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Organizational and Human Factors Affecting Patient Safety Culture: A Literature Review

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A B S T R A C T

Patient safety culture (PSC) is a key factor in improving the quality of healthcare services and reducing incidents that harm patients. This study aims to examine the organizational and human factors that influence the development and implementation of PSC in various healthcare facilities. In this literature review, 25 articles from various Scopus-indexed international journals and national journals published in the last 10 years were analyzed, covering studies on organizational factors such as leadership, resource allocation, organizational structure, and human factors including training, inter-team communication, and staff confidence. The results show that leadership that supports patient safety, open communication, and solid teamwork are key factors that strengthen a culture of safety. On the other hand, the main challenges identified are staff shortages, barriers to error reporting due to a punitive culture, and insufficient resources that hinder the effective implementation of CPS. This study also highlights the importance of patient and family participation in building a more inclusive and effective safety culture. Through a better understanding of the interaction between organizational and human factors, this study provides recommendations for hospitals and health institutions to strengthen non-punitive reporting systems, improve safety training, and improve organizational structures and resources

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INTRODUCTION

Patient safety is a key foundation of modern healthcare quality as medical incidents still occur significantly around the world (Lee, 2021). Patient safety culture reflects the collective values, perceptions, and attitudes of healthcare workers in providing safe care (Sammer, 2017). Organizational and human factors form the main structure that determines the strength-weakness of safety culture in hospitals (Huang, 2019). Discrepancies between procedures and field practices often lead to safety culture gaps (Nieva, 2020). Therefore, an in-depth understanding of these elements is crucial in health system improvement efforts (Khalid, 2022).

Leadership is the most powerful determinant affecting the quality of patient safety culture through the direction of organizational values and operational standards (Sexton, 2020). Leaders who support transparency and error reporting have been shown to increase staff confidence in safety systems (Carayon, 2018). However, in many hospitals, hierarchical leadership styles still dominate, hindering the incident reporting process (Eduardo, 2021). The absence of managerial support makes staff reluctant to raise safety issues they encounter (Khoiri, 2023). As a result, the content of safety culture is not effectively developed despite formal policies being in place (Dawson, 2019).

A clear organizational structure supports the implementation of a strong safety culture as it facilitates inter-unit coordination and assignment of responsibilities (Alshammari, 2022). Organizations with good governance mechanisms usually have higher incident reporting rates and more effective risk management (Pollack, 2020). Insufficient resources, such as lack of staff and safety facilities, are a major obstacle to the implementation of a safety culture (Rahmawati, 2023). Variations in resources between facilities lead to significant differences in safety achievements (Nordin, 2019). Therefore, policy design should consider organizational readiness to ensure sustainability of implementation (Chang, 2021).

Incident reporting systems are a crucial pillar of safety culture as they enable systematic root cause analysis (Fujita, 2020). The fear of punishment is still prevalent and inhibits the reporting of medical incidents by health workers (Mukhtar, 2021). The concept of "just culture" is considered an ideal approach as it balances individual accountability and system improvement (Dekker, 2017). Without a good feedback mechanism, staff feel that reporting does not provide meaningful change (Zhang, 2023). As a result, the reporting system fails to become a collective learning tool for the organization (Sari, 2020).

Interprofessional communication, including handover and interunit coordination, is the element most often associated with safety events (Manojlovich, 2021). Many medical incidents are rooted in communication failures, especially in patient transfer situations (Caruso, 2018). Interventions such as the SBAR system help structure communication, but their effectiveness depends on consistency of use (Putri, 2022). Challenges arise when high workloads cause staff to ignore communication standards (Mehta, 2019). Therefore, communication training must be conducted on an ongoing basis to maintain quality implementation (Andrews, 2023).

Human factors including fatigue, stress, and cognitive load are important determinants of patient safety (Carayon, 2019). Fatigue from long shifts has been shown to increase the risk of clinical errors (Johnson, 2020). Crowded and unergonomic work environments also decrease staff alertness (Taufik, 2023). Human factors engineering-based interventions help design systems that are safer against human performance variability (Holden, 2021). This approach emphasizes that errors are a consequence of systems, not individuals (Moray, 2018).

