

Patient Safety Culture in Healthcare Facilities: A Prisma-Based Systematic Literature Review and Vosviewer Bibliometric Analysis

Skolastika Verena Halim^{1*} & Yani Monalisa²

¹Master of Management Program, Faculty of Digital Business and Law, Universitas Kristen Maranatha

²Bachelor of Management Program, Faculty of Digital Business and Law, Universitas Kristen Maranatha

Email: skolastikaverena@gmail.com

Abstract

Patient safety is a global concern because unsafe care contributes to preventable morbidity, mortality and economic loss. A supportive patient safety culture—shared values, beliefs and norms that encourage safe practice—helps prevent errors and fosters learning. This study conducted a systematic literature review following PRISMA 2020 to synthesise evidence on patient safety culture in healthcare facilities and to analyse research trends through bibliometric mapping. Searches of Scopus and Web of Science identified 20 eligible studies published in English between 2015 and 2025. Most were cross-sectional surveys in hospital settings, and all used the Hospital Survey on Patient Safety Culture (HSOPSC/SOPS) v1.0 or v2.0. Patient safety culture was generally rated as moderate. Teamwork within units and organisational learning received high positive scores, whereas staffing adequacy, non-punitive response to error and incident reporting scored poorly. Bibliometric mapping showed that research clustered around “patient safety,” “safety culture,” “teamwork” and “organisational learning,” with growing attention to incident reporting. These findings emphasise the importance of supportive leadership, open communication and non-punitive reporting systems to strengthen patient safety culture. Future studies should employ longitudinal and mixed-methods designs to illuminate how safety culture evolves over time.

Keywords: patient safety culture, Hospital Survey on Patient Safety Culture, healthcare facilities, systematic literature review, patient safety

1. Introduction

Unsafe healthcare harms roughly one in ten patients worldwide and is responsible for millions of deaths each year (World Health Organization, 2023). The World Health Organization and the Organisation for Economic Co-operation and Development estimate that about 13 percent of health budgets are spent managing preventable harm (Organisation for Economic Co-operation and Development, 2023). A positive culture of patient safety—the collective values and norms that shape perceptions and behaviours regarding safety—has therefore become a cornerstone of quality improvement (Patient Safety Network, 2024). According to the Agency for Healthcare Research and Quality (AHRQ) (Jones et al., 2008), such a culture comprises a blame-free environment in which staff can report errors without fear of retribution, supported by teamwork across disciplines and visible management commitment to identifying and managing risks. These principles align with just-culture and high-reliability frameworks that emphasise learning from errors and continuous vigilance (Carvalho et al., 2023).

Measuring patient safety culture is essential for identifying strengths and weaknesses and for guiding intervention. Surveys such as the Hospital Survey on Patient Safety Culture and the Safety Attitudes Questionnaire enable organisations to assess staff perceptions across multiple dimensions and benchmark performance (Imran Ho et al., 2024; Jones et al., 2008). Previous studies reveal wide variation across dimensions: teamwork and organisational learning often score highly, while non-punitive response to error, staffing adequacy and incident reporting remain weak (Alabdullah & Karwowski, 2024). Research is dominated by cross-sectional designs conducted in single hospitals, limiting generalisability. Recent bibliometric analyses indicate increasing interest in patient safety culture, particularly in low- and middle-income countries, with emerging attention to work environment, communication and leadership (T. Huang & Wu, 2025).

To address these gaps, this study performs a systematic literature review of patient safety culture in healthcare facilities. It synthesises findings on implementation and determinants of safety culture, examines measurement instruments and explores their implications for quality of care. Additionally, it maps research trends through bibliometric analysis. By integrating narrative synthesis with bibliometric mapping, this review provides a comprehensive perspective on recurrent structural issues—such as staffing shortages and punitive cultures—and highlights the need for innovation in leadership, communication and organisational learning to strengthen patient safety culture.

2. Literature Review

The World Health Organization defines patient safety as the avoidance of preventable harm and the reduction of unnecessary risks through system-level action (World Health Organization, 2023). Safety culture is the organisational climate that supports these goals and encompasses leadership commitment, psychological safety and continuous learning. Leadership commitment implies prioritising safety over productivity and modelling desired behaviours, while psychological safety allows staff to speak up about errors without fear. Organisational learning involves using information from incidents and near misses to redesign processes and prevent recurrence; it is a hallmark of high-reliability organizations (Carvalho et al., 2023).

The HSOPSC instrument measures safety culture across multiple dimensions. Version 1.0 comprises 42 items grouped into 12 composites at unit and hospital levels, including teamwork within units, communication openness, feedback about error, staffing and workload, supervisor support, organisational learning, non-punitive response to error, management support and handoffs (Jones et al., 2008). The updated SOPS Hospital Survey 2.0 contains 32 items organised into ten composites and reflects updated terminology and greater emphasis on non-punitive response and incident reporting (Imran Ho et al., 2024). Other instruments, such as the Safety Attitudes Questionnaire, Safety Climate Survey and PSCHO survey, assess similar constructs but differ in focus and scale. Selecting an instrument depends on psychometric validity, reliability and the ability to compare results across settings (Jones et al., 2008).

