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Analysis of dominant factors related to the implementation of patient safety culture in the inpatient installation

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Abstract

Background: Patient safety` culture in Indonesia is regulated through ministerial policies emphasizing leadership, teamwork, and staff support. Despite initiatives such as HSOPSC and SAQ, implementation remains partial, with strengths in leadership and teamwork but weaknesses in incident reporting and communication. Leadership, knowledge, attitudes, motivation, and communication significantly influence safety culture outcomes.

Purpose: To analyze the dominant factors related to patient safety culture.

Method: Correlation research design with *cross-sectional* and *analysis* approaches was conducted at Batang Hari Hospital from February – March 2025. A simple random sampling technique was applied, yielding a final sample of 99 respondents. Data collection was conducted using a structured questionnaire. Data analysis was conducted using the chi-square test with a 95% confidence level, where p-values below 0.05 indicated statistical significance. Multivariate analysis was subsequently performed through binary logistic regression with a stepwise approach

Results: Leadership, knowledge, attitude, motivation, and communication in relation to patient safety culture yielded p-values less than 0.05. The dominant factors in patient safety implementation culture are leadership ($p=0.045$), knowledge ($p=0.000$), and communication ($p=0.017$).

Conclusion: There is a relationship between leadership, knowledge, attitude, motivation, communication and patient safety culture. Knowledge emerges as the most dominant factors in the implementation of patient safety culture.

Keywords: Attitude; Communication & Patient Safety Culture; Knowledge; Leadership; Motivation.

INTRODUCTION

Patient safety in Indonesia has been formally regulated through Ministerial Regulation No. 11 of 2017, which emphasizes awareness-building, leadership, and staff support as essential components in fostering a safety culture (Ministry of Health of the Republic of Indonesia, 2017). Hospitals, as providers of health services, are expected to maintain service quality and patient satisfaction, which directly influence patient loyalty. Programs such as patient safety initiatives, quality committees, and instruments like the *Hospital Survey on Patient Safety Culture* (HSOPSC) and *Safety Attitudes Questionnaire* (SAQ) have been implemented, though studies indicate that execution remains partial. Stronger dimensions

include teamwork and leadership commitment, while weaknesses persist in incident reporting systems, non-punitive responses to errors, inter-unit communication, and top management support (de Carvalho & Bates, 2024).

The implementation of patient safety culture has proven effective in enhancing patient security, reducing hospitalization costs due to preventable errors, and encouraging incident reporting without fear of punishment (*non-punitive reporting*) (Mistri, Badge, & Shahu, 2023). Globally, institutions such as JCAHO in the United States and NPSA in the United Kingdom have prioritized safety culture as a cornerstone of patient safety. In Indonesia, Ministerial

Regulation No.1691/MENKES/PE/VIII/2011 outlines six patient safety goals: accurate patient identification, effective communication, medication safety, surgical accuracy, infection risk reduction, and fall prevention. These measures aim to proactively identify risks and minimize incidents. (Ministry of Health of the Republic of Indonesia, 2011)

Several factors influence the success of patient safety culture, including leadership, knowledge, attitude, motivation, and communication. Leadership plays a pivotal role in modeling and supporting safety practices (Northouse, 2022), while nursing knowledge provides the foundation for meeting patient needs (Nursalam, & Febriani, 2023). Attitudes and motivation—both intrinsic and extrinsic—drive nurses to consistently apply safety measures (Herawati, 2023). Effective communication ensures that safety information is properly conveyed to patients (Rahmawan & Basuki, 2024). Empirical studies confirm significant correlations between these factors and patient safety implementation (Diah & Pratiwi, 2023; Sinum, Garnida, & Kodyat, 2024; Irwanti, Guspianto, Wardiah, & Solida, 2022).

The practical application of patient safety culture is reflected in adherence to standard operating procedures (SOPs), effective communication during care delivery, incident reporting without fear of reprisal, teamwork, and openness to learning from mistakes. Nurses are expected to act proactively by identifying risks, ensuring accurate patient identification, and safeguarding medical confidentiality. Active involvement of healthcare workers is crucial to embedding safety culture, thereby creating a safe, high-quality, and patient-centered care environment (de Carvalho & Bates, 2024).

