



Journal of Healthcare Administration and Public Health (JHAPH)
Volume 1 • Issue 1 • Article jhaph25v1i1a3 • October 2025
Open Access – © The Author(s) 2025. Distributed under CC BY 4.0.

A Study on Assessment of Patient Safety Culture among the Nurses in the Intensive Care Unit Departments of a Tertiary Care Hospital in Gangtok

Imlijungshi Walling¹, Swapnil Dixit^{2*}

¹MHA Graduate, Sikkim Manipal University, India.

²Assistant Professor, Department of Hospital Administration, Sikkim Manipal Institute of Medical Sciences, Sikkim Manipal University, India.

*Corresponding author – Swapnil Dixit, Assistant Professor, Department of Hospital Administration, Sikkim Manipal Institute of Medical Sciences, Sikkim Manipal University, India.

Email: swpnldixit@gmail.com

Academic Editors: Dr. Gwendolen Rodrigues, Dr. Akilash Raviraaj, Dr. Tarushree Bari

Abstract

Patient safety culture (PSC) is an essential indicator of healthcare quality, particularly in intensive care units (ICUs), where patients are highly vulnerable to adverse events due to the complexity of care. A strong safety culture fosters open communication, error reporting, and continuous learning, ultimately reducing patient harm and improving outcomes. This study aimed to assess the perception of PSC among ICU nurses at a tertiary care hospital in Gangtok, Sikkim. **Methodology:** A cross-sectional study was conducted over four months using complete enumeration of 42 nurses across seven ICU units. A structured, self-administered questionnaire based on the AHRQ Surveys on Patient Safety Culture (SOPS), was used to gather data. The questionnaire included 12 dimensions of PSC rated on a 5-point Likert scale. Data was analyzed using descriptive statistics via SPSS. **Results:** The highest-rated dimensions were “Communication about Errors” (91.23%), “Teamwork” (76.2%), and “Organizational Learning – Continuous Improvement” (73%). The lowest-rated dimension was “Reporting Patient Safety Events” (32.15%), suggesting possible underreporting due to cultural or systemic barriers. **Conclusion:** The findings highlight strengths in teamwork and communication but also reveal a need to foster a more open, non-punitive reporting environment. Targeted interventions and ongoing education are essential to advancing patient safety culture in critical care settings.

Keywords: Patient Safety Culture, ICU Nurses, AHRQ SOPS, Communication, Error Reporting, Quality Improvement.

Introduction

Patient safety is a cornerstone of quality healthcare delivery and has emerged as a global priority in both developed and developing health systems. According to the World Health Organization (WHO), patient safety is defined as the reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum [1]. Despite extensive efforts by healthcare institutions and governments worldwide, adverse events and preventable medical errors continue to occur, contributing to patient harm, financial losses, and diminished trust in healthcare systems [2,10]. These outcomes emphasize the importance of building and nurturing a strong patient safety culture across all levels of clinical practice, especially in high-risk areas such as intensive care units (ICUs).

Patient safety culture (PSC) refers to the shared values, attitudes, norms, and behaviors within a healthcare organization that influence staff actions and commitment to safety practices [4,11]. It encompasses aspects such as open communication, teamwork, non-punitive responses to errors, organizational learning, and leadership support. A positive safety culture supports proactive identification of risks, reporting of incidents without fear of blame, and collaborative problem-solving, all of which are essential for ensuring high-quality and safe patient care [3,5,12].

The significance of PSC is particularly profound in ICUs, where patients are critically ill, treatment regimens are complex, and the margin for error is extremely narrow. The ICU environment demands rapid decision-making, effective communication among interdisciplinary teams, and continuous monitoring. In such settings, nurses play a central role in upholding safety standards due to their close and sustained involvement in patient care. ICU nurses are responsible not only for administering medications and operating advanced life-support systems but also for detecting subtle changes in patient conditions, responding to emergencies, and coordinating care across multiple disciplines [5,6,15].

