International Journal of Recent Advances in Multidisciplinary Topics
Volume 7, Issue 2, February 2026
www.ijramt.com | E-ISSN: 2582-7839 | RESAIM Publishing | www.resaim.com

The Determinants of Patient Safety Culture – A Systematic Review

M. Alhejaili Nadiyah Saeed*
Faculty of Nursing, Lincoln University College, Madinah, Saudi Arabia

***Abstract*: Background: Patient safety culture (PSC) is a foundational component of healthcare quality and risk reduction in hospital settings. Although numerous studies have assessed PSC levels globally, evidence regarding its determinants remains fragmented and insufficiently integrated across healthcare systems. Objective: This systematic review aimed to identify, synthesize, and hierarchically integrate the determinants of patient safety culture in hospital settings worldwide. Methods: A comprehensive search of PubMed, Scopus, Web of Science, and CINAHL was conducted for peer-reviewed articles published between January 2010 and December 2025. Eligible studies examined determinants of patient safety culture in hospital settings using validated instruments, including the Hospital Survey on Patient Safety Culture (HSOPSC), the Safety Attitudes Questionnaire (SAQ), or equivalent standardized tools. Both empirical studies and structured research syntheses addressing determinants of PSC were considered. Data extraction and methodological appraisal were conducted using Joanna Briggs Institute checklists, and findings were synthesized using a structured narrative approach to assess consistency and convergence across studies. Results: Twenty-six studies met the inclusion criteria. Determinants of PSC were identified across individual, organizational, and structural domains. Organizational determinants demonstrated the strongest and most consistent associations with patient safety culture outcomes across diverse healthcare contexts. Key drivers included leadership practices, management support, staffing adequacy, workload management, teamwork climate, communication openness, and non-punitive response to error. Individual-level factors, particularly education and participation in safety training, showed positive but less consistent associations. Structural characteristics, including hospital type and governance context, functioned primarily as contextual moderators influencing variability in safety culture perceptions. Conclusion: Patient safety culture is predominantly shaped by organizational determinants, with leadership and staffing adequacy representing central leverage points for intervention. Sustainable improvement requires alignment between institutional leadership, workforce capacity, and policy-level governance strategies. This review provides an integrated synthesis of evidence clarifying priority domains for strengthening hospital safety culture globally.**

***Keywords*: Patient safety culture, Leadership, Staffing adequacy, Organizational determinants, Systematic review.**

1. Introduction

Patient safety remains a global priority, as preventable adverse events continue to contribute substantially to morbidity, mortality, and healthcare costs across hospital settings worldwide. Despite advances in clinical technologies and regulatory frameworks, unsafe care persists, emphasizing the need to address systemic and organizational determinants of safety rather than focusing solely on individual errors. Within this context, Patient Safety Culture (PSC) has emerged as a central construct in advancing healthcare quality and reducing risk (Sammer et al., 2021).

PSC refers to the shared values, beliefs, norms, and behavioral expectations within healthcare organizations that influence safety-related attitudes and practices. It reflects how safety is prioritized, communicated, and operationalized across hierarchical levels of an institution. A positive safety culture has been associated with improved teamwork, increased reporting of incidents, enhanced organizational learning, and better safety outcomes (Albalawi et al., 2020). Over the past two decades, PSC has been widely assessed using validated instruments such as the Hospital Survey on Patient Safety Culture (HSOPSC) and the Safety Attitudes Questionnaire (SAQ), which have enabled benchmarking across hospitals internationally (Ismail & Khalid, 2022).

Although numerous studies have examined the status and dimensions of PSC across countries, descriptive assessments alone are insufficient to guide meaningful organizational change. Evidence consistently shows variation in PSC dimensions, with strengths often reported in teamwork and organizational learning, while persistent weaknesses are observed in staffing adequacy and non-punitive response to error (Yousefian et al., 2023). However, identifying these variations does not explain why they occur.

Patient safety culture is not a static phenomenon; rather, it is shaped by interactions among individual characteristics, organizational practices, leadership behaviors, and broader structural contexts. Empirical research suggests that demographic and professional variables such as age, education level, and clinical role may influence perceptions of PSC (Ismail & Khalid, 2022). Organizational determinants including leadership style, management support, staffing levels, workload pressures, communication openness, and learning climate have also been found to significantly affect safety culture outcomes (Nguyen et al., 2021). Additionally, institutional characteristics such as hospital type, teaching status, and geographic region

*Corresponding author: nadia.saeed.h@gmail.com

may contribute to differences in safety culture across settings (Azyabi et al., 2022).

