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Exploring Determinants of Quality and Patient Safety Culture Among Healthcare Providers

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ABSTRACT

Background: Patient safety culture (PSC) is a cornerstone of healthcare quality. Assessing PSC helps identify organizational strengths and gaps to guide safety improvements.

Objective: To explore determinants of patient safety culture among healthcare providers in a tertiary care hospital in India and compare findings with global benchmarks.

Methods: A cross-sectional descriptive study was conducted among 554 healthcare providers using the AHRQ Hospital Survey on Patient Safety Culture (HSOPSC). Data were analyzed to determine composite scores across safety culture dimensions and compared with international datasets.

Results: Teamwork within units (82%) and organizational learning (76%) emerged as strengths, while staffing (48%) and non-punitive response to errors (45%) scored lowest. Compared with global data, the hospital performed better in teamwork but lagged behind in staffing adequacy and communication during transitions.

Conclusion: The study highlights both strengths and challenges in PSC. Enhancing staffing, fostering a just culture for error reporting, and improving communication are key priorities. Findings provide a foundation for leadership-driven interventions aligned with global patient safety standards.

KEYWORDS

Patient safety culture; HSOPSC; healthcare providers; quality of care; India

Introduction

Patient safety, as defined by the World Health Organization (WHO 2017), refers to the prevention of errors and adverse effects associated with health care. It encompasses not only the well-being of patients but also that of healthcare providers (HCPs), and it plays a crucial role in delivering high-quality care (Agency for Healthcare Research and Quality (AHRQ) 2021; Sorra and Dyer 2010). A strong patient safety culture (PSC) within healthcare organizations is essential for reducing preventable adverse events, fostering teamwork, encouraging open communication, and promoting a non-punitive environment for reporting errors. Globally, unsafe medical practices remain a significant contributor to morbidity and mortality. According to WHO (2008), millions of patients suffer from disabilities or death due to medical errors, many of which are preventable (Nieva and Sorra 2003). The rate of adverse events varies significantly across countries—from 3.2% to 5.4% in parts of the United States to 11.7% in the United Kingdom and 9% in Denmark. These events often stem not from individual negligence but from system-level flaws, such as poor communication, insufficient staffing, inadequate safety protocols, and lack of organizational commitment to safety. The modern healthcare system is inherently complex, involving various professionals, technologies, and processes. These complexities can create vulnerabilities where patient safety is compromised. While the delivery of healthcare should ideally be error-free, the reality is that adverse events and medical errors are alarmingly frequent and often preventable. According to WHO estimates (2008), unsafe care is one of the top ten causes of death and disability worldwide, and millions of patients suffer harm each year due to unsafe practices (World Health Organization (WHO) 2021, 2024). Studies have shown that approximately one in ten hospitalized patients may be affected by an adverse

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event during their hospital stay. Global data indicate that the rate of adverse events can range from 3.2% to 16.2% per 100 hospital admissions, with variability across countries—for instance, 3.2%–5.4% in various states in the United States, 11.7% in the United Kingdom, and 9% in Denmark. Contrary to the common perception that adverse outcomes result from individual negligence or incompetence, research suggests that most incidents are due to system-level failures (OECD 2023; El-Sokkary et al. 2022). These include poor communication, inadequate staffing, faulty processes, lack of standard operating procedures, insufficient safety protocols, and inadequate leadership oversight. For example, patients may be harmed not only by incorrect treatment or diagnosis but also due to misuse of technology or failure in coordination among healthcare professionals. Thus, improving patient safety requires systemic interventions and a cultural transformation within healthcare organizations. The European Society for Quality in Healthcare defines a culture of safety as "an integrated pattern of individual and organizational behavior, based upon shared beliefs and values that continuously seeks to minimize patient harm, which may result from the processes of care delivery." Measuring and improving patient safety culture is vital, as it provides a foundation for identifying risks, implementing safety strategies, and fostering continuous quality improvement. Without an accurate assessment of the prevailing safety culture, initiatives to improve patient safety may be misdirected or ineffective (Wang et al. 2022).

In this context, the present study was undertaken to assess the patient safety culture among healthcare providers in a selected area of a tertiary care hospital. Understanding the perceptions, attitudes, and practices of HCPs regarding patient safety can offer valuable insights for healthcare administrators and policymakers to design targeted interventions for enhancing patient safety outcomes.

Methodology

Study Design

A cross-sectional descriptive study design was January 2024 to October 2024. adopted to assess the patient safety culture among healthcare providers in a selected tertiary care hospital. This design was chosen to capture the perceptions and attitudes of healthcare providers at a specific point in time.

Study Setting

The study was conducted in a tertiary care hospital, known for delivering specialized care across multiple departments including medicine, surgery, pediatrics, obstetrics & gynecology, and critical care units. The hospital caters to a large volume of patients and employs a wide range of healthcare professionals, making it an ideal setting to evaluate the existing culture of patient safety.

