

Associated Factors with the Implementation of Patient Safety Culture in Hospital

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ABSTRACT

OBJECTIVE: To identify factors associated (i.e., organizational culture, patient safety regulation, patient safety management quality) with implementing a patient safety culture in hospitals.

METHODOLOGY: Quantitative research was used with a cross-sectional approach. All 219 nurses working in inpatient wards of a hospital in Banda Aceh were conveniently included in this study using a non-probability convenience sampling technique with some inclusion and exclusion sample criteria. Data were collected from 18 to 28 April 2024 using the Organizational Culture Assessment Instrument (OCAI), the Karen-personnel instrument for managing the QPSM, the Hospital Survey on Patient Safety for assessing patient safety culture, and a questionnaire comprising questions based on existing literature for evaluating patient safety regulations. Data analysis involved Pearson correlation and multiple linear regression by SPSS 26 for Windows.

RESULTS: There was a relationship between organizational culture ($p < .0001$, $r^2 = 0.659$), patient safety regulation ($p < .0001$, $r^2 = 0.423$), and quality management of patient safety ($p < .0001$, $r^2 = 0.442$) and patient safety culture. The results of the multiple linear regression analysis indicated that higher levels of organizational ($p < .0001$) and regulatory culture ($p < .0001$) were associated with a higher patient safety culture among nurses in the hospital's nursing wards.

CONCLUSION: Implementing a hospital patient safety culture is associated with the organizational and regulatory culture levels. Organizational and Regulatory Culture Hospitals are encouraged to foster a positive organizational culture by ensuring a comfortable and secure working environment and providing training opportunities for nurses to enhance patient safety practices.

KEYWORDS: Organizational Culture, Regulation of Patient Safety, Patient Safety, Quality Management, Safety, Patient.

INTRODUCTION

Patient safety is a primary focus in the global effort to enhance healthcare quality. The World Health Organization's Global Patient Safety Action Plan (WHO's GPAPS) 2021–2030 underscores the importance of healthcare institutions strengthening policies and strategies based on scientific knowledge and patient experiences. The goal is to eliminate preventable risks and hazards for patients and healthcare workers¹.

A robust patient safety culture improves healthcare quality and prevents adverse patient events. Patient safety involves proactive measures by healthcare professionals to ensure patients receive safe and effective care. A strong safety culture promotes openness, effective communication, and learning from mistakes to prevent the recurrence of similar incidents

in the future².

In developed countries, no less than 8% of hospital patients experience adverse events (AEs), with more than 50% of these incidents being preventable. Many of the events result in permanent disability or death³.

In Indonesia, 7,465 incidents were reported by 334 or 12% of the 2,877 Indonesian hospitals in 2019⁴. A report suggests about 37.9% of patient safety incidents in Indonesia were reported in DKI Jakarta, 15.9% in Central Java, 13.8% in DIY, 11.7% in East Java, 10.7% in Aceh, 6.9% in South Sumatera, 2.8% in West Java, 1.4% in Bali, and 0.7% in South Sulawesi⁵. Barriers to the lack of incident reporting by hospitals in Indonesia included the lack of knowledge, feedback, commitment, incentives, socialization and training, fear of blame, avoidance of conflict, and timeliness of reporting⁴.

Creating a patient safety culture has been important for healthcare organizations to enhance patient safety and care quality⁶. Research revealed only 23.9% of healthcare professionals demonstrated a positive patient safety culture. The overall average score for patient safety culture was 67.8, with job satisfaction scoring the highest. Factors such as age, gender, education level, workplace, patient safety training, and perception of a non-punitive, instructive incident reporting system were positively correlated with patient safety culture. These indicate the need for

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systematic interventions to create a safer patient environment⁷.

The data and information indicate the importance of patient safety culture in creating a safer healthcare environment. Multiple factors can contribute to implementing patient culture in hospitals, and improving these aspects will contribute to a safer healthcare environment in hospitals. However, research on patient safety culture in hospitals in Aceh Province is lacking; very few studies have been conducted on patient safety in hospitals in Aceh. Previous studies on patient safety in Aceh explored the implementation of patient safety in ward rooms⁸, the management level of patient safety⁹, the level of nurses' patient safety competencies¹⁰, and the relationship between nurses' knowledge of patient safety and medication administration errors in hospitals in Aceh Province¹¹. To our knowledge, no study has investigated the factors associated with implementing patient safety in hospitals in Aceh in general and in the surveyed hospitals in particular. Our study aimed to identify the associated factors with the implementation of a patient safety culture in hospitals.

METHODOLOGY

A quantitative study was conducted using a cross-sectional study design. The Study participants comprised 219 nurses from inpatient wards at one public hospital in Banda Aceh City. The participants were conveniently selected for the study using a non-probability convenience sampling technique, with inclusion criteria: a primary and executive nurse, actively working during the research, and voluntarily willing to participate in the current study. The exclusion criteria were nurses with study assignments or on leave.