Despite the growing body of empirical evidence examining associations between selected variables and PSC, the literature remains fragmented. Many studies investigate isolated predictors within specific countries or professional groups, limiting conceptual integration and generalizability. Previous systematic reviews have primarily focused on assessing PSC levels, evaluating measurement tools, or reporting regional status, rather than synthesizing determinants across contexts in a structured analytical framework (Azyabi et al., 2021; Camacho-Rodriguez et al., 2022).

A comprehensive synthesis of determinants is therefore needed to advance theoretical understanding and inform practical interventions. By systematically identifying and categorizing factors that influence PSC, it becomes possible to move beyond descriptive benchmarking toward targeted strategies that strengthen safety culture at multiple levels within hospital organizations.

The aim of this systematic review is to identify, synthesize, and categorize the determinants of patient safety culture in hospital settings worldwide. Specifically, this review seeks to examine individual-level, organizational-level, and structural determinants associated with PSC and to integrate these findings into a multi-level analytical framework to guide future research and healthcare policy.

2. Methods

A. Search Strategy and Information Sources

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines (Page et al., 2021) to ensure methodological transparency, reproducibility, and comprehensive reporting. The review aimed to identify empirical and synthesized evidence examining determinants of patient safety culture in hospital settings.

A comprehensive and structured literature search was conducted in PubMed, Scopus, Web of Science, and CINAHL. The final search was performed in December 2025. These databases were selected to ensure broad coverage of medical, nursing, healthcare management, and interdisciplinary research relevant to patient safety culture and organizational safety determinants.

The search strategy combined controlled vocabulary terms (e.g., MeSH terms in PubMed) with free-text keywords related to patient safety culture and its determinants. Core search terms included: “patient safety culture” OR “safety culture” OR “Hospital Survey on Patient Safety Culture” OR “HSOPSC” OR “Safety Attitudes Questionnaire” OR “SAQ,” combined with determinant-related terms such as “determinant,” “predictor,” “associated factor,” “influencing factor,” “correlate,” and “organizational factor.” Boolean operators (“AND,” “OR”) were used to structure the search syntax, and truncation was applied where appropriate. The search strategy was adapted to the indexing structure of each database to optimize sensitivity and specificity.

The search was limited to peer-reviewed articles published between January 2010 and December 2025 and written in English. All retrieved records were exported into reference management software, and duplicate entries were removed prior to screening.

To enhance comprehensiveness, backward reference screening was conducted for all included studies to identify additional eligible publications not captured in the database search. This multi-step approach was designed to strengthen coverage and reduce the risk of missing relevant evidence.

B. Eligibility Criteria and Study Selection

Eligibility criteria were defined a priori to ensure methodological rigor and alignment with the objectives of this review. The review question was structured to identify determinants of patient safety culture among healthcare professionals working in hospital settings.

Studies were eligible if they examined determinants, predictors, or associated factors influencing patient safety culture in hospital environments. Both primary empirical quantitative studies (e.g., cross-sectional, cohort, or longitudinal designs) and systematic research syntheses (e.g., systematic reviews and meta-analyses) addressing determinants of patient safety culture were eligible for inclusion, provided they applied structured and transparent methodological approaches.

Eligible studies were required to measure patient safety culture using validated instruments such as the Hospital Survey on Patient Safety Culture (HSOPSC), the Safety Attitudes Questionnaire (SAQ), or equivalent validated tools. Studies focusing exclusively on psychometric validation without examining determinants were excluded.

Non-empirical publications (e.g., editorials, commentaries, conference abstracts, dissertations, and grey literature) were excluded. Only peer-reviewed studies published in English between January 2010 and December 2025 were considered eligible.

The study selection process followed PRISMA 2020 guidelines (Page et al., 2021). Titles and abstracts were independently screened, followed by full-text assessment. Discrepancies were resolved through discussion and, when necessary, consultation with a third reviewer.