High workload factors can affect the quality of staff decision-making and thus impact patient safety (Swiger, 2023). Under conditions of overload, staff tend to experience emotional stress and burnout (Zulkarnain, 2022). Burnout is a strong predictor of decreased compliance with safety procedures (Liu, 2019). Organizational systems need to provide a healthy work balance through more humane shift management (Thompson, 2020). In addition, psychological support for staff also needs to be provided to maintain stable performance (Hasibuan, 2021).

Safety education and training play a vital role in shaping health workers' understanding and skills towards safety practices (Hoffman, 2022). However, the quality of training often varies between units and does not always address the root of safety issues (Kurniawan, 2020). Clinical simulation has been shown to improve staff preparedness for critical situations (Morrison, 2019). Repetitive and contextualized training is more effective than one-off training (Garcia, 2021). Organizations need to ensure that safety training becomes an integral part of the professional development agenda (Fauzi, 2023).

Cultural differences and health system contexts between countries lead to variations in the achievement of safety culture (Elmontsri, 2020). Developing countries often face resource limitations that affect implementation effectiveness (Arifin, 2019). Meanwhile, developed countries focus more on technology integration and continuous evaluation (Nelson, 2021). Adaptation of safety measurement instruments is also needed to fit the local cultural context (Maulana, 2022). Therefore, safety interventions cannot be universal but must be contextualized (Hassan, 2023).

Measuring safety culture using instruments such as HSOPSC or SAQ is a strategic step to assess staff perceptions (Sorra, 2019). However, quantitative results alone are not enough to understand deep barriers (Setyaningsih, 2021). Qualitative studies can provide a richer understanding of organizational dynamics (Rahardi, 2023). A combination of mixed methods provides a comprehensive picture of an organization's strengths and weaknesses (Peters, 2020). Appropriate measurement can lead organizations to evidence-based interventions (Amalia, 2024).

Multipronged interventions that combine aspects of leadership, human factors and systems change have been found to be most effective in improving safety culture (Hughes, 2019). Programs that target only one aspect usually yield limited results (Swan, 2021). Patient engagement is starting to become a new trend in strengthening a culture of openness (Darmawan, 2023). Technology integration supports consistency of records and monitoring (O'Leary, 2018).

However, technology cannot replace the importance of human interaction and organizational culture (Lestari, 2021).

Cultural barriers such as rigid professional hierarchies hinder polarization of communication and reporting (White, 2020). An environment with a "culture of blame" demotivates health workers to report errors (Hidayat, 2019). Cultural transformation requires ongoing managerial support (Saleh, 2022). Changes in organizational values usually require a gradual and strategic approach (Browning, 2018). Qualitative studies show that cultural strengthening can only be achieved through shared reflection and collective learning (Kasim, 2023).

Health technologies such as electronic medical record systems, barcode medication administration, and clinical decision support systems can improve safety (Kwon, 2020). However, technology that is not designed with human factors in mind can create new risks (Rizki, 2023). The phenomenon of alarm fatigue is one example of the negative effects of technology implementation (Cho, 2019). Post-implementation evaluation needs to be done to ensure the technology actually improves safety (Munandar, 2022). Technology integration must be accompanied by adequate training and user-friendly design (Pitoyo, 2024).

National literature suggests that transformational leadership, safety training, and local adaptation of measurement instruments are highly influential in the successful implementation of safety culture (Suyanto, 2019). Many hospitals in Indonesia still face constraints of high workloads and suboptimal reporting systems (Wibowo, 2022). In addition, interprofessional communication is still a big challenge in the context of local work culture (Setiawan, 2020). Contextual interventions based on Indonesian work culture are needed to make safety programs more effective (Nurhayati, 2023). Thus, integration of international evidence with local conditions is crucial (Hasanah, 2024).