Data was collected from 18 to 28 April 2024 using a self-administered structured questionnaire. The instruments included the Organizational Culture Assessment Instrument (OCAI) for organizational culture, the Karen-personnel instrument for patient safety quality management, the Hospital Survey on Patient Safety for patient safety culture, and a questionnaire based on existing literature for patient safety regulations. The OCAI consisted of six questions representing the six critical aspects of organizational culture, including dominant characteristics, organizational leadership, employee management, organizational leadership, organization glue, strategic emphases, and success criteria. The respondents were asked to indicate their organizational relevance by distributing 100 points over four statements. The Karen personnel instrument comprised 35 items, divided into the structure, process, and outcome quality; it was formulated using the Five-point Likert scale question (strongly agree, agree, neutral, disagree, and strongly disagree). The total score is obtained from the sum of the ranges, with 35 points being the lowest possible score and

175 points being the maximum. The higher the score, the greater the quality of care¹².

The Hospital Survey on Patient Safety Culture (HSOPSC) comprised 44 item questions on the Five-point Likert scale, with 44 points as the possible lowest score and 220 as the maximum. The HSOPSC was developed by AHRQ¹³. The questionnaire for regulation comprised 15 questions, developed based on the results of the reviewed literature, formulated in the form of a Five-Likert scale (strongly agree, agree, neutral, disagree, and strongly disagree), with 15 as the lowest possible score and 75 as the maximum.

Data analysis involved Pearson correlation and multiple linear regression. The Pearson correlation was used to assess the partial relationship between organizational culture, patient safety regulation, and patient safety quality management with patient safety culture. The Multiple linear regression analysis was conducted to determine the simultaneous relationship between organizational culture, patient safety regulation, and patient safety quality management with patient safety culture. The studies were completed using SPSS 26 for Windows.

Ethical approval was obtained from the Ethics Committee of the Meuraxa Regional General Hospital (RSUDM) Banda Aceh City with ERC letter No: 070/363/2024.

RESULTS

Characteristics of Respondents

The characteristics of respondents are described in **Table I**. The mean age of respondents was 39.10 years (SD=5.54), and the mean years of service was 7.94 years (SD=5.14). The majority of the respondents were female (68.49%), had a Diploma in Nursing (60.73%), were non-civil servants (88.58%), and had received patient safety training (82.19%).

Factors associated with the implementation of patient safety culture in hospitals

The description of factors related to patient safety culture by nurses in the hospital is shown in **Table II**. The mean score of nurses for organizational culture was 3.01 (SD = 0.59), patient safety regulation was 59.26 (SD = 6.48), quality management was 104.9 (SD = 8.34), and patient safety culture was 144.76 (SD = 26.02).

The Partial relationship between organizational culture, patient safety regulation, and patient safety quality management with patient safety culture is presented in **Table III**. There was a positive ($p < 0.0001$) and strong relationship ($r^2 = 0.66$) between organizational culture and patient safety culture; a positive ($p < 0.0001$) and moderately strong relationship ($r^2 = 0.42$) between patient safety regulation and patient safety culture; and a positive ($p < 0.0001$) and moderately strong relationship ($r^2 = 0.442$) between patient safety quality management and patient safety culture.

The simultaneous relationship between organizational culture, patient safety regulation, and patient safety

quality management with patient safety culture is described in **Table IV**. Only two of the three independent variables made a statistically significant contribution to the implementation of patient safety culture by nurses in hospitals, which include organizational culture ($p < 0.0001$) and patient safety regulations ($p < 0.0001$).

Table I: Characteristics of Respondents

Characteristics	Proportion
Age (mean, SD)	39.10 (5.54)
Years of Service (mean, SD)	7.94 (5.14)
Gender	
Male (f,%)	69 (31.51)
Female (f,%)	150 (68.49)
Nursing Education	
Ners (f,%)	86 (39.27)
Diploma (f,%)	133 (60.73)
Employment Status	
Civil Servant (f,%)	25 (11.42)
Non-civil servant (f,%)	194 (88.58)
Patient Safety Training	
Training	180 (82.19)
No Training	39 (17.81)

Table II: Description of Factors Related to Patient Safety Culture by Nurses in Hospitals

Variable	Mean	Standard Deviation	Min.	Max.
Organizational culture	5.05	2.95	0	10
Patient safety regulation	59.26	6.48	47	75
Patient safety quality management	104.79	8.34	87	129
Patient safety culture	144.76	26.02	88	176

Table III: The Partial Relationship of Organizational Culture, Patient Safety Regulation, and Patient Safety Quality Management with Patient Safety Culture

Variable	r ²	P-value
Organizational culture	0.66	0.000
Patient safety regulation	0.42	0.000
Patient safety quality management	0.44	0.000