C. Data Extraction and Quality Appraisal

A standardized and pilot-tested data extraction form was developed to ensure systematic, transparent, and consistent collection of relevant information from all included studies. The extraction process was designed to capture both methodological characteristics and substantive findings related to determinants of patient safety culture across evidence levels. Extracted variables included the first author and year of publication, country or region of study, study design, sample size and participant characteristics, hospital type, instrument used to measure patient safety culture, statistical methods employed, and determinants identified as significantly associated with patient safety culture outcomes. For primary empirical studies, particular emphasis was placed on extracting adjusted effect

estimates derived from multivariate analyses, where available, to ensure accurate interpretation of determinant effects while accounting for potential confounding variables. For secondary evidence (systematic reviews and meta-analyses), information regarding the number of included studies, aggregated sample size, analytical approach, and synthesized determinant findings was recorded. Data extraction was conducted independently by two reviewers to minimize bias and enhance reliability, with discrepancies resolved through discussion and consensus.

Given the methodological heterogeneity across included studies, methodological quality was appraised according to study design. Primary observational studies were evaluated using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies (Joanna Briggs Institute, 2017), which assesses domains including sampling adequacy, validity and reliability of measurement instruments, identification and management of confounding factors, appropriateness of statistical analyses, and clarity of outcome measurement. Secondary studies, including systematic reviews and meta-analyses, were appraised using the Joanna Briggs Institute Critical Appraisal Checklist for Systematic Reviews and Research Syntheses to evaluate methodological rigor, search comprehensiveness, risk of bias assessment, and appropriateness of synthesis methods. Each study was assessed independently, and overall methodological quality judgments were assigned. Studies were categorized as high, moderate, or low methodological quality based on the proportion of criteria met.

Quality appraisal findings were not used as exclusion criteria; however, they were incorporated into the synthesis process to contextualize the strength and credibility of the evidence. Due to heterogeneity in measurement instruments, operationalization of determinants, and statistical modeling approaches across primary studies, a quantitative meta-analysis of determinants was not feasible. Therefore, a structured narrative synthesis approach was employed. Determinants were grouped into conceptual categories (individual, organizational, and structural levels), and consistency, direction, and convergence of associations were examined across evidence hierarchies. Greater interpretative weight was given to findings derived from high-quality studies and analyses employing multivariate adjustment, as well as determinants consistently supported by both primary empirical data and secondary synthesized evidence. This approach enhanced transparency and strengthened inferential confidence while allowing meaningful integration of diverse methodological evidence in accordance with established systematic review standards (Page et al., 2021).

3. Results

A. Study Selection

The systematic search across PubMed, Scopus, Web of Science, and CINAHL yielded a total of 1,173 records. After removal of 287 duplicate entries, 886 unique studies remained for title and abstract screening. During the initial screening phase, 814 records were excluded for not meeting the predefined eligibility criteria. The primary reasons for exclusion included lack of determinant analysis, studies conducted outside hospital settings, instrument validation studies without analytical assessment of associated factors, and non-empirical publications.

Seventy-two full-text articles were retrieved and assessed for eligibility. Following full-text evaluation, 46 studies were excluded for reasons including purely descriptive reporting of patient safety culture without examination of determinants, focus on non-hospital environments, absence of validated patient safety culture measurement tools, or insufficient analytical rigor.

A total of 26 studies met all inclusion criteria and were included in the final synthesis.. The study selection process is summarized in Figure 1 in accordance with PRISMA 2020 guidelines (Page et al., 2021).