Overall, safety culture is influenced simultaneously by organizational and human factors (Hasegawa, 2019). Improvement efforts need to be comprehensive, involving changes in policy, behavior, systems and work culture (Aulia, 2023). Sustainable implementation-based interventions have the potential to produce long-term impacts on healthcare quality (Sanders, 2020). Literature review research is highly relevant to map current findings and identify research gaps (Mansur, 2024). This review provides an important basis for strategic recommendations for improving patient safety culture in healthcare facilities (Rahman, 2025).

LITERATURE REVIEW

Patient Safety Culture

Safety culture is the values, attitudes, perceptions, and behavior patterns of individuals and groups that reflect a commitment to safety culture which is an important foundation for preventing incidents / events that can harm patients(*World Health Organization*, 2021) . According to AHRQ (2019), patient safety culture can be a measure of the extent to which the organization and the workforce in it have a mindset that supports safe work, encourages incident reporting, and makes safety a priority.

Safety culture (*just* culture) contains the values of openness, fairness, learning culture, and managing behavior. *Just culture* is an *outcome of* a process, which consists of:

1. ***Informed Culture***: a culture of information sharing. This aspect of the culture is the most basic, but has an important role in creating a safety culture. This part is closely related to the process of dissemination, socialization, and education about regulations, policies, and work procedures that apply in health facilities (Ministry of Health of the Republic of Indonesia, 2017).
2. ***Reporting Culture***: *reporting* culture. This cultural aspect requires health facilities to develop a reporting system that also contains a reporting culture that is free from worry and fear of the consequences of reporting. Proactive efforts to find problems can be done through internal audit activities, *self-assessment* and watch reports (Kaya et al., 2023).
3. ***Flexible Culture***: a flexible culture. This aspect shows the importance of the change process at the individual and system level. Change is aimed primarily at improving the system that has been developed for the better. Various products of this culture are PDSA/PDCA-based *re-design* (*plan-do-study/check-act*) and FMEA (*Failure Mode Effect Analysis*) (Kemenkes, 2024). *Flexible culture* is characterized by:
    a. Responsive to changes in the work environment.
    b. Fast and collaborative decision making.
    c. The ability of staff to work together to support patient safety
    d. Systems that are not rigid, but have a priority to prioritize safety standards.
4. ***Learning Culture***: the aspect of developing a safety culture is the most important part. The wrong procedures in this development process will lead to negative feelings towards the existing culture. But on the contrary, if this development process takes place well, it will create a positive culture that promotes patient safety (Muliyadi et al., 2019).
5. ***Just Culture***: the last stage of the safety culture development process (Han et al., 2024). A description and reminder of the parts of the development process can be seen in the following figure:

Dimensions of Patient Safety Culture

Dimensions of patient safety culture according to *(Agency for Healthcare Research and Quality*, 2019), namely:

1. Teamwork
   Staff both between units and within units work together effectively as a team, helping each other when busy, and respecting each other.
2. Staff organization and work tempo
   There is a sufficient number of staff to handle the workload, staff work according to working time, are not rushed, and are not overly dependent on temporary staff.
3. Organizational learning, continuous improvement
   Work processes are regularly evaluated, changes are made to prevent errors from recurring, and effectiveness is evaluated.

4. Response to error
   Staff are treated fairly when mistakes are made, there is a focus on reviewing/studying the error, and support staff are involved in incident resolution.
5. Health care facility management support
   Health facility management places patient safety as a priority and provides sufficient/adequate resources for patient safety.
6. Communication about *errors*
   Staff are informed when errors occur, discussions are held regarding prevention efforts, and staff are informed when changes are made.
7. Openness of communication
   Staff have the opportunity to express their opinions if they notice something unsafe happening and feel comfortable asking questions.
8. Patient Safety Incident Reporting
   Each incident of error that occurs is categorized into the following error types:
   a. Incidents that are identified and corrected before harm is caused to the patient, and
   b. Incidents that have the potential to cause harm to the patient, either no harm or harm.
9. Management, leadership support for patient safety
   The management of hospitals and health facilities shows commitment that patient safety is a top priority, considers staff suggestions/input in patient safety development, does not motivate/encourage staff to take shortcuts, and takes steps that focus on patient safety.
10. Shift changes and information exchange
    Important information related to patient safety and care is well communicated between hospital units and at every *shift* change.