In India, the healthcare industry is one of the fastest-growing sectors, driven by demographic shifts, increased life expectancy, a rising burden of chronic diseases, and heightened health awareness [8]. The hospital segment accounts for approximately 80% of the total healthcare market and has experienced significant expansion over the past decade, including in ICU infrastructure [8]. However, disparities in healthcare quality and patient safety remain, particularly in regions where resource constraints and high patient loads challenge the implementation of robust safety systems. The

National Health Profile and international studies alike have underscored the urgent need for assessing and improving patient safety practices within Indian hospitals [9,20].

Studies conducted in various global contexts have revealed considerable variability in how nurses perceive patient safety culture. For example, research from the Philippines, Iran, China, Brazil, and Vietnam has shown that while some safety dimensions like teamwork and supervisor support score relatively high, others such as error reporting and communication openness are perceived as weak or underdeveloped [9,16,17,18,22]. These findings indicate that even within the same institution or region, safety culture can vary across units, influenced by leadership, staffing patterns, training, and communication practices [14,19].

The importance of evaluating safety culture in ICUs is supported by evidence linking positive PSC with improved patient outcomes, reduced medication errors, and enhanced staff morale [5,7,13]. A landmark publication highlighted the systemic nature of medical errors and called for a shift towards cultivating environments where safety is prioritised through leadership, policy, and frontline engagement [8]. Similarly, studies emphasized that safety culture is both a measurable and modifiable attribute, making it a strategic focus for hospital administrators and policymakers [5,6].

Despite the growing body of international research on PSC, there remains limited literature from the Indian context, particularly from the northeastern region. Cultural, institutional, and systemic differences necessitate localized assessments to understand the unique barriers and facilitators of patient safety. In this regard, ICU nurses, given their proximity to critical care delivery and risk mitigation, provide valuable insights into the prevailing safety culture of their units.

This study aims to assess the patient safety culture as perceived by nurses working in the ICUs of a tertiary care hospital in Gangtok, Sikkim. Using the well-established AHRQ Surveys on Patient Safety Culture (SOPS) framework [4,12], the research explores key dimensions such as teamwork, communication, response to errors, staffing, and leadership support. The findings are intended to inform quality improvement initiatives and strengthen safety protocols within intensive care settings.

Methods

This cross-sectional study was conducted over four months in the intensive care unit (ICU) departments of Central Referral Hospital (CRH), a tertiary care teaching hospital in Gangtok, Sikkim.

Ethical clearance was obtained from the Institutional Research Committee (IRC) and the Institutional Ethics Committee (IEC) prior to data collection.

The study population comprised nurses posted in seven ICU units at CRH: the Pediatric ICU (PICU), Neonatal ICU (NICU), Medical ICU (MICU), Surgical ICU (SICU), Neurosurgical ICU (NSICU), Coronary Care Unit (CCU), and Intensive Therapy Unit (ITU). A complete enumeration sampling method was adopted, including all eligible nurses present during the study period. Nurses who were unwilling to participate or on leave during data collection were excluded.

Data was collected using a self-structured, close-ended questionnaire derived from the validated *Surveys on Patient Safety Culture (SOPS)* developed by the Agency for Healthcare Research and Quality (AHRQ). The tool consisted of two sections: Section A captured demographic and staff information, and Section B assessed 12 core dimensions of patient safety culture, including teamwork, staffing, communication, and error response mechanisms.

Responses were recorded using a 5-point Likert scale measuring levels of agreement or frequency. Categories were grouped for analysis, and negatively worded items were reverse coded for consistency. The data were analyzed using IBM SPSS software, and descriptive statistics were employed to calculate frequencies and percentages across the various safety culture dimensions.