Across studies, teamwork within units, organisational learning and supervisor support consistently receive high positive ratings, suggesting that healthcare professionals value

collaboration and continuous improvement. In contrast, staffing and workload, non-punitive response to error and incident reporting score low, indicating systemic barriers to safe practice (Alabdullah & Karwowski, 2024). Fear of blame, inadequate resources and complex reporting systems discourage reporting of errors and near misses. These patterns persist across countries and care settings, underscoring the universal challenge of shifting from a punitive to a learning-oriented culture. Strengthening safety culture therefore requires not only individual commitment but also systemic changes in leadership, communication and resource allocation.

3. Research Method

This review adhered to the PRISMA 2020 reporting standard (Page et al., 2021). A protocol defined the eligibility criteria, search strategy and analytical approach.

Search strategy: Scopus and Web of Science were searched for English-language empirical studies published between 2015 and 2025. Search strings combined terms related to patient safety culture and healthcare settings using Boolean operators. Searches were restricted to peer-reviewed articles available in full text. All search details and filters were recorded.

Eligibility criteria: Included studies had to report original research on patient safety culture among healthcare professionals within healthcare facilities, be published between 2015 and 2025 and provide full text in English. Editorials, commentaries and instrument validation studies were excluded.

Study selection: After duplicate removal, titles and abstracts were screened for relevance. Full texts of potentially relevant articles were assessed against the criteria, with reasons for exclusion documented. The selection process is summarised in a PRISMA flow diagram (Figure 1).

Data extraction and quality appraisal: Data were extracted on publication details, country, setting, design, sample size and professions, instrument used, key findings and determinants. Methodological quality was assessed using tools appropriate for cross-sectional, cohort or mixed-methods designs (Page et al., 2021). Quality appraisals informed interpretation but did not determine inclusion.

Data analysis: Studies were synthesised narratively by grouping characteristics such as year, region, profession, study design and measurement instrument. Bibliometric analysis of titles, abstracts, keywords and citations was performed using VOSviewer to map keyword co-occurrence, identify thematic clusters and produce network, overlay and density visualizations (Van Eck & Waltman, 2010). This combination of narrative synthesis and bibliometric mapping facilitated an overview of research patterns and emerging themes in patient safety culture.

4. Finding and Discussion

Search results: The database search retrieved 2,037 records. Removal of 754 duplicates left 1,283 unique articles. Title and abstract screening eliminated 1,175 records, leaving 108 for full-text assessment. Sixteen lacked full text, and 72 were excluded for not meeting inclusion criteria. Twenty studies met all criteria and were included in the synthesis. The PRISMA flow

diagram (Figure 1) details the selection process.

Study characteristics: Table 1 summarizes the 20 included studies. Publications ranged from 2018 to 2025. Most studies were cross-sectional surveys conducted in hospital settings; only a few considered primary or community care. Ten studies were from Asia and the Middle East, four from Europe, three from Africa and three from South America (Danielsson et al., 2019; H. Huang et al., 2022). Sample sizes varied from 147 to 2,959 participants, and respondents spanned nurses, physicians, allied health professionals, managers and support staff, allowing organizational perspectives to be captured (Alqattan et al., 2018; Sok May et al., 2024). All studies employed the HSOPSC or SOPS instrument; sixteen used HSOPSC v1.0 and four adopted v2.0.

Instrument choice: The original HSOPSC was selected for its comprehensive coverage of safety culture dimensions and its widespread validation, enabling benchmarking. The revised SOPS v2.0 streamlines items and emphasises non-punitive response and incident reporting; its improved psychometric properties motivated its use in more recent studies. Instruments were often translated and culturally adapted to ensure validity (Jones et al., 2008).

Key findings and determinants: Table 2 presents the main findings of each study. Across settings, perceptions of patient safety culture were moderate: roughly half of respondents gave positive ratings (Ahmed et al., 2023; Azyabi et al., 2021). Teamwork within units and organizational learning were consistently reported as strengths, with high positive responses in Kuwaiti and Chinese hospitals (Alqattan et al., 2018; H. Huang et al., 2022). Studies from India and Malaysia also highlighted open communication about errors and continuous learning as positive dimensions (Bhaladhare & Rishipathak, 2025; Sok May et al., 2024). By contrast, staffing and work pace scored lowest (often below 40 %) and non-punitive responses to error received very low scores in Brazilian hospitals, signaling a strong blame culture (Aires-Moreno et al., 2025; Okuyama et al., 2019). Underreporting of incidents was widespread: in Pakistan, one-third of staff reported an incident in the previous year despite positive perceptions of safety culture; many staff in Indian and Saudi hospitals had never reported an incident; and overall scores and reporting frequencies were below 50 % in Eswatini (Ahmed et al., 2023; Algethami et al., 2024; Ndlela et al., 2025). These patterns suggest that inadequate staffing, heavy workloads and fear of blame hinder incident reporting and organizational learning (Kumah, 2025).

Bibliometric findings: VOSviewer mapping identified three clusters of research themes. The network visualisation (Figure 2) placed “patient safety” at the centre, connected to “safety culture,” “teamwork,” “learning” and “safety management.” Keywords related to healthcare professions formed secondary clusters. The overlay visualisation (Figure 3) showed that newer studies increasingly address incident reporting, safety management and working conditions, as indicated by warmer colours. The density visualisation (Figure 4) highlighted the dominance of topics such as patient safety, safety management and safety culture, indicating sustained interest in core themes. Together, the bibliometric results reveal that research continues to focus on fundamental concepts while gradually incorporating issues of reporting systems and work

environment (Van Eck & Waltman, 2010).

