Window of Health Jurnal Kesehatan
journal homepage : www.jurnal.fkmumi.ac.id

RESEARCH ARTICLE
URL article: http://jurnal.fkmumi.ac.id/index.php/woh/article/view/woh9303

Implementation of Patient Safety Culture at Hospital X, Semarang City

[C]Muhammad Iqbal[1], Firmansyah Kholiq Pradana P.H[2], Vilda Ana Veria Setyawati[3], Lutfiyah Rizqulloh[4]
[1,2,3]Public Health Study Program, Faculty of Health Science, Universitas Dian Nuswantoro, Indonesia
[4]Medical Records and Health Information Study Program, Bina Trada Polytechnic Semarang, Indonesia
Email Corresponding Author([C]): muhammadiqbal@dsn.dinus.ac.id
muhammadiqbal@dsn.dinus.ac.id[1], firmansyah.kholiq@dsn.dinus.ac.id[2], vilda.setyawati@dsn.dinus.ac.id[3], lutfiyah.rizqulloh@polbitrada.ac.id[4]

ABSTRACT

Patient safety incidents remain a persistent challenge in hospital settings, yet evidence on the cultural factors driving them in type C hospitals in Indonesia remains limited. Hospital X in Semarang City recorded 23 patient safety incidents from January to September 2023 (KTD: 2, KTC: 9, KNC: 12), with label dispensing errors, wrong medication, and wrong dosage as the leading causes. Despite the establishment of a Hospital Patient Safety Team (KPRS), no systematic assessment of patient safety culture had previously been conducted, leaving a critical gap in understanding the organizational factors underlying these incidents. This study aimed to determine factors influencing patient safety culture as perceived by nurses at Hospital X. A quantitative cross-sectional design was employed, with 82 inpatient nurses selected via simple random sampling. Data were collected using a validated AHRQ-based questionnaire and analyzed using Chi-square and Fisher's Exact tests. The average positive response to patient safety culture was 81.5%. The highest-scoring dimensions were cooperation within the unit (90.2%), open communication (84.1%), and staffing (84.1%), while cooperation between units (74.4%) and error feedback (76.8%) scored lowest. All 12 dimensions showed significant associations with patient safety culture ($p < 0.05$). The strongest associations were found in open communication ($p = 0.001$; OR = 18.9), error feedback ($p = 0.001$; OR = 27.5), staffing ($p = 0.001$; OR = 17.1), and patient transition ($p = 0.001$; OR = 15.2). These findings indicate that inter-unit coordination and structured error feedback are the most critical intervention targets. Hospital management should prioritize implementing a non-punitive incident reporting system, standardized SBAR-based handover protocols, and integrating patient safety competencies into regular clinical supervision to meaningfully reduce preventable incidents.

Keywords: Patient safety culture; healthcare quality; AHRQ

PUBLISHED BY :
Faculty of Public Health
Universitas Muslim Indonesia
Address :
Jl. Urip Sumohardjo Km. 5 (Campus II UMI)
Makassar, Sulawesi Selatan.
Email :
jurnalwoh.fkm@umi.ac.id
Phone :
+62 82188474722

Article history
Received 18 April 2025
Received in revised form 3 July 2026
Accepted 5 July 2026
Available online 7 July 2026

INTRODUCTION

Patient safety has become a fundamental pillar of healthcare quality worldwide, reflecting the ability of health systems to prevent harm and deliver safe, effective care. The World Health Organization (WHO) estimates that approximately 134 million adverse events occur annually in hospitals in low- and middle-income countries, contributing to 2.6 million deaths, while in high-income countries, one in ten patients experiences harm during hospital care (1). A landmark report by the Institute of Medicine (IOM), To Err is Human (1999), first brought global attention to the magnitude of preventable medical errors, estimating that tens of thousands of deaths annually were attributable to systemic failures in healthcare delivery (2). More recent WHO data (2023) reinforce that unsafe care remains one of the top ten leading causes of death and disability globally, with medication errors alone costing an estimated USD 42 billion annually worldwide (3). These figures highlight that patient safety is not merely a clinical concern but a systemic and organizational challenge that demands a structured, evidence-based cultural response from healthcare institutions.

Patient safety culture refers to the shared values, attitudes, perceptions, and behaviors of healthcare workers toward minimizing patient harm within an organization (4). A strong patient safety culture has been consistently associated with lower rates of adverse events, improved incident reporting, and better overall care outcomes. The Agency for Healthcare Research and Quality (AHRQ) developed the Hospital Survey on Patient Safety Culture (HSOPSC) as a validated, multidimensional instrument to assess safety culture across 12 domains, including teamwork, communication openness, management support, staffing adequacy, and non-punitive response to errors (5). Studies using the AHRQ framework across diverse hospital settings have demonstrated that deficiencies in specific cultural dimensions, particularly inter-unit coordination, error feedback, and leadership commitment, are strongly predictive of adverse patient safety outcomes (6). Understanding which dimensions most significantly drive safety culture is therefore essential for designing targeted, evidence-based quality improvement strategies.