METHODOLOGY

This study uses a *literature review* method that aims to identify, evaluate, and synthesize empirical and conceptual findings related to organizational factors and human factors that influence patient safety culture. The literature collection process was carried out through systematic searches on international databases Scopus and Web of Science, as well as national journal portals such as SINTA and Garuda. Inclusion criteria included articles published within the last eight years, in English or Indonesian, focusing on the context of patient safety, and using quantitative, qualitative or *mixed-method* research approaches. The articles reviewed consisted of 20 indexed international journals and 10 national journals that met the scientific quality requirements. All articles that passed the screening were analyzed to identify patterns of findings, research gaps, and relationships between variables related to organizational factors and human factors.

The *literature review* stage was conducted through three main steps: identification, selection, and synthesis. Identification was done by setting keywords such as *patient safety culture*, *organizational factors*, *human factors*, *healthcare workers*, and *hospital safety* to ensure comprehensive search coverage.

The selection process included screening titles, abstracts, and full content to evaluate suitability to the research objectives and ensure there was no duplication between databases. Selected articles were analyzed using a thematic approach to group findings based on organizational variables (leadership, communication, safety climate, workload) and human variables (competence, beha vior, motivation, compliance). The synthesized results were then used to formulate theoretical conclusions and practical implications related to improving patient safety culture in various types of health care facilities.

RESEARCH RESULT

The results of the literature review of 20 international articles and 10 national articles show that patient safety culture is significantly influenced by a combination of organizational factors and human factors that interact with each other in the health service work environment. From an organizational perspective, leadership emerged as a key determinant shaping staff perceptions of the institution's commitment to safety and determining the effectiveness of communication and incident reporting. In addition, organizational structure, workload and resource availability were shown to influence the ability of health workers to consistently implement patient safety practices. Findings also indicate that a positive safety climate does not emerge spontaneously, but is the result of managerial policies, work system stability and a culture of open communication. Overall, previous research confirms that organizational factors are an important foundation for creating a strong and sustainable safety culture.

From a human factors perspective, the literature shows that individual competence, motivation, safe work behaviors, and the ability of health workers to recognize and respond to risks play a direct role in the quality of patient safety culture. Level of knowledge and clinical experience influence how health workers assess dangerous situations and determine appropriate precautions. In addition, psychological aspects such as job stress, burnout and job satisfaction have a substantive influence on compliance with patient safety SOPs. Interpersonal relationships, including teamwork and interprofessional trust, were also found to be crucial elements in reducing the likelihood of errors in clinical care. The comprehensive findings of the thirty articles suggest that efforts to improve patient safety culture must consider the dynamic interaction between organizational and human factors, so that improvement strategies can be integrated and sustainable.

Table 1. Data Extraction of Selected Studies

Author (Year)	Country	Desain	Key Findings
Khoshakhlagh et al. (2019)	Iran	Cross-sectional study	Shift work and occupational burnout negatively affect patient safety culture. Public hospitals had higher safety culture scores than private ones

Bates & Singh (2018)	USA	Assessment of progress	Addressed progress since *To Err Is Human*; hospital-acquired infections and medication errors have been targeted; progress has been variable
Reis et al. (2018)	Multiple Countries	Systematic review	Strongest dimensions of patient safety culture were teamwork and organizational learning; weakest were non-punitive response to error and staffing
Darma et al. (2021)	Indonesia	Systematic review	Leadership, resources, and organizational structure positively influence the implementation of patient safety culture
Gebeyehu et al. (2024)	Low & Middle-Income Countries	Systematic review & meta-analysis	Identified the prevalence of patient safety culture at 48.25%; high teamwork within units and low non-punitive responses to errors
Carayon & Wood (2010)	USA	Literature review	Emphasizes the importance of human factors and systems engineering in improving patient safety culture across healthcare systems
Al-Mekhlafi et al. (2025)	Multiple Countries	Bibliometric analysis	Analyzed safety culture research trends globally using Scopus data; highlights the need for interdisciplinary collaboration
Kurniavip et al. (2017)	Indonesia	Literature review	Discussed organizational factors in patient safety; organizational commitment to safety culture significantly enhances the effectiveness of patient safety measures
Reis et al. (2018)	Portugal	Systematic review	Strong safety culture dimensions identified were teamwork within units,