Nevertheless, challenges remain. Interviews conducted at RSUD Haji Abdoel Madjid Batoe Batang Hari revealed limited and delayed incident reporting, suboptimal implementation of the six patient safety goals, and a persistent blame culture. Reports often fail to capture root causes, leading to repeated incidents without preventive measures. Patient satisfaction also remains inadequate, with complaints about delayed nursing responses, infusate replacement, and insufficient patient education. These findings highlight the urgent need for continuous improvement in patient safety culture implementation across Indonesian hospitals (Pertwi, Sjaaf, Andriani, & Oktamianti, 2024).

RESEARCH METHOD

This research employed a quantitative analytical design with a cross-sectional approach, focusing on health problems, diseases, and associated risk factors through systematic data collection. The study was conducted at Batang Hari Hospital from February to March 2025.

The study population comprised all nurses assigned to inpatient wards of Batang Hari Hospital (N = 172). Inclusion criteria were: (1) nurses assigned to inpatient wards, (2) willingness to participate as respondents, and (3) provision of signed informed consent. Exclusion criteria included: (1) nurses on leave or absent during the study period, (2) nurses unable to participate due to illness, and (3) refusal to sign informed consent. A simple random sampling technique was applied, yielding a final sample of 99 respondents.

Data collection was conducted using a structured questionnaire adapted from Nursalam et al., (2018). The validity of the instrument was tested using Pearson's correlation formula with a threshold of $r \geq 0.05$. Items were considered valid when the calculated r exceeded the table value (range 0.462–0.966). The questionnaire was organized into two main sections. The first section captured respondent characteristics, including name, gender, age, education, and years of service. The second section comprised six subscales: Part A (Leadership Factors), Part B (Knowledge Factors), Part C (Attitude Factors), Part D (Motivation Factors), Part E (Communication Factors), and Part F (Patient Safety Culture in hospital wards). All items were designed as closed-ended questions, offering multiple-choice responses. Respondents selected answers based on their perceptions or personal experiences, consistent with established methodological guidelines.

The data analysis in this study was conducted using the chi-square test at a 95% confidence level. A p-value of less than 0.05 was considered indicative of a statistically significant association. Multivariate analysis was performed using binary logistic regression, employing the stepwise system to process the data.

Throughout the research process, the researcher upheld the ethical principles implemented in this study: informed consent, autonomy, confidentiality, nonmaleficence, beneficence, and justice.

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RESEARCH RESULTS

Table 1. Characteristics of the Respondents (N=99)

Variable	Results	p-value
Age (Mean±SD)(Range)(Year)	(35.29±6.766) (20 – 50)	
Age (n/%)		
20-30	19/19.2	
31-40	56/56.6	
41-50	24/24.2	
Gender (n/%)		
Male	32/32.3	
Female	67/67.7	
Years of Service (n/%)		
1-3	8/8.1	
>3-5	54/54.5	
>5	37/37.4	
Education (n/%)		
Diploma	26/26.3	
Undergraduate	53/53.5	
Professional Education	20/20.2	
Leadership (n/%)		
Less supportive	32/32.3	0.028
Supportive	67/67.7	
Knowledge (n/%)		
Fair	30/30.3	0.001
Good	69/69.7	
Attitude (n/%)		
Negative	33/33.3	0.013
Positive	66/66.7	
Motivation (n/%)		
Extrinsic	35/35.4	0.006
Intrinsic	64/64.6	
Communication (n/%)		
Less communicative	30/30.3	0.003
Communicative	69/69.7	
Patients' Safety Culture (n/%)		
Weak	33/33.3	
Strong	66/66.7	

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Table 1 presents the demographic and professional characteristics of the respondents. The mean age was 35.29 years (SD = 6.766), with the majority falling within the 31–40 year age group (56.6%). Most respondents were female (67.7%), had a work tenure of more than three to five years (54.5%), and held an undergraduate degree (53.5%). In terms of leadership, the majority were categorized as supportive (67.7%), knowledge levels were predominantly good (69.7%), attitudes were generally positive (66.7%), motivation was primarily intrinsic (64.6%), and communication was largely communicative (69.7%). Furthermore, patient safety culture was reported as strong among 66.7% of respondents.

The chi-square test results for leadership, knowledge, attitude, motivation, and communication in relation to patient safety culture yielded p-values less than 0.05, indicating statistically significant associations.