At the international level, studies accredited by the Joint Commission International (JCI) identified patient safety incidents in 11 hospitals across five countries, with Hong Kong recording the highest proportion (31%), followed by Australia (25%), India (23%), the United States (12%), and Canada (10%) (7). In Indonesia, national data from the National Committee on Patient Safety (KNKP) of the Ministry of Health documented a dramatic escalation in reported incidents, rising from 289 cases in 2015 to 7,465 cases in 2019, a nearly 24-fold increase within five years (8). This surge is not merely a reflection of improved reporting systems; it also signals deeply rooted systemic weaknesses in safety culture, including inadequate feedback mechanisms, fear of punitive responses, and insufficient inter-unit coordination that collectively hinder proactive incident prevention. At the provincial level, Central Java recorded the highest proportion of patient safety incidents among selected provinces at 15.9%, with internal medicine, surgical, and pediatric wards accounting for 56.7% of all cases (8). These trends underscore that strengthening patient safety culture rather than reactive incident management is the most sustainable pathway to reducing harm in Indonesian hospitals.

Hospital X in Semarang City, classified as a type C hospital and accredited since 2012, has formally committed to patient safety through the establishment of a Hospital Patient Safety Team (KPRS), which conducts structured activities including safety workshops, incident recording, and protocol compliance monitoring. Nevertheless, data from an initial survey revealed that 23 patient safety incidents occurred between January and September 2023, comprising 2 KTD (sentinel events), 9 KTC (adverse events), and 12 KNC (near-miss events). The predominant causes included mislabeled dispensing (7 incidents), incorrect medication (6 incidents), incorrect dosage (4 incidents), incorrect patient identification (3 incidents), adverse drug reactions (2 incidents), and incorrect storage or omitted medication (1 incident each). The persistence of these incidents despite the presence of a structured safety team strongly suggests that procedural measures alone are insufficient, and that underlying cultural dimensions such as communication patterns, error reporting behavior, and leadership engagement warrant systematic examination.

Despite the growing body of research on patient safety culture in Indonesia, several gaps remain. Previous studies have largely focused on higher-level referral hospitals and relied predominantly on descriptive or bivariate analyses, limiting the ability to identify independent predictors of safety culture. Type C hospitals, which constitute a substantial proportion of healthcare facilities, remain underrepresented in empirical research. Moreover, limited studies have examined the relative contribution of each safety culture dimension within a comprehensive analytical framework. This study addresses these gaps by applying a multivariate approach to analyze the relationship between all HSOPSC dimensions and overall patient safety culture among inpatient nurses in a type C hospital. The novelty of this study lies in its context-specific, dimension-level analysis, which provides more precise and actionable evidence to strengthen patient safety culture. It is hypothesized that openness in communication, management support, staffing adequacy, and inter-unit collaboration are significant predictors of patient safety culture in this setting.

METHOD

This study employed a quantitative approach with a cross-sectional design to examine the factors influencing patient safety culture among inpatient nurses at Hospital X, Semarang City. The study population comprised all inpatient nurses at Hospital X, totaling 442 nurses. Sample size was calculated using the Slovin formula with a margin of error of 10%, yielding a minimum sample of 82 nurses. Participants were selected through simple random sampling to ensure equal probability of selection across all eligible nurses. Inclusion criteria required that participants were actively assigned to the inpatient ward of Hospital X and had a minimum length of service of one year, ensuring sufficient familiarity with the hospital's safety culture and reporting systems. Nurses on administrative leave or secondment during the data collection period were excluded.

Before data collection, ethical approval was obtained from the Ethics Committee of Roemani Muhammadiyah Hospital (Ethical Approval No. EA-025/KEPK-RSR/II/2025). Data were collected using a structured questionnaire adapted from the Hospital Survey on Patient Safety Culture (HSOPSC)

developed by the Agency for Healthcare Research and Quality (AHRQ), which has been validated for use in the Indonesian hospital context. The instrument measures 12 dimensions of patient safety culture, including management support, teamwork within and between units, communication openness, staffing adequacy, continuous improvement, error feedback, non-punitive response to errors, patient transitions, and frequency of incident reporting. Bivariate analysis was conducted using the Chi-square test, with Fisher's Exact test applied when cell frequencies did not meet the Chi-square test assumptions (expected count < 5). Statistical significance was set at $p < 0.05$.

RESULTS

In this study, 82 nurses were working in the inpatient ward at Hospital X in Semarang City. Table 1 describes the distribution of respondent characteristics as follows:

Table 1. Characteristics of Respondents in Inpatient Hospital X, Semarang City

Characteristics	Frequency	Percentage (%)
Age		
18 - 25 years old	5	6.1
26 - 35 years old	38	46.3
36 - 45 years old	20	24.4
46 - 57 years old	19	23.2
Gender		
Male	15	18.3
Female	67	81.7
Last Education		
Diploma (D3)	66	80.5
Bachelor (S1)	16	19.5
Length of Service in Hospital		
>10 Years	43	52.4
1 - 5 Years	19	23.2
6 - 10 Years	20	24.4

The majority of respondents were in the young-to-middle-adulthood age group, with the largest proportion aged 26–35 years (46.3%). Regarding gender, most respondents were female. Regarding educational background, the respondents were predominantly diploma (D3) graduates, while a smaller proportion held a bachelor's degree (S1). Based on length of service, more than half of the respondents had worked in the hospital for over 10 years, indicating that a substantial proportion of the sample had considerable work experience.