			organizational learning; weak dimensions were non-punitive responses to errors and staffing
Sumiati et al. (2023)	Indonesia	Systematic Review	Factors such as communication, work environment, fatigue, and teamwork were identified as key determinants in patient safety
Noor Arzahan et al. (2021)	Malaysia	Systematic Review	Patient safety culture is positively influenced by organizational factors like leadership, teamwork, and continuous learning
Ali et al. (2024)	Ethiopia	Cross-sectional (quantitative /qualitative)	Positive patient safety culture was linked to training, work experience, and unit of work; psychological safety and communication were key contributors
Alabdullah & Karwowski (2024)	International (Multiple)	Systematic Review	Identified strengths in teamwork and continuous learning, but concerns around punitive environments and insufficient staffing
Carvalho et al. (2023)	Brazil	Scoping Review	Found that leadership, open communication, and learning from errors were consistent across regions; patient and family participation was emerging
Carayon et al. (2013	USA	Literature Review	Human factors and ergonomics (HFE) play a crucial role in reducing medical errors, with a focus on system design, communication, and healthcare worker performance
Sheehan et al. (2022)	Scotland	Systematic Review	Focused on the integration of Human Factors (HF) in healthcare curricula; barriers included lack of

			expertise and formal patient safety curricula
van Nunen et al. (2018)	Netherland	Bibliometric Analysis	Safety culture research spans across healthcare, aviation, and other high-risk industries; shift toward human factors is noted
Ayanaw et al. (2023)	Ethiopia	Cross-sectional comparative study	Prevalence of "good" patient safety culture was 50.9 %. Associated factors: type of hospital (public vs private), profession, job satisfaction, participation in safety programmes, availability of equipment/materials, and shift work
Hesgrove et al. (2024)	USA	Cross-sectional quantitativ	Strong empirical links between workplace safety culture and patient safety culture: e.g., hospital management support for workplace safety was highly associated (β≈0.93) with management support for patient safety. Burnout/work-stress negatively associated with patient safety culture.
de Carvalho et al. (2023)	Multi-Countries	Scoping review	Identified leadership, communication, resources and incident-reporting systems as key determinants of patient safety culture in hospitals globally; emphasised that values, attitudes, perceptions and behaviours are foundational
Kurniasari et al. (2024)	Indonesia	Cross-sectional quantitative	Analysed paths of influence: organisational culture, organisational commitment and structural empowerment all had significant positive effects

			on patient safety culture in hospital settings.
Darma et al. (2021)	Multi-continent (Asia, Europe, Africa)	Systematic literature review	Found organisational factors (leadership, resources, structure) are key in implementing a patient safety culture in hospitals. Emphasised variation by country/context.
Heriyati et al (2019)	Indonesia	Cross-sectional survey	Leadership commitment, teamwork, communication, work climate, no-blaming culture, incident reporting, education & training are positively associated with patient safety culture.
Febriyaty & Utami (2019)	Indonesia	Cross-sectional survey	The average positive response for patient safety was 71.97%; the lowest dimensions were staffing (40.29%) and incident reporting (25.85%).
Iswati (2017)	Indonesia	Cross-sectional non-experimental	No significant relationship was found between patient safety culture and patient satisfaction (OR = 1.250; p = 1.000).
Mutia & Dhamanti (2023)	Indonesia	Literature review	In primary care, areas for improvement include working conditions, workload/pace, and non-punitive responses to mistakes.
Sumantrie, P., Limbong, M., & Sidabutar, S. (2023)	Indonesia	Cross-sectional survey	Using the Hospital Survey on Patient Safety Culture (HSOPSC), found high "hospital management support for patient safety" (≈81.7 %) but very low "training & organizational learning" (~0.8 %).
Guspianto, G., Nurlinawati, N.,	Indonesia	Quantitative descriptive	Implementation level of patient safety culture in PHCs in Jambi Province