Interpretation of findings: This synthesis shows that hospital patient safety culture remains at a moderate level: staff recognize teamwork and organizational learning but perceive weaknesses in staffing, non-punitive responses to error and incident reporting. Persistent underreporting despite positive perceptions indicates that fear of blame and insufficient human resources undermine organizational learning (Ahmed et al., 2023; Aires-Moreno et al., 2025). The recurrence of these issues across continents suggests systemic rather than localized problems that require interventions addressing workforce, workload and psychological safety (Kumah, 2025).

Comparison with previous work: Our findings mirror global reviews that identify teamwork and learning as strengths and staffing and non-punitive response as weaknesses (Alabdullah & Karwowski, 2024; Azyabi et al., 2021). Overall culture scores around 50 % echo earlier cross-country studies, indicating that building robust safety cultures is still an unfinished agenda (Vikan et al., 2023). The World Health Organization calls for institutionalized reporting and learning systems, yet the predominance of cross-sectional hospital studies leaves gaps in evidence from primary care and low-income settings (T. Huang & Wu, 2025; World Health Organization, 2023). By synthesizing recent studies from multiple regions, this review adds a cross-cultural perspective to the existing literature.

Leadership, reporting and organizational culture: Leadership is critical in shaping safety culture. Transformational and ethical leadership styles foster teamwork and learning, aligning with high-reliability principles that emphasize learning from errors over blame (Althobaiti, 2026; Goh et al., 2013). The Institute of Medicine's To Err Is Human report underscores that organizational commitment to learning is essential for safer care (Vogus et al., 2025). Leaders who model just culture (balancing accountability with support) create psychological safety for reporting (Kumah, 2025). Without such leadership, reporting systems remain underused and blame cultures persist (Algethami et al., 2024). To improve reporting, institutions must establish structured systems, provide feedback and ensure that reporting does not lead to punishment (Ahmed et al., 2023; Ndlela et al., 2025).

Implications for practice and policy: Strengthening safety culture is a strategic investment that correlates with fewer adverse events and better clinical outcomes (Vikan et al., 2023). Hospitals should routinely assess culture, integrate safety training into quality improvement programmes and address staffing and workload constraints (Li et al., 2025; Sok May et al., 2024). At the policy level, regulators should embed culture metrics into accreditation, standardize incident reporting and develop national databases to enable collective learning (Kumah, 2025; World Health Organization, 2023). Evidence-based training such as Team STEPPS, regular debriefings and open forums can strengthen teamwork and trust between staff and management (Goh et al., 2013; Sok May et al., 2024). Achieving meaningful improvement requires coordinated action across organizational and policy levels.

Future research: Further research should adopt longitudinal and interventional designs to elucidate how safety culture evolves and responds to targeted interventions (Vikan et al., 2023).

Studies in primary care and low-resource contexts are needed to widen the evidence base. Mixed methods that combine surveys with qualitative approaches can illuminate organizational dynamics (T. Huang & Wu, 2025). Evaluations of interventions—such as leadership development, improved reporting systems or team training—will inform effective strategies to enhance culture and clinical outcomes (Goh et al., 2013; Vogus et al., 2025).

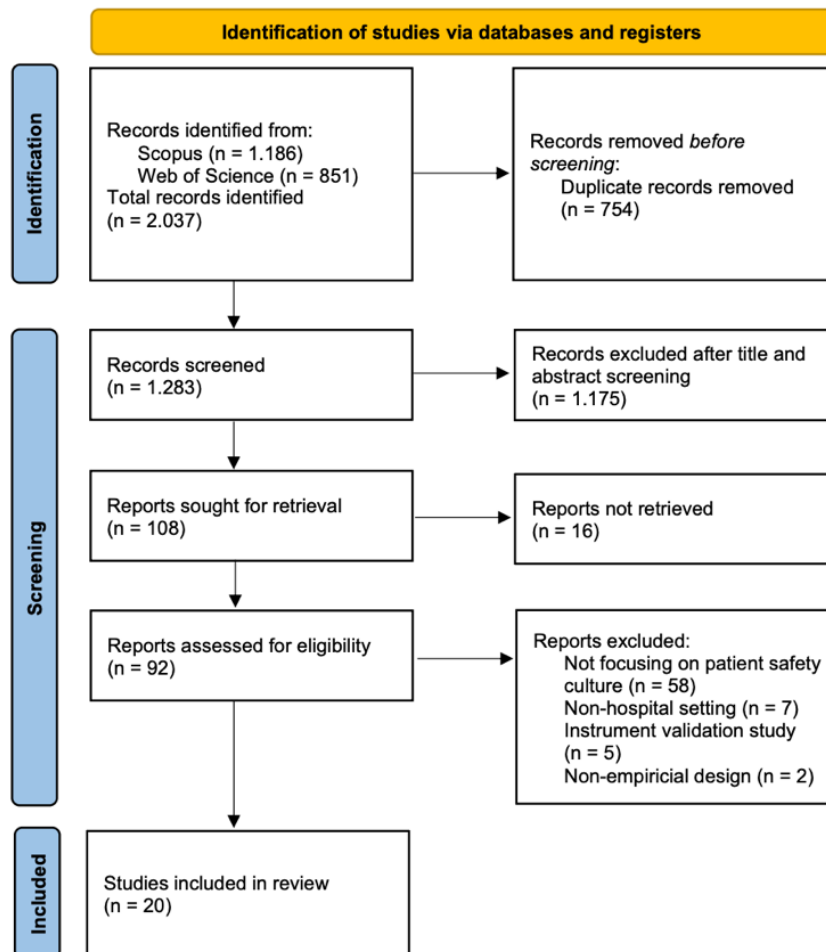


Figure 1. PRISMA flow diagram (Page et al., 2021)