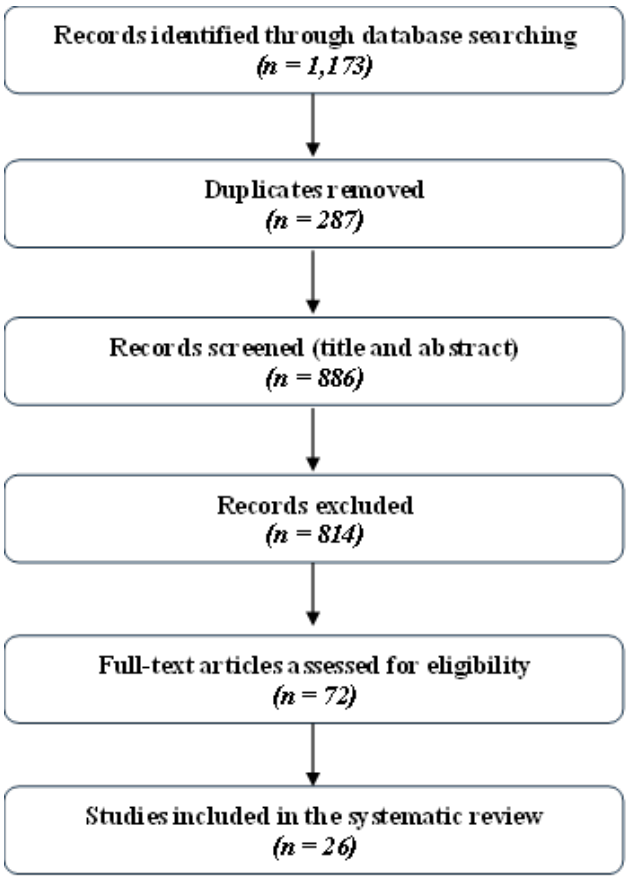

Fig. 1. PRISMA 2020 flow diagram of study selection

B. Characteristics of Included Studies

A total of 26 studies were included in the final synthesis, representing diverse geographical regions and healthcare contexts worldwide. The included studies were conducted across North America, Asia, the Middle East, Europe, Africa, and Latin America, reflecting substantial contextual variability in hospital systems and governance structures. This broad geographic distribution enhances the generalizability and contextual depth of the review findings.

Across the included studies, sample sizes varied considerably, ranging from small single-hospital investigations

to large multi-center datasets involving tens of thousands of healthcare professionals. Study populations primarily comprised nurses and mixed groups of healthcare professionals, including physicians, allied health staff, and hospital administrators. This diversity allowed examination of patient safety culture perceptions across different professional roles and organizational levels.

Patient safety culture was consistently measured using validated and widely recognized instruments. The Hospital Survey on Patient Safety Culture (HSOPSC) and the Safety Attitudes Questionnaire (SAQ) were the most frequently utilized tools, while several studies employed equivalent validated or contextually adapted safety culture instruments. Analytical approaches commonly included multivariate regression modeling, structural equation modeling, and other inferential statistical techniques designed to identify significant determinants while accounting for potential confounding variables.

Across studies, the most frequently examined determinants included leadership practices, management support, staffing adequacy, workload and time pressure, teamwork climate, communication openness, non-punitive response to error, and selected demographic and professional characteristics. This methodological and thematic diversity provided a comprehensive foundation for the integrated multi-level synthesis presented in the subsequent sections.

C. Determinants of Patient Safety Culture

Synthesis of the 26 included studies, comprising diverse methodological approaches, demonstrated that determinants of patient safety culture operate across multiple interconnected levels. To enhance analytical clarity and reflect evidence hierarchy, determinants were categorized into individual-level, organizational-level, and structural-level domains. Convergence and consistency of findings across evidence levels were examined to strengthen interpretative confidence.

1) Individual-Level Determinants

Individual-level determinants were primarily examined in cross-sectional empirical studies, with limited and variable reinforcement from secondary reviews. Demographic and professional characteristics such as age, gender, educational attainment, years of experience, and participation in structured safety training programs were assessed across several contexts. Higher educational attainment and participation in formal patient safety training were positively associated with stronger safety culture perceptions in empirical studies (Ismail & Khalid, 2022; Hameed et al., 2023). However, demographic variables such as age and gender demonstrated inconsistent associations across settings (Azyabi et al., 2022).

Secondary evidence provided limited direct synthesis of demographic predictors, instead emphasizing workforce competency development as a supportive but not primary driver of safety culture. Overall, the evidence suggests that while education and training may contribute to improved safety perceptions, individual characteristics exert a modest and context-dependent influence compared with organizational determinants.

2) Organizational-Level Determinants

Organizational-level determinants emerged as the most consistent and robust predictors across both primary and secondary evidence. Leadership style and management support for patient safety were repeatedly identified as central determinants in empirical investigations (Lee & Dahinten, 2021; Alquwez, 2020) and were strongly reinforced in systematic reviews and meta-analyses (Sfantou et al., 2020; Chilukuri et al., 2024). Transformational, supportive, and safety-oriented leadership behaviors were consistently associated with stronger safety culture perceptions, whereas managerial disengagement and weak safety commitment were linked to poorer safety climates.