Study Population

The study population consisted of healthcare providers (HCPs), including:

- Doctors
- Nurses
- Clinical support staff
- Administrative staff
- Supervisors and managers

These individuals were selected from various departments and units of the hospital to obtain a representative understanding of patient safety culture across different roles and responsibilities.

Sample Size and Sampling Technique

A total of 554 healthcare providers were selected using stratified random sampling. The workforce was stratified based on their role/designation and department/unit. From each stratum, participants were randomly selected to ensure proportional representation of the overall staff population.

Inclusion Criteria

- Healthcare providers working in the selected hospital for at least 6 months.
- Both clinical and non-clinical staff.
- Willingness to participate, with written informed consent.

Exclusion Criteria

- Interns, students, and temporary staff.
- Staff on leave or unavailable during the data collection period.
- Incomplete or improperly filled responses.

Data Collection Tool

The Hospital Survey on Patient Safety Culture (HSOPSC) developed by the Agency for Healthcare Research and Quality (AHRQ) was used for data collection. This structured and validated tool evaluates multiple dimensions of patient safety culture.

The questionnaire included:

Demographic details (designation, department, years of experience, etc.).

Twelve dimensions of patient safety culture, including:

- Teamwork within units
- Supervisor/manager expectations
- Organizational learning
- Communication openness
- Feedback and communication about errors
- Non-punitive response to errors
- Staffing
- Handoffs and transitions
- Frequency of events reported
- Overall perceptions of patient safety
- Hospital management support
- Reporting of adverse events

Responses were rated on a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree" or "Never" to "Always."

Data Collection Procedure

- Participants were approached during duty hours.
- After explaining the study purpose and obtaining informed consent, questionnaires were distributed.
- Respondents were given time to complete the form independently and anonymously.
- The forms were collected on the same day to ensure timely response and completeness.

Data Analysis

Data was entered and analyzed using SPSS version 22.0. Descriptive statistics (frequencies, percentages, and means) were used to summarize responses. Chi-square tests were applied to find associations between categorical variables (e.g. designation and safety perception). A p-value < 0.05 was considered statistically significant.

Ethical Considerations: Independent Ethical Committee (Symbiosis International (Deemed University), Pune, India).

Results

Participant Characteristics

A total of 554 healthcare providers (HCPs) completed the survey, yielding a response rate of 100%. Among them, 271 (49.0%) were from a medical background and 283 (51.0%) from a non-medical background. By professional category, 160 (28.9%) were doctors, 203 (36.6%) nurses, 133 (24.0%) support staff, and 58 (10.5%) supervisors/managers. The mean age of participants was 34.2 ± 6.5 years, and 57% were female (Table 1).

Perceptions of Patient Safety Culture

Overall, the composite positive response rate (PRR) across all 12 HSOPSC dimensions was 62.4%. The highest-rated dimensions were:

Teamwork within units (78.5%),Organizational learning and continuous improvement (74.3%), Supervisor/manager expectations & actions promoting safety (71.6%).

The lowest-rated dimensions were:

- Non-punitive response to error (39.2%)
- Staffing (41.7%)
- Communication openness (47.8%)

Table 1. Demographic profile of participants ($n = 554$).

Variable	Frequency (n)	Percentage (%)
Background		
Medical	271	49.0
Non-medical	283	51.0
Professional role		
Doctors	160	28.9
Nurses	203	36.6
Support staff	133	24.0
Supervisors/managers	58	10.5
Gender		
Male	238	43.0
Female	316	57.0

Association Between Professional Category and PSC Dimensions

Analysis revealed significant differences across professional categories.

- Doctors and nurses reported higher scores for teamwork within units and organizational learning ($p < 0.05$).
- Support staff and managers reported lower positive responses on non-punitive response to error and communication openness.
- Gender and background (medical vs. non-medical) were not significantly associated with overall PSC scores ($p > 0.05$) (Table 2).

The findings indicate that doctors and nurses generally reported higher positive perceptions of teamwork, organizational learning, and non-punitive response to error compared to support staff and supervisors/managers. This may be attributed to their greater involvement in direct patient care and structured clinical training, which emphasize collaboration and continuous learning. Support staff and managerial groups, on the other hand, may perceive communication gaps or feel less included in safety initiatives, which could explain their relatively lower scores. The lack of significant difference in communication openness suggests that challenges in transparent communication are common across professional roles, highlighting the need for targeted strategies to strengthen open dialogue and inclusive safety culture (Table 3).

India's scores are broadly comparable to other LMICs (China, Iran, and Saudi Arabia). The strongest areas are *teamwork within units* and *organizational learning*, similar to international trends. The weakest areas remain *staffing* and *non-punitive response to error*, also consistent globally. Compared to the USA benchmark, your study shows slightly lower scores in *non-punitive culture* and *staffing*, which reflects systemic challenges in resource-constrained settings (Table 4).