Table 1. Characteristics of the included studies

No	Author	Year	Country	Setting	Study Design	Sample Size	Respondent Profession	Instrument
1	(A. Abuosi et al., 2023)	2023	Ghana	Multi-hospital (13 hospitals across primary, secondary & tertiary)	Cross-sectional	1656	Nursing (72%), Medical (11%), Other clinical position (9%), Managerial/support (8%)	HSOPSC v2.0
2	(Ahmed et al., 2023)	2023	Pakistan	Single tertiary hospital	Cross-sectional	2959	Nursing (29,9%), Medical (10,16%), Other clinical positions (15,85%), Support (22,24%), Managerial (8,45%), Others (13,9%)	HSOPSC v1.0
3	(Aires-Moreno et al., 2025)	2025	Brazil	Single teaching hospital	Cross-sectional	455	Nursing (31,9%), Medical (13,8%), Other clinical positions (14,7%)	HSOPSC v1.0
4	(Aletras et al., 2020)	2020	Greece	Two acute-care hospitals	Repeated cross-sectional	606 (2009) & 486 (2014)	Hospital A: Nursing (58,4%), Medical (31,9%), Others (5,2%) Hospital B: Nursing (67,8%), Medical (25,8%), Others (5,5%)	HSOPSC v1.0
5	(Algethami et al., 2024)	2024	Saudi Arabia	Single tertiary hospital	Cross-sectional	350	Nursing (58,6%), Medical (19,8%), Other clinical positions (15,1%), Managerial (1,7%), Support (0,6%), Others (4,3%)	HSOPSC v2.0
6	(Alqattan et al., 2018)	2018	Kuwait	Single secondary hospital	Cross-sectional	1008	Nursing (60,1%), Medical (7,2%), Other clinical positions (26,3%), Managerial (1,1%), Support	HSOPSC v1.0

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							(1,2%), Others (4%)	
7	(Alshammari et al., 2024)	2024	Saudi Arabia	Five tertiary hospitals	Cross-sectional	423	Nursing (100%)	HSOPSC v1.0
8	(Atinafu et al., 2024)	2024	Ethiopia	Three public hospitals	Mixed-method cross-sectional	393	Nursing (54,2%), Medical (28,3%), Other clinical positions (17,2%)	HSOPSC v1.0
9	(Badr et al., 2020)	2020	Kuwait	Three private hospitals	Cross-sectional	1193	Nursing (54,3%), Medical (16,5%), Other clinical positions (7,7%), Managerial (5,7%), Others (15,8%)	HSOPSC v1.0
10	(Bhaladhare & Rishipathak, 2025)	2025	India	Single tertiary hospital	Cross-sectional	350	Nursing (58,6%), Medical (20,0%), Other clinical positions (21,4%), Support (36,6%)	HSOPSC v2.0
11	(Danielsson et al., 2019)	2019	Sweden	Nationwide survey across Swedish hospitals	Cross-sectional	23781	Nursing (74%), Medical (17%), Managerial (8%)	HSOPSC v1.0
12	(Granel-Giménez et al., 2022)	2022	Croatia, Hungary, Spain, Sweden	Multi public hospitals	Mixed-method convergent parallel design	538	Nursing (100%)	HSOPSC v1.0
13	(H. Huang et al., 2022)	2022	China	Multi-hospital (general and tertiary hospitals across 26 provinces)	Cross-sectional	7765	Nursing (48,84%), Medical (30,85%), Other clinical positions (3,07%), Managerial (5,76%), Others (11,49%)	HSOPSC v1.0
14	(Li et al., 2025)	2025	China	Five public hospitals	Cross-sectional	468	Nursing (80,3%), Medical (9,9%), Managerial (3,6%), Support (3,0%), Others (3,4%)	HSOPSC v2.0
15	(Mohammadpour et al., 2024)	2024	Iran	Single tertiary referral	Cross-sectional	628	Nursing (54,0%), Managerial (21,9%), Other	HSOPSC v2.0

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				hospital			clinical positions (8,0%)	
16	(Ndlela et al., 2025)	2025	Eswatini	Five public hospitals	Cross-sectional	278	Nursing (46,40%), Medical (12,23%), Other clinical positions (32,74%), Managerial (2,52%), Others (5,76%)	HSOPSC v1.0
17	(Okuyama et al., 2019)	2019	Brazil	Single university hospital	Cross-sectional	314	Nursing (45,2%), Medical (16,9%), Other clinical positions (17,3%), Managerial (8,3%), Others (12,4%)	HSOPSC v1.0
18	(Prates et al., 2021)	2021	Brazil	Single private hospital	Mixed-method	618	Nursing (6,8%), Medical (9,9%), Other clinical positions (35,4%), Support (29,3%)	HSOPSC v1.0
19	(Sok May et al., 2024)	2024	Malaysia	Two private tertiary hospitals	Cross-sectional	158	Nursing (25,4%), Medical (5,1%), Other clinical positions (48,7%), Managerial (17,1%), Support (1,3%), Others (0,6%)	HSOPSC v2.0
20	(Verbeek-van Noord et al., 2018)	2019	Netherlands	Multiple hospitals (45 hospitals pre-PSP, 24 hospitals post-PSP)	Pre/post cross-sectional	3779 (pre) & 6605 (post)	Pre-PSP: Nursing (51,9%), Medical (12,3%), Other clinical positions (2,9%), Managerial (3,2%), Support (3,4%), Others (21,1%) Post-PSP: Nursing (54,3%), Medical (6,3%), Other clinical positions (5,7%), Managerial (1,6%), Support	HSOPSC v1.0