& Pramudiani, D. (2025)			was 71.5 %; however, seven out of the safety-culture dimensions were weakly implemented (staffing, open communication, non-punitive response to error, etc.).
Irviana, F., et al. (2025)	Indonesia	Cross-sectional (in a hospital)	Analyzed the influence of patient safety culture on patient-safety performance at a general hospital in Jakarta.
Dewi, M. & Damayanti, R. (2025)	Indonesia	Quantitative descriptive	"Overview of patient safety culture at Izza Hospital, Karawang in 2024" found high "teamwork" (~97 %) but challenges in error-response and staff courage to ask critical questions.

In recent years, the importance of patient safety culture (PSC) in healthcare facilities has received significant attention, particularly in relation to organizational and human factors that directly influence the development and sustainability of PSC. Various studies have emphasized the role of leadership, communication, teamwork, and a supportive environment in building a positive CPS, as reflected in the findings from various cross-sectional surveys, systematic reviews, and empirical studies in different countries. Leadership commitment, especially from hospital management, is consistently identified as a crucial element in shaping safety culture by encouraging open communication, organizational learning, and non-punitive responses to errors. However, barriers such as staff shortages, inadequate training, and a punitive environment that discourages error reporting persist and hinder the overall effectiveness of CPS initiatives. In addition, differing perceptions of CPS among health workers, including nurses, doctors, and support staff, highlight the need for a more tailored approach that considers regional and institutional differences.

Despite progress in adopting frameworks such as the Hospital Survey on Patient Safety Culture (HSOPSC), there are still gaps in the consistent implementation of CPS principles, especially in resource-constrained settings. These studies also reflect an increased emphasis on the application of human factors and ergonomics (HFE) principles in healthcare practice, with recognition of the need for system resilience and performance optimization to reduce errors and improve patient safety. Going forward, it is imperative to address these challenges through continuing education, integration of patient and family perspectives, and commitment to an equitable culture that encourages proactive risk management and safety improvement. Therefore, this body of literature

provides invaluable insights for shaping future policies, improving educational curricula for healthcare workers, and refining strategies to improve patient safety in various healthcare settings.

DISCUSSION

Patient safety culture (PSC) in hospitals is strongly influenced by organizational factors, such as leadership and resource allocation. Many studies emphasize the importance of leadership commitment in creating and sustaining a positive patient safety culture. Khoshakhlagh et al. (2019) and Darma et al. (2021) found that leadership that supports patient safety can strengthen open communication and incident reporting, which are needed in building a culture that supports patient safety. However, lack of resources and inadequate staffing are often barriers to effective implementation. This is reinforced by Febriyaty & Utami's research (2019) which showed weaknesses in staffing and incident reporting dimensions that significantly affect patient safety.

Training and education for medical and non-medical personnel also play an important role in developing a patient safety culture. Based on studies by Ali et al. (2024) and Sumantrie et al. (2023), continuous training increases staff engagement in identifying and addressing safety risks. On the other hand, a lack of training and understanding related to patient safety can reduce inter-team communication and collaboration, which can worsen safety culture. Heriyati et al. (2019) identified teamwork as an important aspect that supports a positive patient safety culture. Therefore, it is important for hospitals to provide structured and routine patient safety training.

The organizational culture strength factor also showed significant differences in the implementation of patient safety culture in public and private hospitals. Ayanaw et al. (2023) revealed that public hospitals showed a better safety culture than private hospitals in several dimensions. This was influenced by higher management commitment in supporting patient safety initiatives in public hospitals. However, a study by Kurniasari et al. (2024) mentioned that ineffective organizational structure and communication in private hospitals may hinder the establishment of an optimal safety culture. Therefore, improvements to communication structures and processes in private hospitals need to be addressed with high priority.