Staffing adequacy and workload intensity were similarly supported across evidence hierarchies. Primary studies demonstrated that inadequate staffing levels, time pressure, and burnout were significantly associated with lower safety culture scores (Nguyen et al., 2021; Teng et al., 2020). These findings were corroborated by regional and multi-national meta-analytic evidence highlighting staffing shortages as structural threats to safety climate stability (Camacho-Rodriguez et al., 2022; Azeze et al., 2025).

Teamwork climate, communication openness, and non-punitive response to error also demonstrated high consistency across studies. Empirical research and synthesized reviews alike identified blame-oriented environments as barriers to error reporting and organizational learning (Ogundimu, 2015; Chilukuri et al., 2024). Conversely, psychologically safe environments characterized by open communication and collaborative interprofessional relationships were associated with stronger safety culture outcomes (Azyabi et al., 2021).

The convergence of findings across methodological levels strengthens confidence in organizational determinants as foundational drivers of patient safety culture across diverse healthcare systems.

3) Structural and Contextual Determinants

Structural determinants were more frequently identified in large-scale cross-national studies and secondary evidence syntheses. Hospital type, teaching status, regulatory environment, and broader healthcare system governance structures were reported to influence variability in safety culture perceptions (Azyabi et al., 2022; Alabdullah & Karwowski, 2024). While single-site empirical studies provided limited insight into macro-level influences, systematic reviews highlighted regional and institutional context as important modifiers of organizational safety practices.

These findings suggest that structural determinants function as contextual moderators, shaping the environment within which leadership practices, staffing policies, and communication systems operate.

4) Integrated Interpretation Across Evidence Levels

Across the 26 included studies, organizational determinants demonstrated the strongest and most consistent influence on patient safety culture. Evidence convergence across primary empirical research and higher-level synthesized reviews indicates that leadership practices, staffing adequacy, workload management, teamwork climate, communication openness, and

Table 1
Determinant mapping matrix of included studies (n = 26)

No.	Author (Year)	Age	Gender	Education	Experience	Training	Leadership	Staffing	Workload	Teamwork	Communication	Non-punitive	Hospital Type
1	Azyabi et al. (2021)						✓	✓		✓	✓	✓	
2	Azyabi et al. (2022)	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓
3	Ismail & Khalid (2022)	✓	✓	✓	✓	✓	✓				✓	✓	
4	Nguyen et al. (2021)			✓				✓		✓	✓	✓	
5	Albalawi et al. (2020)						✓	✓	✓	✓	✓	✓	
6	Camacho-Rodriguez et al. (2022)						✓	✓		✓	✓	✓	✓
7	Azeze et al. (2025)						✓	✓	✓	✓		✓	✓
8	Hameed et al. (2023)	✓	✓	✓	✓	✓		✓		✓	✓	✓	
9	Lee & Dahinten (2021)						✓			✓	✓		
10	Alquwez (2020)						✓	✓		✓		✓	
11	Wei et al. (2024)						✓	✓	✓				
12	Teng et al. (2020)							✓	✓				
13	Sfantou et al. (2020)						✓						
14	Wei et al. (2020)						✓	✓		✓			
15	Olsen & Leonardsen (2021)									✓	✓	✓	
16	Glarcher & Vaismoradi (2024)						✓			✓	✓		
17	Almutairi et al. (2022)						✓	✓		✓		✓	
18	Yousefian et al. (2023)						✓	✓		✓	✓	✓	
19	Bayna et al. (2023)						✓	✓		✓	✓		
20	Alnawajha & Albaqami (2023)						✓			✓	✓		
21	Alizadeh-Dizaj et al. (2025)						✓	✓		✓			
22	Ogundimu (2015)						✓	✓		✓	✓	✓	
23	Alabdullah & Karwowski (2024)						✓	✓		✓		✓	✓
24	Purnomo et al. (2021)						✓	✓		✓	✓		
25	Chilukuri et al. (2024)						✓	✓		✓	✓	✓	
26	Silva et al. (2021)						✓	✓		✓	✓	✓	

non-punitive response to error constitute core drivers of safety culture in hospital settings.

In contrast, individual-level determinants appear secondary and contextually variable, while structural determinants operate at a macro level, influencing institutional capacity to implement and sustain safety-oriented practices.

The distribution of identified determinants across studies is summarized in Table 1.