Results

A total of 42 ICU nurses participated in the study, yielding a high response rate of 97.67%

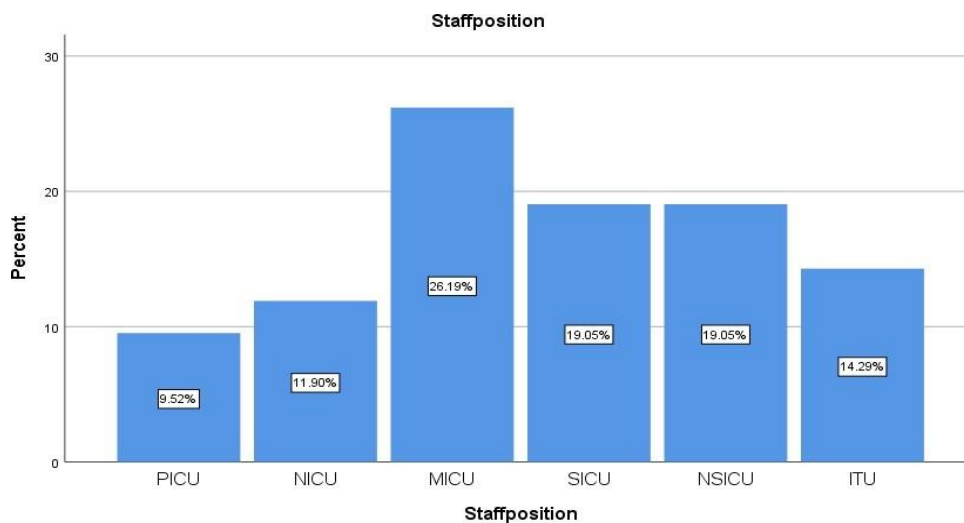


Figure 1: Distribution of nurse staff among various ICU units

As illustrated in *Figure 1*, the Medical Intensive Care Unit (MICU) had the highest representation among respondents (26.19%), followed by other units such as SICU, NICU, NSICU, ITU, and CCU. The Pediatric ICU (PICU) had the lowest participation, accounting for 9.52%.

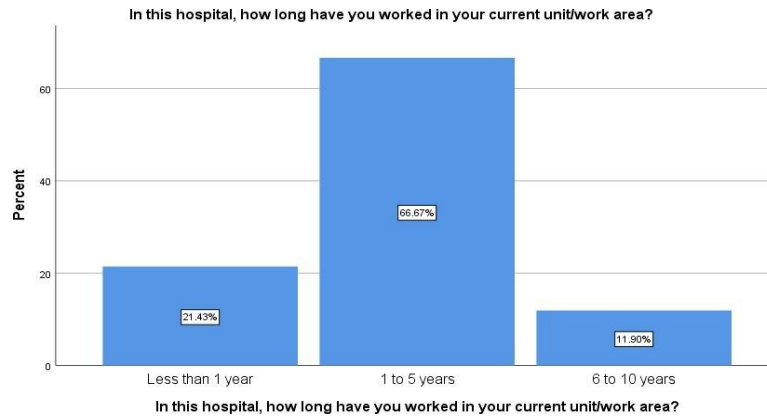


Figure 2: Work Duration in Current Unit

As depicted in *Figure 2*, most of the nurses (66.67%) had between one and five years of experience in their current ICU unit, while 21.43% had less than one year of experience. This reflects a workforce composed predominantly of mid-career professionals with a solid understanding of unit-specific safety practices.

	Frequency	Percent
Fair	4	9.5
Good	16	38.1
Very Good	19	45.2
Excellent	3	7.1
Total	42	100.0

Table 1: Frequency and percentage distribution of the grade on patient safety perspective of nurses

When asked to rate their unit's overall patient safety, responses were distributed as follows: 45.2% rated it as "Very Good," 38.1% as "Good," 9.5% as "Fair," and 7.1% as "Excellent" (*Table 1*). These responses indicate a generally positive perception of patient safety culture among the nursing staff.