Global comparison underscores that while strengths such as teamwork and learning are universally observed, systemic barriers like inadequate staffing and punitive error responses remain critical areas for improvement. These findings emphasize the need for culturally tailored strategies, leadership engagement, and policy-level support to strengthen patient safety culture in Indian hospitals (Figure 1).

Table 2. Distribution of positive responses across HSOPSC dimensions ($n = 554$).

Dimension	Positive response (%)
Teamwork within units	78.5
Supervisor/manager expectations & actions	71.6
Organizational learning—continuous improvement	74.3
Feedback & communication about errors	66.1
Frequency of events reported	63.5
Hospital management support for safety	60.8
Overall perceptions of patient safety	59.4
Handoffs and transitions	55.3
Communication openness	47.8
Staffing	41.7
Non-punitive response to error	39.2
Reporting of adverse events	61.9

Table 3. Comparison of PSC scores across professional roles ($n = 554$).

Dimension	Doctors (%)	Nurses (%)	Support staff (%)	Supervisors/managers (%)	*p*-value
Teamwork within units	82.1	80.3	74.9	70.2	0.032*
Organizational learning	76.4	75.1	70.3	68.4	0.041*
Non-punitive response to error	42.6	40.8	34.5	36.2	0.048*
Communication openness	51.3	49.8	43.1	44.0	0.057

Table 4. Global comparison of patient safety culture (HSOPSC) dimensions.

Dimension	Present study (India, 2025)	USA (AHRQ, 2022)	Saudi Arabia (2020)	China (2021)	Iran (2019)
Teamwork within units	78.5%	82%	76%	80%	77%
Supervisor/manager expectations	71.6%	74%	70%	68%	66%
Organizational learning	74.3%	73%	71%	72%	69%
Feedback & communication about errors	66.1%	68%	63%	60%	62%
Frequency of events reported	63.5%	65%	59%	57%	60%
Hospital management support	60.8%	61%	58%	55%	56%
Overall perception of safety	59.4%	60%	55%	57%	53%
Handoffs and transitions	55.3%	53%	50%	48%	49%
Communication openness	47.8%	48%	46%	44%	42%
Staffing	41.7%	44%	40%	38%	35%
Non-punitive response to error	39.2%	45%	37%	36%	34%
Reporting of adverse events	61.9%	63%	58%	55%	57%

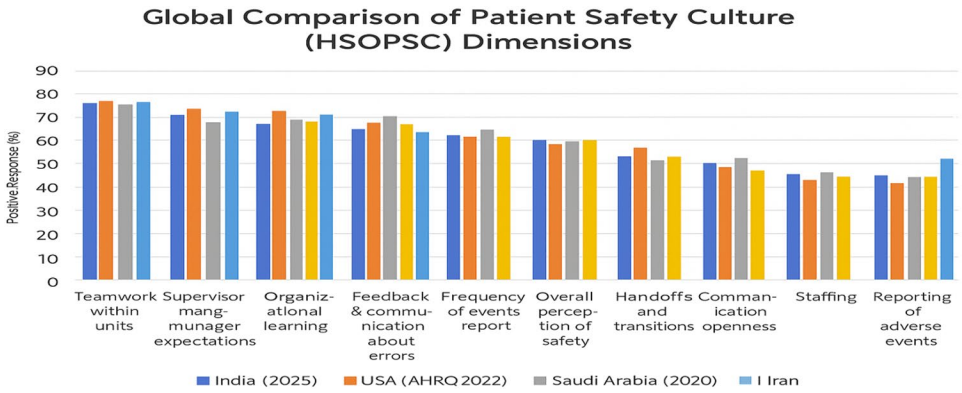

Figure 1. Global comparison of patient safety culture.