4. Discussion

This systematic review synthesized multi-level evidence from 26 studies to provide a structured and hierarchically informed understanding of the determinants shaping patient safety culture in hospital settings. The findings demonstrate that patient safety culture is influenced by interconnected determinants operating at individual, organizational, and structural levels; however, convergence across evidence hierarchies clearly indicates that organizational determinants constitute the most consistent and influential drivers.

Leadership emerged as the most robust determinant across primary empirical studies and secondary synthesized evidence. Transformational and safety-oriented leadership behaviors were consistently associated with stronger safety culture perceptions, while managerial disengagement and weak safety commitment were linked to poorer safety climates. These findings align with broader organizational theory suggesting that leadership shapes institutional priorities, allocates resources, and models behavioral norms that define safety expectations (Wei et al., 2020). Within hospital settings, leadership functions not merely as an administrative variable but as a cultural mechanism through which psychological safety, accountability, and learning behaviors are reinforced. The consistency of this finding across diverse healthcare systems strengthens confidence in leadership as a foundational leverage point for safety culture improvement.

Staffing adequacy and workload intensity also emerged as structurally embedded organizational determinants. Evidence across studies demonstrated that insufficient staffing levels, excessive time pressure, and burnout undermine communication quality, teamwork effectiveness, and error-reporting behaviors (Teng et al., 2020). These findings suggest that safety culture cannot be sustained through attitudinal interventions alone; rather, it requires alignment between safety values and operational capacity. In this regard, workforce planning and workload management should be conceptualized as core patient safety strategies rather than purely administrative concerns.

Teamwork climate, communication openness, and non-punitive response to error were likewise consistently associated with stronger safety culture outcomes. A blame-oriented environment was repeatedly identified as a barrier to reporting and organizational learning (Chilukuri et al., 2024), whereas psychologically safe environments characterized by open communication and interprofessional collaboration were

associated with improved safety perceptions (Azyabi et al., 2021). These findings reinforce principles derived from just culture and high-reliability organizational frameworks, emphasizing that sustainable safety performance depends on trust, transparency, and shared accountability.

At the individual level, demographic characteristics such as age, education, and professional role demonstrated variable and context-dependent associations (Hameed et al., 2023). While education and safety training were positively related to safety perceptions, individual characteristics alone did not consistently predict safety culture outcomes. This pattern suggests that individual competencies operate within, and are constrained by, broader organizational environments. Organizational climate appears to exert stronger and more stable influence than personal demographic factors.

Structural and contextual determinants further illustrated that patient safety culture is embedded within broader governance and healthcare system frameworks. Cross-national analyses revealed variability linked to hospital type, teaching status, and regulatory environments (Alabdullah & Karwowski, 2024). However, despite contextual differences, similar organizational determinants were identified globally, indicating that foundational drivers of safety culture demonstrate cross-system stability.

Overall, the integrated evidence suggests that interventions targeting organizational structures, particularly leadership development, staffing adequacy, communication systems, and non-punitive reporting mechanisms are likely to yield more substantial and sustainable improvements in patient safety culture than isolated individual-level interventions. This review contributes to the literature by hierarchically integrating primary and secondary evidence, thereby strengthening inferential confidence regarding the central role of organizational determinants in shaping hospital safety culture.

5. Limitations of the Review

Several limitations should be considered when interpreting the findings of this systematic review. First, although the included studies represented diverse geographical regions, the majority were conducted in Asia and the Middle East, with fewer studies from Europe, Africa, and Latin America. This uneven geographical distribution may limit the generalizability of findings to underrepresented healthcare systems. Previous cross-national analyses have demonstrated that contextual and governance differences can influence patient safety culture perceptions (Camacho-Rodriguez et al., 2022), suggesting that regional imbalance may affect the overall synthesis.

Second, most included studies employed cross-sectional designs. While cross-sectional research is appropriate for assessing associations, it limits causal inference regarding determinants of patient safety culture. As noted in prior methodological discussions within patient safety research, cross-sectional studies are vulnerable to reporting bias and temporal ambiguity (Wei et al., 2020). Consequently, the relationships identified between organizational factors and safety culture should be interpreted as associative rather than causal.