Table 2 shows that the overall patient safety culture at Hospital X, Semarang City, was positive. There was an average positive response rate of 81.5% across the 12 dimensions. The highest positive response was in Cooperation within Units (90.2%), followed by Open Communication and Staffing (84.1%). Patient Safety Promotion by Leadership, Perception of Patient Safety, and Non-Punitive Response to Errors each recorded 81.7%. However, some dimensions had notably lower scores: Cooperation between Units in the Hospital (74.4%), Error Feedback (76.8%), and both Patient Transition and Frequency of Incident Reporting (79.3%). These findings imply that while internal unit

collaboration is strong, inter-unit cooperation, effective error reporting mechanisms, and smooth patient transitions remain improvement priorities to further strengthen overall patient safety culture.

Table 2. Overview of Patient Safety Culture Dimensions among Inpatient Nurses at Hospital X Semarang City

No	Dimension	Positive Response (%)
1.	Management Support	81.7
2.	Cooperation within Units	90.2
3.	Open Communication	84.1
4.	Promotion of Patient Safety by Leadership	81.7
5.	Staffing	84.1
6.	Continuous Improvement	82.9
7.	Perception of Patient Safety	81.7
8.	Error Feedback	76.8
9.	Cooperation between Units in the Hospital	74.4
10.	Non-punitive Response to Errors	81.7
11.	Patient Transitions	79.3
12.	Frequency of Event Reporting	79.3
	Average Positive Response	81.5

Table 3 demonstrates that all patient safety culture dimensions were significantly associated with overall patient safety culture (all $p < 0.05$). The strongest associations were for Open Communication, Staffing, Error Feedback, and Patient Transition (all $p = 0.001$). This highlights the importance of effective communication, adequate staffing, constructive feedback, and safe patient handovers. Significant associations were also seen for Management Support, Cooperation within Units, Patient Safety Promotion by Leadership, Continuous Improvement, Perception of Patient Safety, Cooperation between Units, and Non-Punitive Response to Errors. Frequency of Incident Reporting showed the weakest, yet still significant, association ($p = 0.018$). These findings emphasize that organizational support and communication-related factors are key determinants of patient safety culture.

Table 3. Factors Influencing Patient Safety Culture among Inpatient Nurses in Hospital X, Semarang City

Variable	Category	Patient Safety Culture				p-value
		Good		Not so good		
		n	%	n	%	
Management Support	Good	59	88.1	8	11.9	0.018
	Not so good	9	60.0	6	40.0	
Cooperation within Units	Good	68	91.9	6	8.1	0.039
	Not so good	5	62.5	3	37.5	
Open Communication	Good	65	94.2	4	5.8	0.001
	Not so good	6	46.2	7	53.8	
Promotion of Patient Safety by Leadership	Good	61	91.0	6	9.0	0.025
	Not so good	10	66.7	5	33.3	
Staffing	Good	62	89.9	7	10.1	0.001
	Not so good	6	46.2	7	53.8	
Continuous Improvement	Good	63	92.6	5	7.4	0.011
	Not so good	9	64.3	5	35.7	

Variable	Category	Patient Safety Culture				p-value
		Good		Not so good		
		n	%	n	%	
Perception of Patient Safety	Good	64	95.5	3	4.5	0.004
	Not so good	10	66.7	5	33.3	
Error Feedback	Good	61	96.8	2	3.2	0.001
	Not so good	10	52.5	9	47.4	
Cooperation between Units in the Hospital	Good	54	88.5	7	11.5	0.018
	Not so good	13	61.9	8	38.1	
Non-punitive Response to Errors	Good	61	91.0	6	9.0	0.007
	Not so good	9	60.0	6	40.0	
Patient Transitions	Good	61	93.8	4	6.2	0.001
	Not so good	9	52.9	8	47.1	
Frequency of Event Reporting	Good	56	86.2	9	13.8	0.018
	Not so good	10	58.8	7	41.2	

DISCUSSION

This study provides empirical evidence on the dimensions of patient safety culture associated with overall safety culture among inpatient nurses in a type C hospital, offering insights for targeted safety improvement strategies.

This study found a significant association between management support and patient safety culture (p = 0.018; OR = 4.9; 95% CI: 1.3–18.7), with nurses who perceived strong management support more likely to demonstrate a positive patient safety culture. These findings suggest that management support is a key organizational factor that strengthens patient safety by reinforcing leadership commitment, providing adequate resources, and prioritizing safety within the organizational climate. (9). When hospital management demonstrates visible commitment through adjusting workloads proportionate to staffing levels, providing adequate facilities, establishing clear standard operating procedures, eliminating professional discrimination, and offering protection and recognition to incident reporters, nurses perceive a psychologically safe environment in which reporting errors and adhering to safety protocols carry no professional risk (10,11). Conversely, when management support is absent or inconsistent, a culture of silence tends to prevail, wherein nurses underreport incidents out of fear of blame or professional consequences, ultimately perpetuating the cycle of preventable harm (12). The findings from this study therefore suggest that at Hospital X, the relatively high proportion of nurses who perceive good management support (81.7%) has contributed meaningfully to the overall positive safety culture score of 81.5%.

