often occur due to the weak culture of patient safety among nurses in hospitals[1–3]. One in ten inpatients will experience an adverse event during their stay in the hospital[4]. A culture that educates, understands, and practices ethical values Fundamental aspects need to be developed to increase nurses' ethical awareness and perceptions of patient safety culture[1]. Developing a patient safety culture is the most important element in improving patient safety and nursing quality[3,4].

Based on the Committee of Quality Improvement and Patients' Safety, the highest referral hospital in East Kalimantan Province in 2017 indicated that there were 2,267 patients' safety incidents consisting of 737 incidents in the first quarter, 590 incidents in the second quarter, 671 incidents in the third quarter and 273 incidents in the last quarter with the incident type occurred including near miss by 88.04%, reportable circumstance by 7.76%, Adverse Event by 2.77%, and Not Injured Incident by 1.94%[5]. According to Hilda, et al. (2018), patients' safety incidents happened in this hospital is due to the weak patients' safety culture. The patients' safety culture was assessed using instrument proposed by AHRQ of Hospital Survey on Patients' Safety Culture, where the lowest dimension is the Non punitive Response to Errors followed by staffing, Management Support for Patient Safety, Supervisor/Managers' Expectations and Actions Promoting Patient Safety, Handsoff and Transitions. Overall Perceptions of Patient Safety and Frequency of Events Reported. Meanwhile, the dimensions which encouraged the patients' safety culture were Teamwork Within Units, organizational learning, Communication openness and Feedback and Communication About Error[6].

Regarding efforts to reduce the number of Adverse Events in hospitals, it is believed that creating or building a safety culture is the first step in achieving patient safety. Efforts to improve patient safety culture in hospitals have been carried out, such as providing patient safety training to nurses, increasing the champion function and increasing management support by completing facilities and infrastructure. However, the implementation of patient safety culture has not been implemented optimally. Key Elements and Goals proposed in developing a patient safety culture are to increase attention to individual factors, organizational factors and environmental factors that affect patient safety culture such as openness to problems and errors, dissemination of knowledge and skills equally to every hospital employee, approach without Punishing, Teamwork and meeting the availability of competent nursing staff [7].

Several studies have indicated that organizations need cultural change[2,4,8,9]. There is still a weak patient safety culture in hospitals as described in the background above and the identification of factors that contribute to a weak patient safety culture in hospitals, Possible steps to improve patient safety culture should be developed and initiated.

METHODS

This research is a mix method. consisting of quantitative and qualitative research. The population in this study were all nurses in the inpatient room totaling 342 people and a sample of 119 people obtained using the Lemeshow formula. Sampling was done by proportional random sampling technique. Quantitative data was obtained using a questionnaire and then analyzed using multiple linear regression to analyze the influence of organizational, individual, and environmental factors on patient safety culture. While qualitative data were obtained through in-depth interviews with 3 informants, namely the implementing nurse, the head of the inpatient room and the chairman of the patient safety committee to determine the strategy for developing a patient safety culture in the hospital.

RESULTS

Profile of the Respondents

Table 1. Frequency and percentage of the profile of the respondents

Nurse characteristics	Frequency	Percentage
Gender		
Male	35	29.4
Female	84	70.6
Age (years old)		
< 25	8	6.7
25-35	71	59.7
36-45	32	26.9
> 45	8	6.7
Last education		
DIII nursing	86	72.3
DIV nursing	12	10.1
Nursing undergraduate(S1)	9	7.6
Ners (profession)	12	10.1
Working period		
<5 years	27	22.7
5-10 years	58	48.7
>10 years	34	28.6
Tribe		
Kutai	10	8.4
Javanese	54	45.4
Banjar	19	16.0
Makassar	2	1.7
Toraja	3	2.5
Bugis	19	16.0
Mandar	1	0.8
Sundanese	2	1.7
Bali	2	1.7
Manado	1	0.8
Minahasa	1	0.8
Batak	3	2.5
Sasak	1	0.8
Dayak	1	0.8
Employment status		
Civil servant	43	36.1
Honorary/contract	76	63.9

Based on table 1, 70.6% of respondents are female, 59.7% are aged 25-35 years, and 72.3% are graduates of DIII Nursing. Furthermore, 48.7% of respondents have a tenure of 5-10 years, while the other 28.6% have a tenure of more than 10 years. In addition, 45.4% of the respondents were Javanese, 63.9% were temporary employees, while 36.1% were civil servants.