Third, patient safety culture was predominantly measured using self-reported survey instruments, particularly the Hospital Survey on Patient Safety Culture (HSOPSC) and the Safety Attitudes Questionnaire (SAQ). Although these instruments are widely validated and used internationally (Olsen & Leonardsen, 2021), reliance on self-report data introduces the potential for social desirability bias and perceptual subjectivity. Variations in cultural interpretation of survey items may also influence responses across regions.

Fourth, heterogeneity in measurement tools, statistical approaches, and reporting standards across included studies limited the feasibility of conducting a quantitative meta-analysis of determinants. Differences in variable operationalization and model specifications reduced comparability between studies, a challenge frequently reported in global patient safety culture research (Alabdullah & Karwowski, 2024).

This review included only English-language publications. Although this approach ensured methodological consistency, it may have excluded relevant studies published in other languages, particularly from non-English-speaking healthcare systems. Despite these limitations, the review provides a comprehensive and methodologically structured synthesis of determinants influencing patient safety culture across hospital settings.

6. Implications for Practice and Policy

The findings of this systematic review carry several important implications for healthcare practice, hospital management, and policy development. Given that organizational determinants emerged as the most consistent predictors of patient safety culture, interventions should prioritize institutional-level strategies rather than focusing solely on individual behavioral change.

First, leadership development programs should be considered a strategic priority within healthcare organizations. Transformational and supportive leadership behaviors were consistently associated with stronger safety culture perceptions (Lee & Dahinten, 2021). Hospital administrators should therefore invest in leadership training that emphasizes psychological safety, transparent communication, and non-punitive approaches to error management. Embedding safety-oriented leadership competencies into managerial evaluation frameworks may further strengthen accountability mechanisms.

Second, staffing adequacy and workload management require urgent attention. The recurrent association between inadequate staffing and weaker safety culture perceptions across multiple studies (Azeze et al., 2025) indicates that workforce planning is not merely an operational issue but a patient safety priority. Policymakers and hospital executives should align staffing policies with patient acuity levels and unit complexity to reduce workload strain and enhance reporting behaviors. Evidence linking time pressure and burnout to compromised safety perceptions further reinforces the need for structural workforce reforms (Teng et al., 2020).

Third, promoting a just culture that encourages non-punitive error reporting is essential. Studies consistently identified

blame-oriented climates as barriers to positive safety culture (Chilukuri et al., 2024). Implementing confidential reporting systems, protecting whistleblowers, and reinforcing learning-oriented responses to adverse events may enhance transparency and organizational learning.

Fourth, patient safety training programs should be integrated into both pre-service education and continuing professional development. Although individual determinants were less consistently influential than organizational factors, participation in structured safety training was positively associated with improved safety perceptions (Ismail & Khalid, 2022; Hameed et al., 2023). Embedding safety science principles into medical and nursing curricula may strengthen long-term cultural transformation.

At the policy level, national healthcare authorities should mandate periodic assessment of patient safety culture using validated instruments such as HSOPSC or SAQ. Standardized benchmarking across institutions can facilitate identification of systemic weaknesses and guide quality improvement initiatives (Olsen & Leonardsen, 2021; Azyabi et al., 2021). Cross-national comparisons further suggest that regulatory oversight and governance frameworks influence institutional safety priorities (Azyabi et al., 2022), highlighting the need for policy-level alignment with safety culture enhancement strategies.

These implications underscore that sustainable improvement in patient safety culture requires coordinated action at organizational and policy levels, with leadership and staffing reforms representing primary leverage points.

7. Conclusion

This systematic review synthesized evidence from 26 studies examining the determinants of patient safety culture across diverse hospital settings. The findings demonstrate that patient safety culture is primarily shaped by organizational determinants, particularly leadership practices, staffing adequacy, teamwork climate, communication openness, and non-punitive response to error. While individual characteristics such as education and training contribute to safety perceptions, their influence appears secondary to institutional and managerial factors.

Despite contextual variations across countries and healthcare systems, similar core determinants were consistently identified, suggesting that foundational drivers of patient safety culture are broadly universal. These findings emphasize that sustainable improvements in patient safety culture require coordinated organizational reforms supported by policy-level alignment and strategic leadership engagement.

Future research should prioritize longitudinal and interventional designs to better understand causal pathways and evaluate the effectiveness of targeted safety culture interventions. Strengthening methodological consistency and expanding representation from underreported regions may further enhance global understanding of patient safety culture determinants.

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