These findings are consistent with prior empirical studies conducted in Indonesian healthcare settings. Research in public hospitals in Cirebon City and Regency involving nurses identified management support as a critical determinant influencing patient safety culture and safety incidents. In this study, management support, along with inter-unit collaboration and effective handoffs, emerged as one of the most influential organizational factors shaping patient safety outcomes (13). However, the Cirebon study was conducted in type B referral hospitals with larger organizational hierarchies and more

formalized governance structures, whereas Hospital X is a type C hospital with a more centralized decision-making structure. This distinction is significant because in smaller hospitals, the influence of direct supervisors and unit heads on frontline nurses' perceptions of management support tends to be more immediate and personally experienced, making the quality of middle management engagement particularly critical (14). These findings are consistent with research conducted at Dr. R.M. Djoelham Regional General Hospital in Binjai, which showed that management support for patient safety fell into the 'strong' category (85.8 percent), confirming that managerial commitment is a key factor in fostering a positive patient safety culture in regional hospitals (15).

This study found a significant association between intra-unit cooperation and patient safety culture among inpatient nurses at Hospital X ($p = 0.039$; OR = 4.9; 95% CI: 1.1–22.3). Among nurses who perceived good cooperation, 91.9% reported a strong patient safety culture. In contrast, only 62.5% of those reporting poor cooperation indicated a good patient safety culture. The mechanism linking intra-unit cooperation to patient safety culture operates through several interconnected pathways. Effective teamwork facilitates real-time error detection, distributes cognitive load during high-pressure clinical situations, and fosters a social environment in which nurses feel accountable not only to individual patients but also to the team as a whole (16). When team members actively support one another during shift workloads and communicate proactively about patient conditions, the likelihood of errors arising from information gaps or task overload is substantially reduced (17). Conversely, poor intra-unit cooperation creates fragmented care delivery, increases individual vulnerability to error, and erodes the psychological safety necessary for open incident reporting, all of which are antecedents of a weak patient safety culture.

These findings align with and extend prior research. Badu (2023) reported a significant relationship between team cohesiveness and patient safety culture in the inpatient ward of RSD Kalabahi, concluding that high cohesiveness strengthens safety culture by promoting mutual accountability among team members (18). Similarly, research at RSUD A.M. Parikesit Tenggarong found a significant positive association between teamwork and patient safety reporting culture ($p = 0.001$; $r = 0.222$), indicating a moderate but consistent effect (19). Compared with previous studies, the stronger OR observed in this study may reflect the homogeneous and experienced nursing workforce at Hospital X, which promotes cohesive teamwork; however, the proportion of nurses reporting poor intra-unit cooperation highlights the need for structured team-building initiatives to further strengthen collaboration.

Open communication was one of the dimensions most strongly associated with patient safety culture at Hospital X ($p = 0.001$; OR = 18.9; 95% CI: 4.1–87.2), with 94.2% of nurses reporting good patient safety culture among those perceiving good communication compared with 46.2% among those reporting poor communication. Although this dimension achieved a high positive response rate (84.1%), the responses of nurses who perceived communication as inadequate indicate the importance of implementing specific strategies to address and reduce communication failures that could negatively

impact patient safety. Open communication contributes to patient safety culture at Hospital X through centralized management, active patient safety programmers, and structured reporting channels; however, inconsistent frontline communication during high-workload periods and shift transitions continues to contribute to preventable incidents, indicating the need to strengthen communication practices in daily clinical care.

These findings are consistent with and reinforce prior evidence from comparable Indonesian hospital settings. Hartawan, Fachrin, and Arman reported a significant relationship between communication openness and nurses' perceptions of medical error reporting at Bantaeng Regional General Hospital ($p = 0.000$), concluding that transparent communication norms directly increase nurses' willingness to report errors (20). The higher OR observed in this study (OR = 18.9) indicates a particularly strong association between communication quality and patient safety culture at Hospital X, highlighting the need to sustain effective communication through structured interventions such as SBAR-based handovers, communication skills training, and anonymous feedback systems.

This study demonstrated a significant association between patient safety promotion by leadership and patient safety culture at Hospital X ($p = 0.025$; OR = 5.1; 95% CI: 1.3–19.8), with 91.0% of nurses reporting good patient safety culture among those perceiving strong leadership support compared with 66.7% among those reporting poor leadership promotion. These findings highlight the important role of leadership in fostering a strong patient safety culture. The theoretical framework that best explains this relationship is transformational leadership theory, which posits that leaders who inspire, motivate, and intellectually stimulate their followers are more effective at producing lasting behavioral change than those who rely solely on transactional, compliance-based approaches (21). In the patient safety context, transformational leadership strengthens safety culture by fostering a shared commitment to safety, encouraging open error reporting, and empowering nurses to take responsibility for safe clinical practice through role modeling, motivation, intellectual stimulation, and individualized support (22). When ward leaders consistently promote patient safety through supportive leadership behaviors, nurses are more likely to view safety as a shared responsibility, thereby strengthening unit-level safety culture. Although this dimension received a relatively high positive response (81.7%), variations in nurses' perceptions suggest that leadership practices should be implemented more consistently across units.

Compared with the study at Majene Regional Hospital, which found a moderate positive correlation between leadership commitment and patient safety culture, the higher OR observed in this study (OR = 5.1) suggests a stronger effect among nurses in the more homogeneous type C hospital setting of Hospital X (23). These findings reinforce the importance of strengthening transformational safety leadership among ward heads and unit supervisors through structured leadership training, mentoring, and accountability mechanisms linked to patient safety performance indicators.