Patient and family participation in patient safety culture is an important concern in recent studies. Carvalho et al. (2023) showed that patient and family involvement in the safety process can increase patient safety awareness and improve healthcare outcomes. However, a study by Alabdullah & Karwowski (2024) revealed that not all hospitals consider family participation as an integral part of patient safety culture, despite the importance of patient trust in healthcare facilities. Therefore, it is important to integrate patient participation in every safety policy and practice. This is in line with the recommendations of the WHO Global Patient Safety Action Plan 2021-2030, which emphasizes the importance of the active role of patients and families in patient safety.

Different dimensions of safety culture such as teamwork, open communication and error reporting are strongly influenced by a supportive

organizational culture. Based on the results of a study by Suryani & Lindayani (2024), a high safety culture was found in hospitals that had a no-blame culture and supported error reporting without punishment. In contrast, hospitals with a punitive error culture showed poor safety outcomes, as found in the study by Kurniasari et al. (2024). This suggests that developing a safety culture based on trust and open reporting is essential for long-term success. On the other hand, the study by Sumiati et al. (2023) emphasized the need for improvement in the area of response to errors in improving overall patient safety.

The influence of work experience on patient safety culture was also found to be significant in several studies. Ali et al. (2024) reported that more than 11 years of work experience was associated with better understanding and implementation of safety culture, while lesser work experience tended to view safety culture in a more limited way. This suggests the importance of providing more in-depth training and context relevance of safety culture to both new and experienced medical personnel to reduce perceptual differences in patient safety culture. In contrast, the study by Ayanaw et al. (2023) found that the level of education also influences the extent to which safety culture is accepted and implemented in the hospital environment.

Awareness and recognition of mistakes are key factors in an effective patient safety culture. For example, the study by Heriyati et al. (2019) showed that faster recognition of errors and prompt follow-up would help create inter-team trust and strengthen the safety culture in the hospital. However, a study by Iswati (2017) found that in some hospitals, errors are often trivialized, which has a negative impact on patient safety. In this regard, it is crucial to educate medical and hospital personnel to accept errors and learn from them to improve patient safety. This also relates to the need to support a culture of non-punitive errors which is much needed in the implementation of a better safety culture.

Patient safety-focused leadership is still the main driving factor in the development of safety culture in hospitals. Research by Kurniavip et al. (2017) showed that the commitment of senior managers is crucial in driving patient safety culture in hospitals. Supportive management can also create a transparent error reporting system, which accelerates learning from errors and reduces the risk of further injury. However, a study by Bates & Singh (2018) emphasized that despite improvements in patient safety management, there are still major challenges in thoroughly integrating patient safety into hospital strategy. Therefore, strategies to strengthen leadership and provide more resources for patient safety are urgently needed.

The biggest challenge in patient safety culture often lies in the response to errors and the lack of clear leadership in patient safety. Research by Hesgrove et al. (2024) showed that patient safety culture is often affected by work pressure and staff burnout. Some hospitals reported that limited time for training or updating procedures can hinder the development of a better safety culture. In contrast, hospitals that involve staff in safety decision processes and allow time for discussion of safety issues show significant improvements in reporting and response to errors. This is important to reduce the fear of punishment and improve the overall effectiveness of the patient safety culture.

Adequate resources and a clear organizational structure were found to be key elements influencing patient safety culture in hospitals. Research by Darma et al. (2021) emphasized that hospitals with sufficient resources and a well-organized managerial structure tend to have a better patient safety culture. In contrast, in hospitals with a lack of resources and a chaotic structure, patient safety factors tend to be neglected, which worsens overall patient safety. This suggests that investment in infrastructure and staff training is critical to creating an effective safety culture. Therefore, increased resources in hospitals are key to fostering a stronger patient safety culture.

The active role of staff in safety incident reporting plays a key role in the successful implementation of a patient safety culture. In a study by Febriyaty & Utami (2019), it was found that staff involvement in incident reporting at the hospital was very limited, with very low patient safety reports. This suggests that in addition to training, it is important to build a culture that supports reporting without fear of punishment. As a result, hospitals that have an effective and non-punitive incident reporting system have a better and more proactive patient safety culture.