							(6,5%), (21,8%)	Others	
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Table 2. Key findings and determinants of patient safety culture

No	Author (Year)	Country	Instrument Used	Reason for Instrument Selection	Key Findings	Determinants Identified (Dimensi)
1	(A. Abuosi et al., 2023)	Ghana	HSOPSC v2.0	A validated instrument; globally adapted; with good reliability.	Tertiary hospitals obtained lower scores than primary/secondary ones; organizational learning & teamwork were lower in the tertiary setting; unexpected incident reporting (KTD) remains low at all levels, suspected to be influenced by high workloads and a blame culture.	Teamwork received the highest positive response (88,7%), followed by supervisor support for patient safety (83,8%), and handoffs & information exchange (81,6%); however response to error (59,8%) and incident reporting (54,6%) were the lowest.
2	(Ahmed et al., 2023)	Pakistan	HSOPSC v1.0	An AHRQ instrument that has been widely validated and used in various countries; allows comparison of results with international benchmarks (AHRQ database 2018; studies in Lebanon & Turkey).	Patient safety culture was rated positively by 87% of respondents; incident reporting remains low (31% of respondents reported 1 incident in the last 12 months), with shortages of health workforce and high workloads identified as factors.	The highest scores were for feedback & communication on error (91%), organizational learning & continuous improvement (85%), and teamwork within units' (83%); the lowest scores were for staffing (40%) and non-punitive response to error (41%).
3	(Aires-Moreno et al., 2025)	Brazil	HSOPSC v1.0	HSOPSC is an international instrument with	Participation rate < 50% of the total population;	Organizational learning-continuous improvement (73%)

				strong psychometric support and acceptable reliability; integrated with the Brazilian Health Regulatory Agency (Anvisa) system, which allows comparison of results with other hospitals.	average positive response 45,5% without strong dimensions; perceptions tended to be negative; a punitive-oriented culture & lack of management support hindered reporting.	scored highest, followed by teamwork within hospital units (69,8%); non-punitive response (30,8%) and teamwork across hospital units (25,8%) received very low scores.
4	(Aletras et al., 2020)	Greece	HSOPSC v1.0	HSOPSC was translated using the forward-backward translation method; it needs to be adapted to fit the patient safety culture context of each country.	Surveys in 2009 and 2014 showed that patient safety culture was relatively stable despite the economic crisis; factor analysis produced six scales with good reliability which became the focus of the study.	There were 6 valid and reliable scales (Cronbach alpha >0,70): teamwork across hospital units, teamwork within hospital units, feedback & communication about error, frequency of event reporting, supervisor/manager expectations & actions promoting safety, hospital management support for patient safety.
5	(Algethami et al., 2024)	Saudi Arabia	HSOPSC v2.0	Following AHRQ version 2.0 guidelines; a 40-item instrument recommended for benchmarking.	At King Abdullah Medical City, the overall positive score was 62% (lower than the global database 70%); patient safety culture has the potential to improve although improvement is required.	Organizational learning - continuous improvement and communication about error were slightly higher than the global average; staffing & work pace had the largest negative difference (-17%).
6	(Alqattan et al., 2018)	Kuwait	HSOPSC v1.0	An instrument used	Priority areas for improvement	Non-punitive response to error

				internationally; validated; allows comparison of results across national contexts.	were non-punitive response to error and staffing; teamwork within units and organizational learning - continuous improvement were strengths; demographic factors such as nationality, age and training influenced perceptions.	(23,96%), staffing (30,13%), communication openness (44,83%) were the lowest scores; teamwork within units (88,2%) and organizational learning - continuous improvement (86,6%) obtained the highest scores.
7	(Alshammari et al., 2024)	Saudi Arabia	HSOPSC v1.0	A 42-item AHRQ instrument with good reliability (Cronbach α 0,63-0,84); applied in English; valid and allows comparison between hospitals.	Patient safety culture was rated as moderate; 83% of respondents did not report incidents during the 12 months; scores were higher among females, non-Saudis, those with higher education, shorter working hours, and those who participated in training.	Teamwork within units' obtained the highest score, namely (16.41 2.44); whereas non-punitive response to errors (5.87 1.92) was the lowest.
8	(Atinafu et al., 2024)	Ethiopia	HSOPSC v1.0	A 42-item AHRQ instrument that was adapted and standardized; used globally; reliability Cronbach α 0,896.	The patient safety culture score was 47,6% (weak category); qualitative interviews identified infrastructure constraints, communication barriers, lack of management support, staff knowledge, and patient	The highest dimensions were teamwork within units (77,4%) and organizational learning – continuous improvement (58,4%); the lowest dimension was frequency of event reporting (29,8%).