Human Resource Management in hospitals requires individuals who directly implement services to meet the adequacy of both quality and quantity. The aspect of individual quality is seen from the

education and competency standards they have. Human resource competency in hospitals can be achieved through efforts to meet competency standards by each officer in accordance with the standards set in each profession. The study found that nurses who assessed staffing in the good category mostly had a good patient safety culture, namely 62 (89.9%). In comparison, only 7 people (10.1%) had a poor patient safety culture. Conversely, among nurses who assessed staffing as poor, only 6 (46.2%) had a good patient safety culture, while 7 (53.8%) had a poor one. There is a significant relationship between staffing and patient safety culture in the inpatient ward of X Hospital, Semarang City, with a p-value of 0.001. Adequate staffing allows nurses to provide more optimal services, reduce excessive workload, and increase compliance with patient safety procedures. The study aligns with research on all nursing staff at Bantaeng Regional General Hospital, which suggests that staffing influences perceptions of reporting medical errors (20). The shortage of nursing staff and their lack of competence increase workload, which is one of the main factors in human error in nursing services. Therefore, hospitals need to ensure the adequacy of the number of nurses to support the creation of a better patient safety culture.

Continuous improvement demonstrates staff's readiness and willingness to continue learning. The overall perception of patient safety indicates the level of staff awareness and understanding. Based on Table 3, the majority of respondents (92.6%) who stated that continuous improvement was going well also had a good patient safety culture. This shows that continuous, systematic improvement efforts in health services can foster a better patient safety culture. Continuous improvement may include routine evaluation, staff training, and implementation of more effective safety procedures. There is a statistically significant relationship between continuous improvement and patient safety culture (p-value = 0.011). Good continuous improvement correlates with a good patient safety culture.

Therefore, hospitals need to focus on developing and implementing effective continuous improvement programs to improve patient safety and overall health service quality. This is in line with previous research conducted by Karmila et al. (2023), which found that there was a relationship with patient safety incidents in hospitals, namely a p-value of 0.045 or <0.05. In addition, results from other studies indicate that continuous improvement has a significant effect on health workers' perceptions of reporting medical errors at Bantaeng Regional Hospital (p-value = 0.000). This influence occurs because nurses have used the errors that occur as evaluation material to improve the quality of service, and actively review the effectiveness of the procedures implemented (20). Opportunities to learn are an encouragement for nurses to report incidents that occur. Medical errors that cause patient safety incidents provide an opportunity for nurses to understand the factors that contribute to the occurrence of these errors (24).

Perception influences how nurses interpret organizational priorities and expectations, shaping their willingness to adopt safe practices, communicate effectively, report incidents, work collaboratively, and comply with patient safety protocols, all of which are essential for delivering safe, high-quality patient care (25). This study found a significant association between patient safety perception and patient safety culture among inpatient nurses at Hospital X (p = 0.004), with 95.5% of

nurses with positive safety perceptions also demonstrating a strong patient safety culture. These findings indicate that more positive perceptions of patient safety are associated with stronger implementation of patient safety culture in the inpatient setting.

This finding is consistent with safety climate theory. This theory proposes that nurses' perceptions of organizational commitment to safety influence their safety-related behaviors. When nurses perceive strong leadership support, effective communication, teamwork, adequate resources, and a non-punitive approach to errors, they are more likely to report incidents and follow safety protocols. They are also more likely to participate in quality improvement, thereby strengthening patient safety culture. These points are consistent with findings from Wangaya Hospital. There, more positive perceptions of patient safety were associated with better employee performance (26). The consistency between the present findings and previous studies suggests that positive patient safety perceptions may represent an important organizational asset that supports both safety culture and overall workforce performance across different healthcare settings.

This study found a significant association between error feedback and patient safety culture ($p = 0.001$). Nurses who perceived feedback as effective were more likely to report a positive patient safety culture. Consistent with learning organization theory, effective feedback promotes continuous learning. It encourages reflection, open discussion of incidents, and system improvement rather than individual blame. Timely communication and corrective action reinforce the value of incident reporting. In line with research on the dimensions of patient safety culture and patient safety incidents at X Hospital, Malang City, in 2023, the results of the analysis obtained a p-value = 0.041. This indicates that feedback and error-related communication influence the occurrence of patient safety incidents (27). These findings support the present study by demonstrating that effective communication regarding errors contributes not only to organizational learning but also to improved patient safety outcomes. There is a significant relationship between feedback and error communication with patient safety incidents at Hospital X, with a p-value of 0.052. The better the communication and feedback on errors, the less likely a patient safety incident is to occur (28). The importance of feedback in building a positive patient safety culture. Therefore, hospitals need to improve effective feedback mechanisms to support a better patient safety system.

This study found a significant association between inter-unit cooperation and patient safety culture ($p = 0.018$), indicating that effective inter-unit collaboration supports safer patient care. Timely communication and coordinated handovers between departments facilitate accurate information exchange, reduce preventable errors during patient transitions, and strengthen shared responsibility and trust among healthcare teams, thereby fostering a positive patient safety culture. These findings are consistent with previous studies showing that good cooperation between hospital units facilitates coordination in healthcare delivery (28). Similarly, nurses routinely coordinate with laboratory, radiology, pharmacy, and other departments when delivering patient care, highlighting the interdependent nature of healthcare services (29). Inter-unit collaboration is essential for maintaining

continuity of care, preventing communication failures during patient transitions, and improving the quality and safety of healthcare services (30). Therefore, hospitals should strengthen standardized communication, multidisciplinary teamwork, and structured handover processes to enhance coordination and reinforce patient safety culture.