Table 2. Analysis of Factors Related to the Culture of Patient Safety Implementation

Variable	p-value	Recommendation
Leadership	0.045	Included
Knowledge	0.000	Included
Attitude	0.067	Excluded
Motivation	0.137	Excluded
Communication	0.017	Included

Table 2 presents the results of the bivariate selection analysis of five variables. Variables with p-values less than 0.05—namely leadership, knowledge, attitudes, and communication—were retained for inclusion in the multivariate model. Conversely, variables with p-values greater than 0.05, specifically attitude and motivation, were excluded from the model.

Table 3. Frequency Distribution of Test Interaction of the Most Dominant Variable in Patient Safety Culture

Variable	p-value
Leadership	0.045
Knowledge	0.000
Communication	0.017

Table 3 presents the results of the multivariate analysis identifying the most dominant factor influencing the implementation of patient safety culture at Haji Abdoel Madjid Batoe Batang Hari Regional General Hospital in 2024. The findings indicate that nurses' knowledge was the strongest determinant, with a highly significant association ($p = 0.000, < 0.05$).

DISCUSSION

The results revealed that the majority of nurses at Haji Abdoel Madjid Batoe Regional General Hospital, Batang Hari demonstrated supportive leadership (67.7%), good knowledge (69.7%), positive attitudes (66.7%), intrinsic motivation (64.6%), effective communication (69.7%), and a strong patient safety

implementation culture (66.7%). These findings are consistent with prior research which similarly reported predominance of supportive leadership and strong patient safety culture among nurses at Putri Hijau Medan Hospital (Karlien, Nababan, Sitorus, Tarigan, & Brahmana, 2022). Leadership in nursing is understood as the ability to influence and direct others toward organizational goals, and supportive leaders who foster open communication, non-punitive incident reporting, and feedback contribute positively to safety outcomes (Northouse, 2022). Good knowledge among nurses encompasses understanding of the six patient safety goals, infection prevention, effective communication (ISBAR), and incident reporting—all of which are fundamental to safe clinical practice (Nursalam, 2014). Positive nursing attitudes,

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characterized by empathy, integrity, and commitment to standard operating procedures, and intrinsic motivation—driven by a sense of professional calling and personal satisfaction—likewise form the core pillars of a robust patient safety culture (Wijayanti, Lesmana, Yulia, Widyawati, & Fithriyani, 2024).

Each factor—leadership, knowledge, attitude, motivation, and communication—was significantly associated with the culture of patient safety implementation (all $p < 0.05$). The relationship between supportive leadership and patient safety culture ($p = 0.028$) confirms that leaders who model safe behaviors, conduct safety briefings, and uphold *just culture* principles create an environment where staff are more likely to comply with protocols and report incidents. The association between knowledge and patient safety culture ($p = 0.001$) indicates that nurses with better knowledge tend to apply safety culture more consistently, underscoring the importance of periodic training and case-based learning (Karlien et al., 2022). A significant relationship was also found between positive nurse attitudes and strong patient safety culture ($p = 0.013$), supporting the view that attitude functions as a key internal driver of safe behavior (Wijayanti et al., 2024). Intrinsic motivation was similarly associated with stronger patient safety culture ($p = 0.006$); nurses driven internally are more proactive in double-checking procedures, reporting near-misses, and maintaining safety vigilance without depending on external supervision (Karlien et al., 2022; Ramos, & Abós, 2024). Effective communication was also significantly correlated with patient safety culture ($p = 0.003$). Clear and timely information exchange is vital in preventing clinical errors (Irwanti et al., 2022).

The multivariate analysis identified nurse knowledge as the most dominant factor associated with patient safety implementation culture ($p = 0.000$), followed by communication ($p = 0.017$) and leadership ($p = 0.045$). Knowledge to be the strongest predictor of patient safety goal implementation (Salsabila & Dhamanti, 2023). As the frontline of care, nurses require comprehensive and up-to-date knowledge to prevent harm and improve service quality (de Carvalho & Bates, 2024). These findings collectively highlight that a sustainable patient safety culture demands an integrated approach: strengthening nurse competency through training, fostering supportive leadership, standardizing communication

strategies such as SBAR, and building an organizational environment that values learning over blame.

CONCLUSION

The study identified leadership, knowledge, and communication as the dominant factors influencing patient safety culture, with knowledge emerging as the most significant.

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