	Frequency	Percent
None	22	52.4
1 to 2	9	21.4
3 to 5	4	9.5
6 to 10	6	14.3
11 or more	1	2.4
Total	42	100.0

Table 2: Frequency and percentage distribution of reported patient safety events by the nurses

In terms of incident reporting over the past 12 months, 52.4% of the respondents reported no patient safety events. Additionally, 21.4% reported 1–2 events, 9.5% reported 3–5 events, 14.3% reported 6–10 events, and 2.4% reported more than 11 events (*Table 2*). These findings suggest a moderate level of event reporting, with over half of the staff not reporting any incident

Dimension	Item Code & Statement	Percent Positive Response	Composite Measure Score (%)
Teamwork	A1. In this unit, we work together as an effective team.	88.1	76.2
	A8. During busy times, staff in this unit help each other.	85.7	
	A9. There is a problem with disrespectful behaviour by those working in this unit. <i>(negatively worded)</i>	54.8	
Staffing and workplace	A2. We have enough staff to handle the workload.	26.2	33.95
	A3. Staff work longer hours than is best for patient care. <i>(negatively worded)</i>	2.4	
	A5. Unit relies too much on temporary, float, or PRN staff. <i>(negatively worded)</i>	66.7	
	A11. The work pace negatively affects patient safety. <i>(negatively worded)</i>	40.5	
Organization learning – Continuous improvement	A4. Unit regularly reviews work processes for patient safety improvements.	80.9	73.0
	A12.Changes to improve patient safety are evaluated to see how well they worked.	83.3	
	A14.This unit lets the same patient’s safety problems keep happening. (negatively worded)	54.8	
Response to error	A6. In this unit, staff feel like their mistakes are held against them. (negatively worded)	45.2	50.6
	A7. When an event is reported in this unit, it feels like the person is being written up,	31	

	not the problem. (negatively worded)		
	A10. When staff make errors, this unit focuses on learning rather than blaming individuals.	69	
	A13. In this unit, there is a lack of support for staff involved in patient safety errors. (negatively worded)	57.2	
Supervisor manager or clinical leader support for patient safety	B1. My supervisor, manager, or clinical leader seriously considers staff suggestions for improving patient safety.	64.3	69.83
	B2. My supervisor, manager, or clinical leader wants us to work faster during busy times, even if it means taking shortcuts. (negatively worded)	59.5	
	B3. My supervisor, manager, or clinical leader takes action to address patient safety concerns that are brought to their attention	85.7	
Communication about error	C1. We are informed about errors that happen in this unit.	90.4	91.23
	C2. When errors happen in this unit, we discuss ways to prevent them from happening again.	90.5	
	C3. In this unit, we are informed about changes that are made based on event reports	92.8	
Communication openness	C4. In this unit, staff speak up if they see something that may negatively affect patient care.	78.6	72.62
	C5. When staff in this unit see someone with more authority doing something	88.1	

	unsafe for patients, they speak up.		
	C6. When staff in this unit speak up, those with more authority are open to their patient safety concerns.	73.8	
	C7. In this unit, staff are afraid to ask questions when something does not seem right. (negatively worded)	50	
Reporting patient safety events	D1. When a mistake is caught and corrected before reaching the patient, how often is this reported?	38.1	32.15
	D2. When a mistake reaches the patient and could have harmed the patient, but did not, how often is this reported?	26.2	
Hospital management support for patient safety	F1. The actions of hospital management show that patient safety is a top priority.	24.8	42.4
	F2. Hospital management provides adequate resources to improve patient safety.	57.1	
	F3. Hospital management seems interested in patient safety only after an adverse event happens. (negatively worded)	45.3	
Handoff and information exchange	F4. When transferring patients from one unit to another, important information is often left out. (negatively worded)	57.2	72.23
	F5. During shift changes, important patient care information is often left out. (negatively worded)	76.2	
	F6. During shift changes, there is adequate time to exchange all key patient care information.	83.3	