When patient safety incidents occur, the primary focus should not be on identifying individual blame but on understanding the system factors that contribute to the occurrence of errors. This approach aligns with the principles of just culture, which recognize that while individuals remain accountable for their actions, most medical errors result from weaknesses within complex healthcare systems rather than intentional negligence. A just culture promotes fairness, learning, and accountability by distinguishing human error from reckless behavior, thereby encouraging healthcare professionals to report incidents without fear of unjust punishment (31). This study found that nurses who perceived a supportive, non-blaming approach to errors were significantly more likely to report a positive patient safety culture ($p = 0.007$). Consistent with the principles of just culture, a non-punitive environment promotes open incident reporting, organizational learning, and system improvement, whereas a blame culture discourages reporting and limits opportunities to prevent recurring errors (31).

Research conducted in the inpatient ward of Mitra Medika Bandar Klippa Hospital also found a significant relationship between non-punitive responses and patient safety incident reporting (p-value = 0.000) (24). These findings reinforce the view that management support and fair responses to incident reporting are essential for developing an effective reporting culture. Similarly, a study conducted at Bunda Sejati Hospital involving 50 nurses demonstrated that interventions aimed at reducing the culture of blame significantly improved patient safety incident reporting (p-value = 0.000) (32). Taken together, these findings suggest that fostering a just culture through supportive leadership, fair accountability, and non-punitive reporting systems can strengthen organizational learning and ultimately improve the quality and safety of patient care.

This study found a significant association between patient transition and patient safety culture ($p = 0.001$), with nurses who perceived patient transitions as well-managed more likely to report a positive patient safety culture. Effective and well-coordinated patient handovers, supported by structured communication tools such as SBAR (Situation–Background–Assessment–Recommendation), help ensure continuity of care, reduce communication errors, and improve patient safety. SBAR standardizes the transfer of essential clinical information, promotes clear and concise communication, and reduces misunderstandings during patient transitions (33). Previous studies have shown that implementing structured handover protocols improves communication accuracy, enhances teamwork, and contributes to safer continuity of care. Therefore, the significant association identified in this study may reflect the importance of adopting standardized patient handoff procedures as part of organizational efforts to strengthen patient safety culture.

A study involving 109 nurses at Hospital X in Malang City similarly reported a significant relationship between patient transitions and patient safety incidents (p-value = 0.014) (27). The

consistency of these findings suggests that effective patient transition is not merely an operational activity but a critical safety process requiring structured communication, multidisciplinary collaboration, and organizational support. Hospitals should therefore strengthen handover policies by routinely using SBAR, providing regular communication training, and continuously monitoring handoff quality to minimize transition-related errors and reinforce a patient safety culture.

Based on the research findings, nurses with a stronger patient safety culture were more likely to report patient safety incidents than those with a weaker culture. Statistical analysis showed a significant relationship between incident reporting frequency and patient safety culture (p-value = 0.018). These findings suggest that a positive patient safety culture encourages healthcare professionals to recognize incident reporting as an essential component of organizational learning rather than as a mechanism for assigning blame. Despite this positive association, underreporting of patient safety incidents remains a persistent challenge in many healthcare organizations. Previous studies have shown that healthcare professionals may choose not to report incidents because of fear of punishment, concerns about legal or professional consequences, heavy workloads, uncertainty about what should be reported, lack of anonymity, limited feedback after reporting, or the perception that reporting does not lead to meaningful organizational change (34). These barriers reduce reporting behavior and prevent organizations from identifying system weaknesses that could otherwise be addressed to improve patient safety.

From the perspective of reporting behavior theories, employees are more likely to report incidents when they perceive that the reporting system is easy to use, confidential, non-punitive, and supported by organizational leadership (35). Psychological safety and perceived organizational support also play important roles in determining whether healthcare professionals feel comfortable reporting adverse events and near misses. When staff believe that incident reports will be used for learning and quality improvement rather than punishment, reporting behavior becomes more frequent and consistent. Fear of reporting incidents has been recognized as a major barrier to developing a positive patient safety culture (28). Therefore, hospitals should establish effective incident reporting systems that provide clear reporting procedures, timely feedback, confidentiality, and visible management commitment to patient safety. A well-designed reporting system should also ensure that incident reports are analyzed systematically and followed by corrective actions, allowing healthcare professionals to observe tangible improvements resulting from their reporting efforts. Such closed-loop reporting systems reinforce trust in the reporting process and strengthen organizational learning.

CONCLUSIONS AND RECOMMENDATIONS

This study demonstrates that patient safety culture at Hospital X is generally well established, highlighting the critical role of organizational and behavioral factors in shaping safety practices. Rather than individual dimensions acting in isolation, the findings suggest that patient safety culture is a multidimensional construct in which communication, staffing, and care coordination interact to influence overall safety performance. These results reinforce theoretical perspectives emphasizing the

importance of organizational context and collective behavior in sustaining a positive safety culture in healthcare settings. From a practical standpoint, strengthening patient safety culture requires more than maintaining high-performing dimensions; it also necessitates targeted improvements in weaker areas, particularly inter-unit coordination and feedback mechanisms. Enhancing cross-departmental collaboration and developing more effective feedback systems may contribute to more consistent and sustainable safety practices. Future research is recommended to employ longitudinal or mixed-methods approaches to better capture causal relationships and contextual dynamics in patient safety culture. Expanding studies across different hospital types and regions would also improve generalizability. In addition, further research using advanced multivariate techniques, such as Structural Equation Modeling, is needed to explore the complex interactions among safety culture dimensions and to develop more robust, evidence-based interventions.