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					involvement.	
9	(Badr et al., 2020)	Kuwait	HSOPSC v1.0	A bilingual HSOPSC instrument (Arabic/English) was used to suit the multinational staff; the standardized instrument allows comparison.	The mean perception of safety (3,4/5) and frequency of reporting (4,0/5) were quite high; about half of participants did not report events; incident reporting remains limited.	Teamwork within units (mean 4,24) and organizational learning – continuous improvement (4,13) were the highest; whereas the lowest were supervisor/manager expectations & actions promoting patient safety (3,2) and hospital handoffs & transitions (2,35).
10	(Bhaladhare & Rishipathak, 2025)	India	HSOPSC v2.0	Selected because of extensive validation and benchmarking capability; the latest version (2.0) was used.	Compared with global AHRQ data, this hospital had lower scores in almost all domains except organizational learning - continuous improvement (74%) and communication about error (78%); the lowest scores were for staffing & work pace (55% vs 72% global), supervisor/manager support (58% vs 73% global); more than 56,5% of staff did not report incidents; 72% rated safety as “very good” or “good”.	The highest dimensions were communication about error (78%) and organizational learning - continuous improvement (74%); the lowest dimension was staffing & work pace (55%).
11	(Danielsson et al., 2019)	Sweden	HSOPSC v1.0	The HSOPSC survey was translated and validated in Swedish; used widely internationally to assess safety	A national survey of 23.781 professionals: managers scored higher than physicians/nurses; age and experience were	Teamwork within units (73,5%) and non-punitive response to error (67,2%) received the highest scores; management support for patient safety (47,9%) and

				culture; comprises 42 items and 12 dimensions.	related to higher perceptions; weak management support was a concern.	staffing (51,9%) were the lowest.
12	(Granel-Giménez et al., 2022)	Croatia, Hungary, Spain, Sweden	HSOPSC v1.0	The HSOPSC instrument has very good psychometric properties; has been translated & validated throughout Europe; allows comparison between countries.	Teamwork within hospital units was the only dimension with $\geq 75\%$ positive; qualitative findings highlighted issues of workload and staff shortages; teamwork was considered strong but practices of support and recognition among staff varied.	The highest dimension was teamwork within units (positive $>55\%$ with the highest score in Sweden 82,7%); the lowest dimensions were staffing (e.g. Spain 14,2%) and hospital management support for patient safety (Spain 18%, Croatia 22,2%); non-punitive response to error was low in Croatia (25%) and Spain (37,9%).
13	(H. Huang et al., 2022)	China	HSOPSC v1.0	A validated Mandarin version of HSOPSC; reliability Cronbach α 0,825; supplemented with the Practice of Patient Safety Goal (POPSG) questionnaire.	The mean positive response of HSOPSC was 69,68%, slightly higher than the US benchmark; five dimensions had $>75\%$ positive responses (organizational learning, teamwork within units, feedback about error, management support for safety, teamwork across units); three dimensions $<55\%$ (non-punitive response to error, staffing,	The highest dimensions were organizational learning (91,54%), teamwork within units (90,39 %), feedback about error (82,47%); the lowest dimensions were staffing (43,41%), non-punitive response to error (45,20%) and frequency of event reporting (52,81%).

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					frequency of event reporting); there was a positive correlation between safety culture and the practice of safety goals; practice of safety goals showed a high positive response (96,11%); significant differences were found according to gender, age, profession, hospital location and safety training.	
14	(Li et al., 2025)	China	HSOPSC v2.0	The Chinese adaptation of version 2.0 with 32 items; high validity and very good reliability (Cronbach α 0,916); internationally known; a comprehensive tool.	Mean score 123,01 16,62 with an overall positive response rate of 69,4%; safety culture was considered moderate; influenced by working hours per week, work unit, incident reporting frequency and overall safety assessment.	Communication about error (83,4%) and organizational learning – continuous improvement (80,4%) were the highest; whereas the lowest were staffing and work pace (51,5%) and response to error (51,9%).
15	(Mohammadpour et al., 2024)	Iran	HSOPSC v2.0	The 2019 edition of HSOPSC was translated into Persian through forward-backward translation, expert panel review, and pilot testing; claimed to have good psychometric	There was a positive relationship between safety culture scores and older age, female gender, longer work experience and hours per week; the majority of participants considered that	The highest dimensions were Teamwork and Organizational learning–continuous improvement (83%); the lowest dimensions were Staffing and work pace (43%) and Hospital management support for patient safety (55%).

				validity and adequate reliability (overall Cronbach α 0,78).	safety culture still needs improvement and the researchers recommended enhancing the dimensions of staffing, work pace and management support.	
16	(Ndlela et al., 2025)	Eswatini	HSOPSC v1.0	The 42-item HSOPSC instrument that has been validated; piloted and adapted for the Eswatini context; Cronbach α 0,73–0,82 per composite indicating good internal consistency.	The average safety culture score was 43%; all composites were below the AHRQ 2018 benchmark; lack of an incident reporting system was a barrier to addressing safety issues.	The composites with the highest positive responses were teamwork within units (75%) and supervisor/manager expectations and actions promoting patient safety (68%); the lowest composites were staffing (25%), non-punitive response to error (42%) and frequency of events reported (43%).
17	(Okuyama et al., 2019)	Brazil	HSOPSC v1.0	The Brazilian version of HSOPS (HSOPSC), translated and validated; the Brazilian version provides adequate reliability (some dimensions Cronbach $\alpha \geq 0,6$) and allows international comparison.	Of 314 respondents, nine of the 12 dimensions obtained <50% positive response; safety culture was better among experienced staff and nurses; a blame culture was viewed as a barrier to incident reporting; 65% did not report incidents in a year.	The highest dimensions were supervisor/manager expectations and actions promoting patient safety (53,0%), organizational learning–continuous improvement (51,5%) and teamwork within units (51,0%); the lowest dimensions were non-punitive response to errors (15,6%), teamwork across units (24,8%), handoffs and transitions (26,8%) and staffing (28,0%).
18	(Prates et al., 2021)	Brazil	HSOPSC v1.0	HSOPSC (Brazilian version) because this	No dimension reached 75% (strong); seven of the 12 were	The dimensions with the lowest scores were non-punitive response to error