Patient satisfaction is also directly connected to patient safety culture in hospitals. A study by Iswati (2017) showed that there was no significant relationship between patient safety culture and patient satisfaction in some hospitals. However, a study by Ayanaw et al. (2023) showed that hospitals with a better patient safety culture tend to show higher levels of patient satisfaction. This demonstrates the importance of patient involvement in the safety process to improve the overall patient experience.

Systematic studies on organizational factors continue to show that lack of training and ineffective teamwork often hinder the development of a better safety culture. Research by Carayon & Wood (2010) revealed that although human factors and well-organized systems can reduce medical errors, many hospitals still do not integrate these principles in their safety procedures. Therefore, it is important to ensure that medical personnel training curricula include human factors aspects in building a safety culture.

Evaluation of patient safety based on safety indicators and incident reporting was found to vary widely between hospitals. The study by Suryani & Lindayani (2024) emphasized the importance of regular evaluation of patient safety to identify areas for improvement, such as error reporting and staff perception of patient safety. In contrast, hospitals with less structured safety evaluations often have difficulties in implementing effective improvements. Therefore, safety evaluation should be an integrated part of hospital management to continuously improve patient safety culture.

Finally, error response and systems-based approaches are increasingly seen as integral to the development of a patient safety culture. Alabdullah & Karwowski (2024) showed that a systemic approach that includes inter-team communication and system resilience can help reduce errors and strengthen the overall safety culture. Hospitals therefore need to integrate a systems-based approach in their safety policies and practices to achieve better outcomes and prevent further harm to patients.

CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis of the 25 journals discussed, it can be concluded that organizational and human factors play a very important role in building an effective patient safety culture (PSC). Strong leadership, open communication, continuous training, and staff involvement in the patient safety process are proven to strengthen the safety culture in hospitals. However, challenges such as staff shortages, an environment that penalizes error reporting, and lack of resources are still major barriers to the implementation of an optimal safety culture. Differences in perceptions between medical personnel and management regarding patient safety culture also point to the need for a more integrated approach tailored to each hospital's needs. Overall, despite progress in some areas, there is still much work to be done to create a better and more sustainable patient safety culture.

To improve the culture of patient safety in hospitals, it is recommended that hospitals strengthen leadership commitment in supporting patient safety programs and develop a culture of non-punishment that encourages open reporting of incidents. In addition, hospitals should provide more intensive and continuous training to medical personnel to improve inter-team communication and teamwork. It is also important to allocate more resources in the organizational structure so that hospitals can address challenges related to staffing and capacity building. Regular patient safety evaluations based on safety indicators need to be implemented so that hospitals can continuously identify areas for improvement. Finally, to create a more inclusive safety culture, patient and family involvement in safety efforts should be further strengthened, ensuring that they are part of the hospital safety system.

ADVANCED RESEARCH

An advanced research approach in the domain of patient safety culture could explore the intricate interplay between organizational factors, human behaviors, and system resilience, integrating both qualitative and quantitative methodologies to provide a deeper understanding of how these elements collectively shape patient safety outcomes. By employing mixed-methods research, this study could analyze large-scale survey data, such as the Hospital Survey on Patient Safety Culture (HSOPSC), while complementing it with in-depth interviews and ethnographic observations to uncover nuanced insights into organizational dynamics, leadership styles, and communication practices within diverse healthcare settings. Additionally, incorporating advanced data analytics, including machine learning algorithms, could identify patterns and predictive factors that influence safety culture outcomes across different hospital types and regions. Furthermore, investigating the impact of emerging technologies, such as artificial intelligence and machine learning, on enhancing patient safety culture through real-time error detection and decision support systems could offer new avenues for innovation in healthcare safety protocols. This research would not only contribute to a deeper theoretical understanding of patient safety culture but also offer practical recommendations for tailored interventions that address contextual challenges in both developed and low-resource healthcare settings.

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