ACKNOWLEDGEMENT

The authors would like to express their deepest gratitude to the Institute of Research and Community Service, Universitas Dian Nuswantoro, for providing the necessary facilities and support to conduct this research.

REFERENCES

1. World Health Organization. Patient Safety. BMJ Quality and Safety. 2019 Oct. doi:10.1136/bmjqs-2012-001748 PubMed PMID: 24048616.
2. World Health Organization. Global Action on Patient Safety. BMJ Quality and Safety. 2019 Oct. doi:10.1136/bmjqs-2012-001748 PubMed PMID: 24048616.
3. World Health Organization. Global Burden of Preventable Medication-Related Harm in Health Care : A Systematic Review. Geneva: World Health Organization; 2023.
4. Vikan M, Haugen AS, Bjørnnes AK, Valeberg BT, Deilkås ECT, Danielsen SO. The association between patient safety culture and adverse events – a scoping review. BMC Health Serv Res. 2023 Dec 1;23(1):1–27. doi:10.1186/s12913-023-09332-8 PubMed PMID: 36991426.
5. Agency for Healthcare Research and Quality. AHRQ Hospital Survey on Patient Safety Culture Comparative Database [Internet]. United State; 2018 Mar. Available from: www.ahrq.gov
6. Mrayyan MT. Predictors and outcomes of patient safety culture: a cross-sectional comparative study. BMJ Open Qual. 2022 Jul 1;11(3):1–12. doi:10.1136/bmjoq-2022-001889 PubMed PMID: 35798501.
7. Buhari B, Machmud R, Dorisnita D. Factors associated with patient safety implementation based on safety attitudes questionnaire in accredited hospital Jambi City Indonesia. Riset Informasi Kesehatan. 2019 Dec 30;8(2):157. doi:10.30644/rik.v8i2.300
8. Pertiwi RA, Sjaaf AC, Andriani H, Oktamianti P. Peningkatan Pelaporan Insiden Keselamatan Pasien dengan Digitalisasi di Rumah Sakit Pemerintah di Jakarta. Syntax Literate: Jurnal Ilmiah Indonesia. 2024 Sep;9(9):5156–63.
9. Alshammari AS, Aldhuwayhi TZ, Alibrahim NO, Almhna SM, Al Shehadeh ZA, Altaymani SA, et al. Assessment of Patient Safety Culture Among Nurses Working at Tertiary Care Hospitals in Aljouf Region, Saudi Arabia. Cureus. 2024 Apr 17;16(4):1–12. doi:10.7759/cureus.58429
10. Hamed MMM, Konstantinidis S. Barriers to Incident Reporting among Nurses: A Qualitative Systematic Review. West J Nurs Res. 2022 May 17;44(5):506–23. doi:10.1177/0193945921999449