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				AHRQ instrument has been locally validated with overall Cronbach α 0,91 and assesses 12 dimensions of patient safety culture. The instrument provides a comprehensive framework to identify strong and weak areas and allows international comparison.	considered weak; qualitative results highlighted bureaucratic processes, and focus group discussions identified causes of low safety culture including bureaucratic and fragmented processes, high workload, rigid hierarchy, communication failures, as well as a punitive culture and risk of litigation.	(28,5%), followed by handoffs and transitions (32,3%) and teamwork across units (36,6%); the dimensions with the highest scores were organizational learning–continuous improvement (66,9%) and supervisor/manager expectations and actions promoting patient safety (63,6%).
19	(Sok May et al., 2024)	Malaysia	HSOPSC v2.0	HSOPSC developed by AHRQ and internationally validated; the instrument consists of 40 items (32 items for 10 main dimensions) with a five-point Likert scale; internal revalidation (overall Cronbach α 0,920; α for each dimension 0,762–0,890) to ensure consistency.	In two private tertiary hospitals (158 respondents), the majority of health care workers (69%) rated their unit's safety culture as very good or good; attitudes toward safety culture remain negative, particularly concerning high workload, lack of response to errors and non-open communication.	The highest dimensions were communication about error (80%), organizational learning–continuous improvement (74%), as well as supervisor/manager support for patient safety and teamwork (each 70%); the lowest dimensions were staffing and work pace (28%), response to error (40%), handoffs and information exchange (39%) and reporting patient safety events (48%).
20	(Verbeek-van Noord et al., 2018)	Netherlands	HSOPSC v1.0	The Dutch version of HSOPS with 11 dimensions; used to evaluate the effect of the national safety	After the national safety program, all dimensions increased significantly except adequate staffing; more	The highest dimensions after the program were teamwork within departments (mean score 3,99) and feedback and learning

				program; measured before (2005-2007) and after (2012) the program.	respondents rated safety as very good, and incident reporting increased (the proportion reporting ≥ 2 incidents rose from 23,5% to 34,8%); homogeneity of safety culture between hospitals did not increase; variation between departments actually increased on several dimensions.	from errors (3,58); while the lowest dimensions were teamwork across departments (3,11) and adequate staffing (3,53, did not increase significantly).
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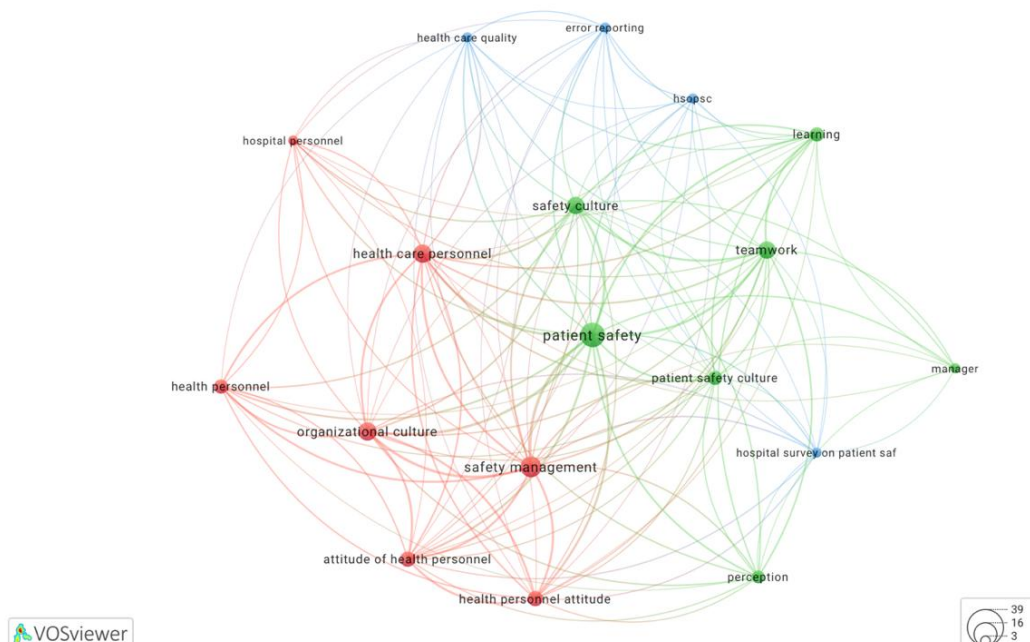