Patients' Safety Culture

The patient safety culture variable was categorized into two based on the median value because the data were not normally distributed. Values that are above and equal to the median are said to be good and values that are below the median are said to be less good (see table 2).

Table 2. Distribution of patient safety culture based on respondent's perception

Patients' safety culture	Frequency	Percentage
Positive	54	45.4
Negative	65	54.6

Based on table 2, it can be seen that 45.4% of respondents perceive the patient safety culture as good and 54.6% perceive the patient safety culture in the inpatient room as not good. From the results of the interview, it is known that the weak patient safety culture occurs because they are not used to implementing it and the lack of individual awareness in implementing patient safety goals. It is realized that the patient safety program has existed since 2015, but its implementation is still not optimal. This is because not all implementing nurses are directly exposed through training and socialization which is still lacking.

"Patient safety culture has not been optimally implemented, it is still in habituation, it is only exposed to change habits. Patient safety culture is very important and now it is being actively promoted". (Informant I)
"Patient safety programs need continuous socialization because there are nurses who are not exposed and not all nurses have received training". (Informant II)

"Understanding of patient safety culture is still lacking and socialization is still lacking and not comprehensive. Not a good mindset yet. Awareness to implement patient safety programs is still low and work does not meet standards". (Informant III)
"Commitment in implementing is still lacking, it should be included in the performance appraisal and there are rewards for those who carry it out." (Informant IV)
"The implementation of patient safety culture is not yet optimal because the number of nurses is not balanced with the number of patients (the number of nurses is still lacking although according to the calculation of the Ministry of Health is sufficient)." (Informant V)
"The patient safety program has been implemented well (85%), the weakest is hand washing." (Informant VI)

Patients' Safety Culture Dimensions

Table 3. Patients' safety culture dimensions

	Minimum	Maximum	Mean	Std. deviation
Teamwork within units	3	4	3.54	0.501
Supervisor/manager expectations and actions promoting patient safety	2	4	2.97	0.304
Organizational learning—continuous Improvement	2	4	3.28	0.468
Management support for patient safety	2	4	2.84	0.431
Overall perceptions of patient safety	2	4	3.03	0.258
Feedback and communication about Error	2	4	3.08	0.381
Communication openness	2	4	3.18	0.404
Frequency of events reported	0	4	2.89	0.549
Teamwork across units	2	4	3.14	0.509
Staffing	2	4	2.82	0.487
Handoffs and transitions	2	4	2.97	0.468
Nonpunitive response to error	1	4	2.61	0.678

The average value of the patient safety culture dimension that is less than the median value or perceived as less good is Nonpunitive Response to Error with a mean value of 2.61, followed by the staffing dimension (mean 2.82), Frequency of Events Reported with a mean value of 2, 89 and the Handoffs and Transitions dimension with a mean value of 2.97. Meanwhile, the cultural dimension that has an average value of more than the median value or is perceived as good is the Organizational Learning-Continuous Improvement dimension with a mean value of 3.28, followed by the Communication Openness dimension with a mean value of 3.18, Supervisor/Manager Expectations and Actions Promoting Patient Safety with a mean value of 2.97. From the results of the interview, information was obtained that the "blaming" culture was still found.

"The blame culture still occurs because the delivery pattern is not good sometimes still mentioning names and shifts". (Informant III)
"The general blame culture still exists. There has been an incident where drugs were exchanged and then discussed but considered to be blaming, it has begun to be eliminated but it is still reported and discussed - still being reprimanded and given guidance" (Informant II)

Based on interviews about the frequency of incident reporting that is still not good, the researcher received information that the incident reporting form already exists but is not used optimally.