Table 3. Dimensions and Item-wise Positive Response Scores

The lowest-rated dimension was “Reporting Patient Safety Events” (32.15%), highlighting potential underreporting. “Staffing and Work Pace” (33.95%) and “Hospital Management Support” (42.4%) also scored low. Conversely, the highest-scoring items included C3 (“Informed about changes from event reports” – 92.8%) and C2 (“Discuss ways to prevent errors” – 90.5%), indicating effective communication practices. Teamwork was another strength, with A1 (“We work as an effective team” – 88.1%) and A8 (“Staff help each other during busy times” – 85.7%) scoring high. The lowest individual item score was A3 (“Staff work longer hours than best for care” – 2.4%), pointing to staffing concerns. Overall, the results reflect robust team communication but underscore the need to improve event reporting systems and workload management in ICU settings.

Discussion

This study aimed to assess the perception of patient safety culture among ICU nurses in a tertiary care hospital in Gangtok, using the SOPS framework developed by AHRQ [4,12]. With a sample size of 42 nurses from various intensive care units, the study revealed several noteworthy patterns in the safety culture dimensions.

Among the twelve measured domains, the highest-rated strengths were “Communication about Errors” (91.23%), “Teamwork” (76.2%), and “Organizational Learning- Continuous Improvement” (73%). These findings suggest a positive safety culture environment in the ICU, characterized by open communication, effective collaboration, and a commitment to ongoing quality improvement. Most nurses (45.2%) rated the overall patient safety grade of their hospital as “Very Good,” echoing similar findings by Ramos and Calidgid [9], who reported comparable perceptions among ICU nurses in the Philippines. These shared observations suggest a consistent pattern across healthcare settings where team dynamics and learning culture shape safety perceptions.

Effective communication about errors has been widely associated with improved patient safety outcomes and reduced adverse events [3]. The high score in this dimension indicates that ICU nurses at CRH feel informed and involved in post-incident discussions an essential factor in preventing repeated occurrences and fostering a non-punitive safety environment [6].

Teamwork also emerged as a key contributor to the positive safety climate. Previous studies affirm that collaborative interdisciplinary practice is integral to error prevention and efficient care delivery [4,5]. Our results reinforce these conclusions, highlighting an intense sense of mutual support among

ICU staff.

Organizational learning and continuous improvement were perceived favorably, indicating that the unit actively evaluates processes and implements corrective actions an approach aligned with evidence linking learning cultures to improved clinical outcomes [5,13].

While most safety culture dimensions reflected strengths, underreporting of adverse events was still evident. Previous literature suggests that a supportive safety climate significantly influences error reporting behavior [6]. Our findings reflect this nuance despite favorable perceptions, there remains scope to further empower staff to report without fear of blame, a sentiment echoed in foundational patient safety literature [9].

Overall, the study findings provide valuable insight into the ICU's safety culture and identify both existing strengths and areas for targeted improvement in fostering a resilient and learning-oriented care environment.

Conclusion

The study reveals that the overall patient safety culture among ICU nurses in the tertiary care hospital is moderate, with significant variations across different dimensions. While some areas, such as communications about errors within units, may be strong, other dimensions require substantial improvement.

References

1. World Health Organization & WHO Patient Safety. (2010). Conceptual framework for the international classification for patient safety version 1.1: final technical report January
2. 2009. World Health Organization.
3. Wagner LM, Capezuti E, Rice JC. Nurses' perceptions of safety culture in long-term care settings. *J Nurs Scholarsh.* 2009;41(2):184-192.
4. Sorra, J. S., & Nieva, V. F. (2004). Hospital survey on patient safety culture. Agency for Healthcare Research and Quality.
5. Weaver, S. J., Dy, S. M., & Rosen, M. A. (2014). Team-training in healthcare: A narrative synthesis of the literature. *BMJ Quality & Safety*, 23(5), 359-372.