Figure 2. Network visualisation of patient safety culture research keywords

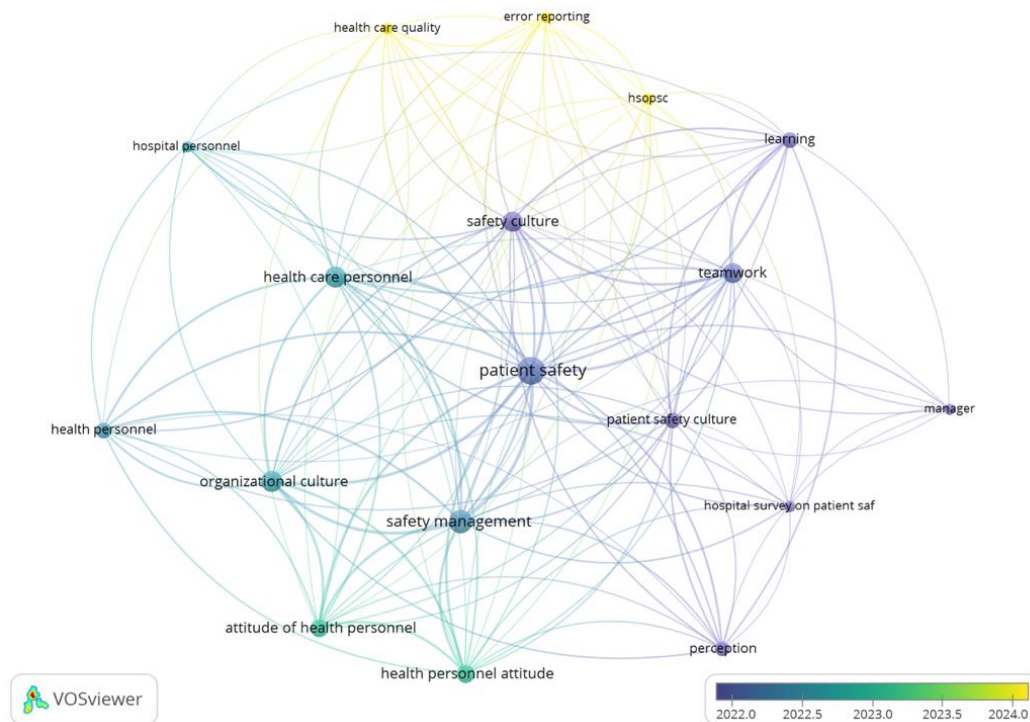


Figure 3. Overlay visualisation showing recent research themes

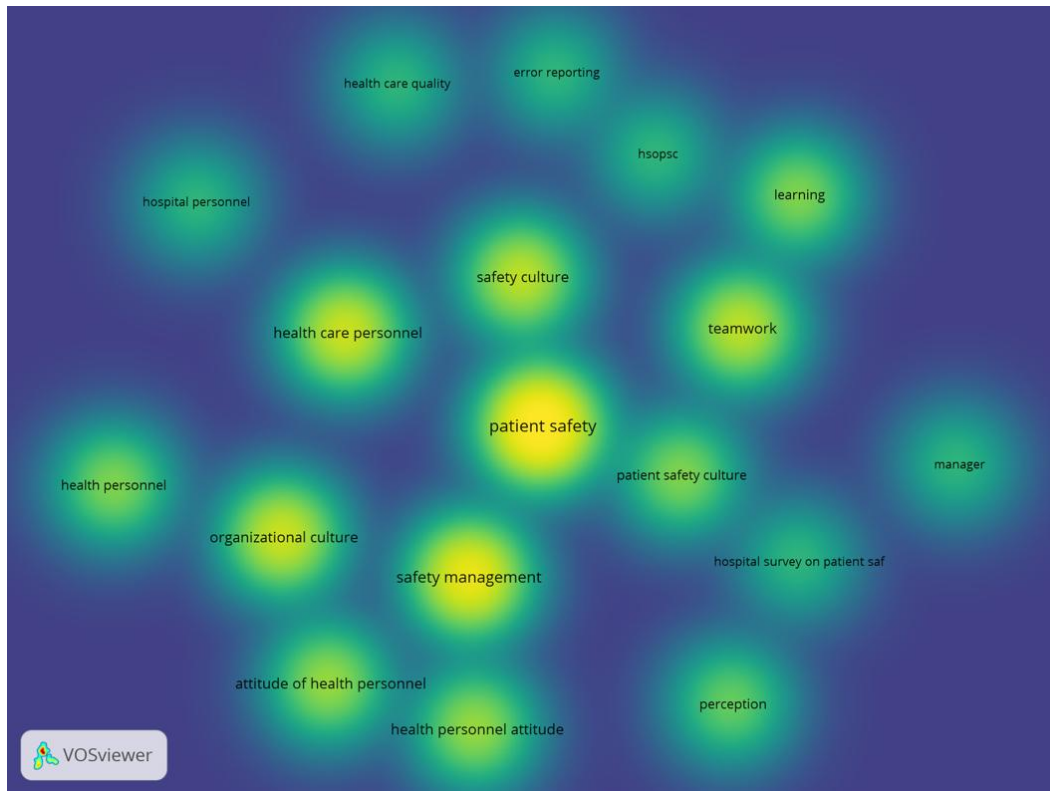


Figure 4. Density visualisation highlighting research intensity

5. Conclusion

This review synthesized evidence from twenty studies on patient safety culture published between 2015 and 2025. Overall, safety culture in healthcare facilities worldwide is moderate. Teamwork within units, organisational learning and leadership support emerge as strengths, while staffing shortages, heavy workloads, punitive responses to error and low incident reporting persist. Bibliometric mapping shows enduring interest in core concepts such as patient safety and safety culture alongside growing attention to reporting systems and work climate. Strengthening safety culture requires just-culture principles, adequate staffing, simplified reporting and leadership development. Future research should adopt longitudinal and mixed-methods approaches to examine how interventions affect safety culture and patient outcomes.

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