"Forms for incident reporting are already available but not optimally used because nurses assume that after being reported there will be no follow-up. Reporting only happens to be found by the head of the room" (Informant III)

Individual, Organizational and Enviromental Factors

Table 4. Respondents' distribution based on individual, organization and enviromental factors

Variable	Good frequency	Percentage	Poor frequency	Percentage
Individual factor				
Knowledge	89	74.8	30	25.2
Attitude	75	63	44	37
Motivation	62	52.1	57	47.9
Competence	110	92.4	9	7.6
Situation alertness	97	81.5	22	18.5
Stress	87	73.1	32	26.9
Fatigue	67	56.3	52	43.7
Organizational factor				
Managers' leadership	79	66.4	40	33.6
Teamwork	92	77.3	27	22.7
Team leadership	74	62.2	45	37.8
Decision making	75	63.0	44	37.0
Environmental factor				
Fire prevention	74	62.2	45	37.8
Infection control	85	71.4	34	28.6
Lifesaving control	81	68.1	38	31.9
Equipment	119	100.0	0	0.0
Dangerous material	119	100.0	0	0.0
Medical tool	119	100.0	0	0.0
Electrical tool	109	91.6	10	8.4
Patients' security	89	74.8	30	25.2
Storage cabinet	119	100.0	0	0.0
Drug management	119	100.0	0	0.0

Based table 4 it can be seen that the distribution of variables on individual factors is generally in the good category where most of the respondents have good knowledge about patient safety as much as 74.8% and a small portion of 25.2% have poor knowledge. Most of the respondents have a good attitude towards patient safety as much as 63% and 37% have a bad attitude. More than half of the respondents have good motivation as much as 52.1%. Almost all respondents have good competence regarding patient safety, which is 92.4% and most respondents state that situational awareness is good at 81.5%. Most of the respondents stated that the stress level was good (73.1%) and the respondents who stated that the level of fatigue was good were 56.3%.

Respondents' perceptions of organizational factors are good, where respondents' perceptions of managerial leadership 66.4% are good, 77.3% of respondents' perceptions of communication are good and 63% are good team work. Respondents who stated good team leadership were 62.2% and respondents who stated good decision making were 63%. On environmental factors 62.2% of respondents said fire prevention was good, 71.4% of respondents said infection control was good and 68.1% of respondents said lifesaving control was good. All respondents stated that the equipment, hazardous materials, medical devices, storage cabinets and drug management were good (100%), while in the electrical appliance variable, almost all respondents said it was good (91.6%), Some respondents said patient safety was good (74.8 %). Thus, respondents' perceptions of environmental factors are good.

The Influence of Individual Factors, Organizational Factors and Environmental Factors on Patient Safety Culture

Multiple Linear Regression Test

Anova Test

The anova test provides information whether one of the slopes of the independent variables is significant or not. The results of the F test can be seen in the following table:

Table 5. Anova test result

Model	Sum of squares	df	Mean square	F	Sig.
Regression	2012.163	7	287.452	3.938	0.001
Residual	8102.274	111	72.993		
Total	10114.437	118			

Based on table 5, it is known that the calculated F value is 3.938 with p value = 0.001 smaller than 0.05, this means that individual factors, organizational factors and environmental factors simultaneously affect patient safety culture.

T-test

In table 6 it can be seen that the control variables for lifesaving and patient safety, have a *p value* < 0.05, meaning that these two variables have an effect on patient safety culture. Based on the results of the T test, the following regression equation is obtained:

Table 6. T-test result

Patients' Safety Culture Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	B		
(Constant)	182.301	19.735		9.237	0.000
Motivation	-0.224	0.263	-0.093	-0.853	0.395
Competence	-0.185	0.544	-0.033	-0.339	0.735
Stress	-0.735	0.575	-0.144	-1.278	0.204
Fatigue	-0.991	0.516	-0.189	-1.921	0.057
Lifesaving Control	-2.702	0.859	-0.311	-3.146	0.002
Patients' Safety	1.691	0.819	0.188	2.065	0.041
Drug Management	-1.740	0.931	-0.171	-1.868	0.064