6. Singer, S. J., Gaba, D. M., Geppert, J. J., Sinaiko, A. D., Howard, S. K., & Park, K. C. (2009). The culture of safety: results of an organization-wide survey in 15 California hospitals. *Quality and Safety in Health Care*, 12(2), 112-118.
7. Hofmann, D. A., & Mark, B. (2006). An investigation of the relationship between safety climate and medication errors as well as other nurse and patient outcomes. *Personnel Psychology*, 59(4), 847-869.
8. Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (2000). *To Err is Human: Building a Safer Health System*. Washington, DC: National Academy Press.
9. 21. Ramos, R. R., & Calidgid, C. C. (2018). Patient safety culture among nurses at a tertiary government hospital in the Philippines. *Applied nursing research: ANR*, 44, 67–75.
10. World Health Organization. (2019). Patient safety: Making health care safer
11. Sammer, C. E., Lykens, K., Singh, K. P., Mains, D. A., & Lackan, N. A. (2010). What is patient safety culture? A review of the literature. *Journal of Nursing Scholarship*, 42(2), 156- 165.
12. 10 Surveys on Patient Safety Culture®. Agency for Healthcare Research and Quality, Rockville, MD USA. <https://www.ahrq.gov/sops/>
13. Brown, E. F., & Anderson, R. M. (2015). Assessing Patient Safety Practices: A Comparative Analysis of Survey Instruments. *International Journal of Healthcare Quality Assurance*, 28(6), 554-567.
14. Huang, D. T., Clermont, G., Sexton, J. B., Karlo, C. A., Miller, R. G., Weissfeld, L. A., ... & Angus, D. C. (2010). Perceptions of safety culture vary across the intensive care units of a single institution. *Critical Care Medicine*, 38(1), 128-132
15. Santiago THR, Turrini RNT. Organizational culture and climate for patient safety in Intensive Care Units. *Rev Esc Enferm USP*. 2015;49(Esp):123-30.
16. Cui Y, Xi X, Zhang J, Feng J, Deng X, Li A, et al. The safety attitudes questionnaire in Chinese: psychometric properties and benchmarking data of the safety culture in Beijing hospitals. *BMC Health Serv Res*. 2017; 17:590.

17. Luiz RB, Simões ALA, Barichello E, Barbosa MH. Factors associated with the patient safety climate at a teaching hospital. *Rev Latino-Am Enfermagem*. 2015 Sept.-Oct.;23(5):880-7.
18. Farzi, S., Moladoost, A., Bahrami, M., Farzi, S., & Etminani, R. (2017). Patient Safety Culture in Intensive Care Units from the Perspective of Nurses: Cross-sectional
19. Study. *Iranian journal of nursing and midwifery research*, 22(5), 372–376.
20. Ammouri, A. A., Tailakh, A. K., Muliira, J. K., Geethakrishnan, R., & Al Kindi, S. N. (2015). Patient safety culture among nurses. *International nursing review*, 62(1), 102–110.
21. Segura-García MT, Castro Vida MÁ, García-Martin M, Álvarez-Ossorio-García de Soria R, Cortés-Rodríguez AE, López-Rodríguez MM. Patient Safety Culture in a Tertiary Hospital: A Cross-Sectional Study. *International Journal of Environmental Research and Public Health*. 2023; 20(3):2329.
22. Ha, T. T. N., Thanh, P. Q., Huong, T. L., Anh, V. T., Tu, N. M., Tien, P. H., & Ha, B. T. T. (2023). Nurses' perceptions about patient safety culture in public hospital in Vietnam. *Applied nursing research: ANR*, 69, 151650

Acknowledgements

The author expresses gratitude to Dr. Swapnil Dixit for his mentorship, Central Referral Hospital for data access, and all participating nurses.

Conflict of Interest and Funding Disclosure

The author declares no conflict of interest. No external funding was received for this study.