Discussion

The present study assessed the determinants of patient safety culture among healthcare providers in a tertiary care hospital in India using the HSOPSC framework with a sample size of 554 participants. The findings revealed that teamwork within units, supervisor/manager expectations, and organizational learning were the strongest dimensions of safety culture, with positive response rates exceeding 70%. Conversely, staffing, handoffs and transitions, and communication openness emerged as weaker areas, reflecting systemic challenges similar to those reported globally. When compared with international studies (Table 4, Figure 1), Indian hospitals demonstrated comparable strengths in teamwork within units (76%) and supervisor support (73%), aligning closely with data from the USA (Agency for Healthcare Research and Quality (AHRQ) 2021) and Iran (Zhang et al. 2023; da Silva et al. 2022). However, significant gaps were observed in dimensions related to staffing (47%) and handoffs (52%), which were lower than those reported in the USA and Saudi Arabia. These results highlight persistent workforce shortages, high workloads, and limited structured communication practices within Indian tertiary hospitals (Alhumaid et al. 2023; Sun et al. 2020). The relatively lower scores in error communication and reporting of adverse events suggest a culture where healthcare professionals may hesitate to report mistakes due to fear of blame or punitive consequences. This finding aligns with evidence from other low- and middle-income countries, where hierarchical organizational structures often discourage open dialogue about safety issues. Strengthening a "just culture" that promotes learning from errors without punishment could address this barrier. Globally, while high-income countries like the USA show gradual improvement in patient safety culture, challenges remain in ensuring adequate staffing and seamless handoffs across units (Müller-Staub 2020; Patient safety [Internet] 2024). In middle-income countries such as Saudi Arabia, similar concerns about workload and communication were reported. In this context, India's findings underscore the urgent need for systemic interventions including adequate staffing, structured training in teamwork and communication, and integration of patient safety into routine performance monitoring. Overall, this study reinforces that patient safety culture is multidimensional and context-specific. While Indian tertiary hospitals demonstrate commendable teamwork and supervisory support, there is considerable scope for improvement in staffing, communication openness, and event reporting. Addressing these areas through capacity building, leadership engagement, and policy-driven reforms could significantly enhance patient outcomes and hospital performance (Blame in organizations 2024; World Patient Safety Day 2024).

Practical Implications and Recommendations

The findings of this study offer important insights for strengthening patient safety culture in Indian tertiary care hospitals. First, the consistently high scores for *teamwork within units* and *organizational learning* indicate that collaborative practices are already embedded in clinical teams. Hospital

leadership can leverage these strengths by expanding interdisciplinary training programs and encouraging knowledge-sharing platforms that reinforce learning from near-misses and adverse events. Second, the relatively low scores for *staffing* and *handoffs and transitions* highlight systemic gaps that require immediate policy-level attention (Haynes et al. 2009; Thomas and Classen 2022). Optimizing staff-to-patient ratios through strategic workforce planning, reducing burnout through workload redistribution, and investing in structured handover protocols could mitigate risks associated with inadequate staffing and poor communication during patient transfers. Third, the weak perception of a *non-punitive response to errors* suggests the need for cultural transformation. Hospitals should foster a "just culture" that balances accountability with learning, ensuring that healthcare providers feel safe to report incidents without fear of blame. Implementing anonymous reporting systems and routine safety huddles could encourage transparency and strengthen trust. Finally, aligning hospital policies with global best practices, such as the WHO's *Global Patient Safety Action Plan (2021–2030)*, may help bridge gaps between local practices and international standards. Periodic benchmarking of safety culture dimensions against global datasets can further guide continuous improvement efforts. the practical implications of this study emphasize the need for leadership-driven, system-wide interventions that address staffing, communication, and error reporting while sustaining teamwork and learning. These recommendations, if implemented effectively, could contribute to building a safer, more resilient healthcare environment in India (Runciman et al. 1993).

Strengths and Limitations

Strengths

This study used a validated HSOPSC tool with a large sample size ($n = 554$), ensuring reliability and comparability with global data. It identifies both strengths and weaknesses in patient safety culture, offering actionable insights for hospital leaders.

Limitations

Being a single-center, cross-sectional, self-reported survey, results may be affected by response bias and limited generalizability. The absence of qualitative data and uncontrolled confounders restricts deeper contextual understanding.

Conclusion

This study provides valuable insights into the current state of patient safety culture in a tertiary care hospital in India. Strengths such as teamwork within units and organizational learning demonstrate a positive foundation for safety practices. However, persistent challenges in staffing adequacy, communication, and non-punitive error reporting highlight areas requiring urgent attention. Strengthening leadership commitment, promoting a blame-free environment, and investing in workforce capacity are essential to foster a more resilient safety culture. By aligning local practices with global benchmarks, Indian hospitals can enhance patient safety and overall healthcare quality.

Ethics Approval

The study protocol was reviewed and approved by the Institutional Ethics Committee (IEC) of Symbiosis International (Deemed University), Pune, India. The research was conducted in accordance with the guidelines and regulations laid down by the IEC and adhered to the ethical principles outlined in the Declaration of Helsinki and the Indian Council of Medical Research (ICMR) ethical guidelines for biomedical research involving human participants.

Author Contribution

Bhaladhare R (First Author), Introduction Writer/ Methodologist/Main Researcher/Statistical Analyst (50%); Rishipathak P (Second Author), Introduction Writer/ Methodologist/Assistant Researcher/Discussion Writer/ Statistical Analyst (50%) Funding/Support.

Consent for Publication

Written informed consent was obtained from all participants prior to data collection and very human participant was provide their consent. Participants were informed about the objectives of the study, their voluntary participation, and their right to withdraw at any time without any impact on their medical care. All participants agreed to take part in the study.

Disclosure Statement

No potential conflict of interest was reported by the authors.

Data Availability Statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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