Y = a + b1X1 + b2X2
Y = 182.301 - 2,.702_lifesaving control + 1.691_patient safety
Y = Patient safety culture
a = constant
b1= regression coefficient
X1= Lifesaving control
b2= regression coefficient
X2= Patient safety

From the above equation, the constant value of 182,301 mathematically states that if the value of both variables is equal to zero, the patient safety culture will be influenced 182,301 times. The regression coefficient of the lifesaving control variable is -2,702, meaning that the lifesaving control has an effect on patient safety culture by 27.02%. While the regression coefficient value of patient safety variable is 1.691, thus the patient safety variable has an effect on patient safety culture by 16.91%.

Proposed Strategies for Developing a Patient Safety Culture

Based on the analysis of the quantitative and qualitative data described above, a strategy for developing a current patient safety culture is formulated and the culture proposed to develop a patient safety culture is as presented in table 7.

Table 7. Suggestions for developing a patient safety culture

No	Current culture issues	Proposed culture	Development strategy
1	Non-punitive response to mistakes (blamming culture)	Openness to problems and mistakes open communication	1) Focus on hazards that can threaten patient safety and not on finding undesirable events.
2	Frequency of incident reporting	Teamwork Learning culture	2) A non-punishmental approach and root cause investigation if any untoward incident occurs in the hospital.
3	*Handsoff* and transition	Teamwork Leader's commitment to safety	3) Improve lifesaving control by using all forms of procedures and instruments in handling emergency patients.
4	*Staffing*	Resource justice organization for patient safety	4) Improving patient safety by creating conditions for maintaining patient peace in the hospital

DISCUSSION

From the results of research on individual factors, it is known that most of the respondents have good knowledge, attitudes, motivation, competence about patient safety. Situation alertness, stress level and fatigue are also in good category. Thus, the implementing nurse in the inpatient room has good potential to support the creation of a better patient safety culture. The results of this study are in line with the research of Syam and Hastuti (2018) which found that the knowledge and attitudes of nurses were high but had nothing to do with the application of patient safety culture[10]. Intensive and continuous socialization and training are needed to maintain and enrich the knowledge of implementing nurses in improving patient safety culture[11–13]. Safety culture refers to the product of individual and group values, attitudes, perceptions, competencies and behavioral patterns that determine commitment, and styles and skills, health and safety management of the organization[14].

Regarding the organizational factor, most of the respondents stated that the hospital had good managers' leadership, communication, teamwork, team leadership and decision making. It shows that compared to the last year's research, there was improvement regarding the organizational factor. According to Danaswari (2012), there was good potential in terms of organization to develop the patients' safety culture. Such effort must be supported by adjusting the managers' leadership style into the leadership style which is suitable for patients' safety management which is transactional leadership style. Such style offers incentive and punishment agreed by the acting nurses. As a team leader, manager is expected to have more responsible in completing task, maintaining the patients' safety and task of each member as well as able to meet the needs for the continuity of its members' work. The new safety culture is expected to emphasize the importance of teamwork in providing service for the patients because almost all hospital services were done by various science discipline [7],[15].

In terms of environmental factor, the respondents stated that the fire prevention, infection prevention and lifesaving control were good. All of the respondents stated that the equipment, dangerous materials, medical tools, storage cabinet and drug management were good. Most of the respondents also stated that the patients' safety was good. Based on the analysis result, it was obtained that the hospital environment condition supported good patients' safety standard. According to the multiple regression analysis, the lifesaving control and patients' security also affected the patients' safety culture. Informant claimed that the lifesaving control in the hospital has been in good condition although there were several equipment that were being repaired including the bed fence. In such improvement, there were many things needed including a rather long time, cost and the third party who handles it. However, the informant also claimed that the patients' security is rather not good in which the patients' break were often disturbed due to the high number of visitor from the other patient in one ward. Therefore, the hospital made visiting hours policy, the use of waiting cars for the family who accompany the patient. In addition, the hospital also enacted card tariff for the family member who accompany the patient.