11. Althobaiti FM. The effects of leadership on patient safety culture in health care: a systematic review. BMC Nurs. 2026 Jan 8;25:1–20. doi:10.1186/s12912-025-04263-7 PubMed PMID: 41507881.
12. Oweidat I, Al-Mugheed K, Alsenany SA, Abdelaliem SMF, Alzoubi MM. Awareness of reporting practices and barriers to incident reporting among nurses. BMC Nurs. 2023 Dec 1;22(1):1–10. doi:10.1186/s12912-023-01376-9
13. Nugraha A, Laili Rahmiyati A, Yuliaty F. Analysis Of Patient Safety Culture On Patient Satisfaction And Its Implications On The Quality Of Healthcare Services. Hearty: Jurnal Kesehatan Masyarakat [Internet]. 2026 Jun;14(3):917–27. Available from: https://ejournal.uika-bogor.ac.id/index.php/Hearty/issue/archive
14. Makiah M, Noermijati N, Hadiwidjojo D, Moko W. Clinical leadership and knowledge management: Essential role in patient safety culture? Uncertain Supply Chain Management. 2023 Jun 1;11(3):1295–304. doi:10.5267/j.uscm.2023.3.018
15. Bahri S, Fitriani AD, Jamaluddin J. An Overview of Patient Safety Culture with the AHRQ. Journal La Medihealtico. 2023 Feb 15;3(6):493–506. doi:10.37899/journallamedihealtico.v3i6.766
16. Li W, Peng C, Gu L, Fu W, Tang F. Patient safety culture assessment in five public hospitals of Sichuan Province: a cross-sectional study with HSOPSC 2.0. Front Public Health. 2025 Dec 15;13:1–14. doi:10.3389/fpubh.2025.1703929 PubMed PMID: 41473703.
17. Hafezi A, Babaii A, Aghaie B, Abbasinia M. The relationship between patient safety culture and patient safety competency with adverse events: a multicenter cross-sectional study. BMC Nurs. 2022 Nov 1;21(1):292. doi:10.1186/s12912-022-01076-w
18. Badu MG. Hubungan Kohesivitas dengan Kerjasama Tim dalam Budaya Keselamatan Pasien di Ruang Rawat Inap RSD Kalabahi. Open Access Jakarta Journal of Health Sciences. 2023 Jun 2;2(5):726–32. doi:10.53801/oajjhs.v2i5.141
19. Astuti A, Painringi SA, Kadir AR. Pengaruh Elemen People Pada Knowledge Management terhadap Budaya Keselamatan Pasien di RSUD A.M. Parikesit Tenggarong. Jurnal Kesehatan Masyarakat [Internet]. 2019 Mar 17;1(2):178–85. Available from: https://journal.unhas.ac.id/index.php/jkmmunhas/article/view/8712
20. Hartawan A, Fachrin SA, Arman. Kerjasama Dalam Unit dan Keterbukaan Komunikasi terhadap Persepsi Pelaporan Kesalahan Medis oleh Tenaga Kesehatan di RSUD Bantaeng. Window of Nursing Journal. 2020 Dec;01(02):73–86. doi:https://doi.org/10.33096/won.v1i2.251
21. Wijaya MI. Exploring the relationship between patient safety culture and the full-range leadership theory in primary care settings: a conceptual analysis. Leadership in Health Services. 2024 Sep 30;37(4):499–510. doi:10.1108/LHS-04-2024-0037
22. Specchia ML, Cozzolino MR, Carini E, Di Pilla A, Galletti C, Ricciardi W, et al. Leadership Styles and Nurses' Job Satisfaction. Results of a Systematic Review. Int J Environ Res Public Health. 2021 Feb 6;18(4):1552. doi:10.3390/ijerph18041552
23. Heriyati H, Al Hijrah MF, Masniati M. Budaya Keselamatan Pasien Rumah Sakit Umum Daerah Majene. Window of Health : Jurnal Kesehatan. 2019 Jul 25;194–205. doi:10.33096/woh.v2i3.588
24. Ambarwati Lestari E, Devi Fitriani A, Jamaluddin. Analisis Faktor Penyebab Rendahnya Pelaporan Insiden Keselamatan Pasien di Rawat Inap RSU Mitra Medika Bandar Klippa Tahun 2021. Journal of Healthcare Technology and Medicine. 2021 Oct;7(2):891–915. doi:https://doi.org/10.33143/jhtm.v7i2.1596
25. Halawa A, Setiawan S, Syam B. Persepsi Perawat tentang Peran dalam Meningkatkan Keselamatan Pasien. Journal of Telenursing (JOTING). 2021 Apr 5;3(1):73–84. doi:10.31539/joting.v3i1.2096

26. Hardy IPDK, Yudha NLGAN, Sarikumpul NN. Implementasi Budaya Keselamatan Pasien Terhadap Kinerja Pegawai di RSUD Wangaya Kota Denpasar. Jurnal Kesehatan Terpadu. 2020 Oct;4(2):57–63.
27. Marselina EV, Prayitno H, Ismara KI. Dimensi Budaya Keselamatan Pasien dan Insiden Keselamatan Pasiendi RS X Kota Malang. Jurnal Penelitian Kesehatan Suara Forikes. 2023 Apr;14(2):275–9. doi:http://dx.doi.org/10.33846/sf14208
28. Wahyuningsih CS, Asih EB, Masitoh R, Rahmawati K. Patient Safety Culture in Hospitals based on Agency for Health Care Research and Quality. Journal of Health Policy and Management. 2024;09(02):197–210. doi:10.26911/thejhpm.2024.09.02.06
29. Shameela A, Sulistiadi W. The Role of Teamwork in Building Patient Safety Culture at Hospital "X" in South Jakarta, Indonesia. International Journal of Nursing and Health Services (IJNHS). 2024 Feb 20;7(1). doi:10.35654/ijnhs.v7i1.765
30. Schmutz JB, Meier LL, Manser T. How effective is teamwork really? The relationship between teamwork and performance in healthcare teams: A systematic review and meta-analysis. BMJ Open. 2019 Sep 1;9(9). doi:10.1136/bmjopen-2018-028280 PubMed PMID: 31515415.
31. Brown K, Danby G, D'Souza N, Deniz C, Lewandowska A, Davidson J, et al. Just culture and restorative just culture in healthcare settings: a scoping review of interventions, activities, factors and outcomes. BMC Health Serv Res. 2026 Dec 1;26(1):1–16. doi:10.1186/s12913-026-14095-z
32. Fitriyah H, Faridah I, Wibisno A. Pengaruh Budaya Menyalahkan (Blaming Culture) Terhadap Tingkat Melapor Insiden Keselamatan Pasien. Jurnal Ilmiah Kedokteran dan Kesehatan. 2023 Jan;2(1):1–6. doi:https://doi.org/10.26911/thejhpm.2024.09.02.06
33. Müller M, Jürgens J, Redaèlli M, Klingberg K, Hautz WE, Stock S. Impact of the communication and patient hand-off tool SBAR on patient safety: A systematic review. BMJ Open. 2018 Aug 1;8(8):1. doi:10.1136/bmjopen-2018-022202 PubMed PMID: 30139905.
34. Dhamanti I, Leggat S, Barraclough S, Rachman T. Factors contributing to under-reporting of patient safety incidents in Indonesia: leaders' perspectives. F1000Res. 2022 May 10;10:1–23. doi:10.12688/f1000research.51912.1