Table IV: Factors Associated with Patient Safety Culture

Model Variable	B	t	P-value
Constanta	57.33	8.31	0.000
Organizational culture	29.05	12.92	0.000
Constanta	-25.57	-8.23	0.000
Organizational culture	25.82	11.58	0.000
Patient safety regulation	1.02	5.00	0.000

DISCUSSION

The study assessed the factors associated with implementing patient safety culture in hospitals, including organizational culture, patient safety regulation, and quality management of patient safety in one public hospital in the City of Banda Aceh. This study's findings show a robust positive relationship between organizational culture and patient safety culture. It may suggest that nurses in Aceh Province hospitals had good integrity, performance, professionalism, and teamwork when implementing a patient safety culture.

Organizational culture significantly affects performance and employee commitment. A report suggested a strong link between organizational culture, company performance, and employee commitment, with empowerment being crucial¹⁴. A positive safety climate benefits the safety culture promotes event reporting and improves healthcare quality¹⁵. Consistent management support can strengthen and enhance the safety culture within hospitals. At the same time, good collaboration and communication between units enhance patient safety. Organizational structural and policy changes may impact staff perceptions of patient safety, and effective quality improvement initiatives and consistent leadership are crucial for improving safety culture¹⁶.

Regulation is another essential factor for a patient safety culture. The current study suggests that the relationship between regulations and patient safety culture among hospital nurses was statistically significant and moderately firm; it suggests that nurses in the Aceh Province have implemented a patient safety culture based on the existing rules related to patient safety in hospitals.

Regulations in the healthcare sector take various forms and are carried out by many different actors. The regulatory process and activities have the potential to provide valuable feedback to healthcare service providers, support improvements, and ensure that high-performance standards are maintained¹⁷. Nurses' perceptions of the usefulness and effectiveness of patient safety regulations and procedures are positively related to their performance in terms of patient safety culture, measured in terms of safety compliance and participatory behavior¹⁸. When nurses perceive hospital safety regulations and procedures as valuable and practical, they demonstrate compliance and voluntary engagement in patient safety¹⁹. By adhering to rules, nurses can consistently apply the best nursing care and evidence-based guidelines, reducing service variability²⁰.

Regarding the relationship between patient safety quality management and patient safety culture, the analyzed data indicates a positive moderate strength relationship between quality management and patient safety culture; this suggests that the quality of nurses' nursing care will influence the implementation of the patient safety culture dimension in hospitals. A

previous study revealed that the quality management system predicts 44% of the variation in patient safety culture. The quality management system influences patient safety culture with a coefficient of 0.43²¹. Also, other researchers have reported a positive correlation between the quality of nursing services and patient safety culture in hospitals²². Implementing a quality management system will enable the minimization or elimination of preventable adverse outcomes, enhancing patient safety and safe practices by healthcare professionals²³.

The Multiple linear regression analysis suggests that the factors associated with patient safety culture by nurses are organizational culture and patient safety regulations. The study findings indicate that the higher the organizational culture and patient safety regulations, the higher the patient safety culture of hospital nurses.

Some previous studies present different results from this study. One study reported the factors contributing to patient safety culture were beliefs, attitudes, perceptions, competencies, and behavioral patterns of individuals and groups in healthcare service institutions¹⁹. Another study reported factors influencing patient safety culture, especially at the organizational and individual levels, were poor/low healthcare professionals' attitudes, poor documentation practices, lack of client cooperation, inadequate training and continuous education, lack of standard operating procedures, staff shortages, and high workloads²⁴. It has also been reported that good patient safety is significantly associated with education (having a bachelor's degree or higher), working in the surgical ward, not being blamed when medical errors occur, and working 40 to 49 hours per week²⁵. Other researchers have also reported that cooperation within the unit is the most dominant factor in hospital patient safety compared to open communication, teamwork between units, length of service and the availability of safety facilities²⁶.

While some variables related to patient safety culture mentioned in this study may differ from those in previous research, factors influencing patient safety culture can generally be categorized as organizational culture factors (management and leadership), patient safety regulations, and quality management of patient safety.

CONCLUSION

In conclusion, nurses can implement a patient safety culture effectively when an excellent organizational culture is in place, such as effective leadership and the implementation of monitoring and supervision functions. Clear rules for implementing safe nursing care for patients are also needed.

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Data Sharing Statement: The corresponding author can provide the data proving the findings of this study on request. Privacy or ethical restrictions bound us from sharing the data publicly.

AUTHOR CONTRIBUTION

Juanda H: developed the study conceptualization, data collection, and first draft of the manuscript.

Tahlil T: contributed to the study design, final draft of the manuscript, and revision.

Usman S: contributed to data analysis and interpretation.

All authors approved the final version of the manuscript.

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