Patient safety culture in hospitals is in the poor category, especially in the dimensions of non-punishment response to errors followed by staffing, frequency of incident reporting, handsoff and transition. The results of this study are still the same as the study by Hilda et al (2018) which was carried out at the same hospital[6]. However, in the results of this 2019 study, there was an increase in patient safety culture in the dimensions of management support for patient safety, the role of managers in the promotion of patient safety and nurses' perceptions of patient safety. According to the results of interviews with informants, the hospital is currently preparing to face reaccreditation because at the beginning of 2019 the hospital's accreditation status was lowered to accredited B so that several efforts to improve have been made. The results of this study are also in line with the results of the study by Jabarkhil et al (2021) at the Esteqlal Special Hospital in Kabul, which stated that the non-punitive response dimension to errors had the lowest score[16]. Non-punitive responses in some hospitals at the level of reliability need to be improved where employees often feel that their mistakes are used to blame them and are recorded in their personal files[17–20].

Blame or shame culture, which is perceived as a blame culture, requires individuals to perform perfect performances and take full responsibility for their performance, so that individuals who make mistakes will be focused on their weaknesses, resulting in bad comfort at work, missing opportunities to learn and implement changes. as well as a decrease in incident reports for both individuals and teams[21]. In line with this study, the frequency dimension of incident reporting was considered less good because nurses assumed that after the report was made there was no follow-up. Reports are only made if by chance found by the head of the room. A blame culture, as explained by Peter Pronovost, does not encourage reporting and learning from mistakes, leading to fear of being punished [17,20]. A blame culture and poor communication are common factors associated with a poor patient safety culture[14]. The safety culture system needs to consider staff and their mistakes not to blame and humiliate. The involvement and commitment of managers in responding to punishments for officers who make mistakes have an impact on increasing patient confidence. Identifying the difficulties and challenges that health workers face builds trust between all parties involved. Some authors describe hierarchy although important but should not be applied strictly because sharing tasks and obligations will complement each other in the development of a safety culture[12]. Open communication among staff regarding safety-related incidents or actions is an important characteristic of patient safety culture[16].

Meanwhile, the dimension of incident report frequency was considered as poor since there was no follow up done after the incidents occurred. The report is also only done if it is accidentally found by the head of the room. In

addition, the frequency of report was also poor since the acting nurses are afraid to be blamed and feel embarrass. Furthermore, the facilities causing the adverse events have been repaired, but the response are slow since its repair needs cost and handled by the third party. The result of this research is in line with the research conducted by Nola, Iskra 2019 where the majority of the hospital does not report any event in 12 months period and still indicated that there was blaming culture. Blaming culture, as explained by Peter Pronovost does not encourage to do report and learn from mistake, but it directs to fright of being punished[17,22]

The dimension of hands-off and transition were considered as poor because it was not done routinely especially in Saturday and Sunday when the head of the room does not present. The handsoff and transition has not been implemented maximally. All acting nurses must know all patients in the ward, but the system established were instead where the team one only know the patients on their team, and the team two also only know the patients on their own team. Although status system has been implemented in terms of hands-off and transition dimension, however it has not been optimal on the afternoon and night shifts. There were still nurses who were late so that they did not participate in the handover and transition[23].

The dimension of staffing in the quantitative dimension was considered as good but the in-depth interview obtained explanation that the number of nurse is low for the afternoon and night shifts. According to Danielsson, one of the strongest patient safety culture dimensions is the staff determination related to to overall patients' safety since staff is very essential to improve the patients and working place safety culture[3].

CONCLUSION

The results of this study indicate that individual factors, organizational factors and environmental factors have good potential to support the creation of a better patient safety culture. However, patient safety culture is perceived as not good, especially in the non-punitive response dimension to errors which results in low reporting of patient safety incidents. We believe that open communication among staff regarding safety-related incidents or actions is an important characteristic of patient safety culture.

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