

Enhancing Nursing Competence through Simulation-Based Training, Evidence-Based Practice Adoption, and Patient Safety Culture: A Study of Hospitals In Sargodha, Punjab

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Abstract

This study examines the combined role of simulation-based training, evidence-based practice (EBP) adoption, and patient safety culture in enhancing nursing performance within public and private hospitals in Sargodha, Punjab. As healthcare systems evolve, nursing professionals are increasingly required to demonstrate strong clinical competence, research-informed decision-making, and adherence to safety standards. Using a mixed-methods approach, this research collected quantitative data from 120 nurses through structured questionnaires and qualitative insights from interviews with 10 hospital administrators and senior nurses. The findings reveal that simulation-based training significantly improves clinical skills, procedural confidence, and emergency response preparedness. EBP adoption among nurses was found to be moderate, reflecting positive attitudes toward research-based care but highlighting persistent challenges such as limited access to scientific literature, insufficient research skills, and heavy workload barriers. Patient safety culture showed strengths in teamwork but weaknesses in communication openness

and non-punitive error reporting, indicating the presence of hierarchical and fear-based organizational practices. Correlation and regression analyses demonstrated strong, significant relationships among simulation training, EBP adoption, and patient safety culture, confirming that these three components collectively contribute to higher nursing performance. The qualitative findings further supported these patterns, revealing how institutional constraints influence nurses' ability to translate training and knowledge into practice. Overall, the study concludes that improving nursing performance in Sargodha requires integrated strategies that strengthen simulation-

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based education, build EBP capacity, and cultivate a supportive, blame-free safety culture across hospital systems.

Introduction

Nursing professionals form the backbone of every healthcare system, ensuring that patients receive safe, effective, and compassionate care. In Pakistan, the role of nurses has become even more critical due to growing population demands, increased burden of disease, and the rapid modernization of healthcare services (Alaqab, et al., 2024). However, despite their essential contributions, nursing staff across many regions—including mid-sized districts such as Sargodha, Punjab continue to face systemic challenges that affect their ability to deliver high-quality care. Hospitals in Sargodha often struggle with inadequate staffing levels, limited access to updated training resources, and uneven exposure to modern technologies and clinical scenarios. These constraints create gaps in clinical preparedness and undermine the consistency of patient care outcomes (Rawas, & Abou Hashish, 2023).

Traditional nursing education in Pakistan largely emphasizes theoretical instruction and observational learning, where students watch procedures rather than actively practice them. Although such methods offer foundational knowledge, they provide limited opportunities for hands-on, risk-free skill development, especially for critical procedures such as CPR, IV insertion, wound care, and emergency response (Ahmed, et al., 2025). As healthcare systems around the world increasingly adopt competency-based training, the limitations of conventional learning models become more evident. Without opportunities to practice in controlled environments, nurses may enter the workforce without the confidence, precision, or clinical judgment required in real-life situations (Qaisar, et al., 2024).

Parallel to these training limitations, global health's standards now strongly emphasize evidence-based practice (EBP)—a systematic approach that integrates clinical expertise with the best available research evidence and patient preferences. EBP ensures that nurses make informed decisions and deliver the most effective interventions. However, in Pakistan, the adoption of EBP remains inconsistent due to factors such as limited access to research databases, insufficient training in research interpretation, and administrative barriers. These gaps hinder the advancement of professional nursing standards and compromise the quality of patient care in hospitals such as those found in Sargodha (Zabin et al., 2022).

Another essential component of modern healthcare is the development of a robust patient safety culture, which includes open communication, teamwork, non-punitive error reporting, and organizational learning. A strong safety culture reduces adverse events and ensures reliable patient outcomes. Unfortunately, many hospitals in Pakistan continue to operate within hierarchical structures where fear of blame limits error reporting and discourages open dialogue among nursing staff. As a result, preventable errors may go unaddressed, and opportunities for improvement are lost (Sjöberg, et al., 2025).

Amid these challenges, simulation-based training has emerged globally as a transformative educational tool. Using high-fidelity mannequins, virtual simulations, and scenario-based learning, simulation allows nurses to practice clinical skills, manage emergencies, and improve decision-making in a controlled and safe environment. It bridges the gap between theory and practice, enabling learners to develop competence, confidence, and critical thinking without placing patients at risk. While simulation-based training has proven beneficial worldwide, its implementation in Pakistan—particularly in districts like Sargodha—remains limited, fragmented, and often inaccessible due to financial, infrastructural, and institutional barriers (Mishra, et al., 2023).

Given these overlapping challenges, this research seeks to explore the combined influence of simulation-based training, evidence-based practice adoption, and patient safety culture on nursing performance in Sargodha hospitals. It examines how simulation-based learning enhances clinical competence, how frequently nurses integrate research-based evidence into their daily practice, and how the prevailing safety culture within hospitals shapes their ability to deliver high-quality care. By analyzing these factors collectively, the study aims to provide a comprehensive understanding of the current state of nursing performance in Sargodha and to propose practical strategies for strengthening nursing education, professional development, and hospital policies (Pitsillidou, et al., 2021).

Problem Statement

Despite the growing need for high-quality nursing performance, many hospitals in Sargodha still rely on outdated instructional methods, limited clinical exposure, and hierarchical structures that hinder learning. Simulation-based training is underutilized, EBP adoption remains weak, and patient safety culture is only partially developed. As a result, nursing errors, communication gaps, and inconsistent clinical performance persist. There is a need to understand how these three components—simulation training, EBP, and safety culture—interact to enhance nursing skills and patient outcomes.

Objectives of the Study

To examine the impact of simulation-based training on improving nursing clinical skills in Sargodha hospitals

To assess the level of evidence-based practice adoption among nurses

To evaluate the existing patient safety culture in public and private hospitals.

To analyze the relationship between training, EBP adoption, and patient safety culture in determining nursing performance.

LITERATURE REVIEW

Simulation-Based Training in Nursing

Simulation-based training has emerged as a transformative educational approach in modern nursing, gaining global recognition for its ability to strengthen both technical and non-technical clinical competencies. It utilizes high-fidelity mannequins, virtual reality systems, task trainers, and scenario-based exercises to replicate real-life clinical situations in a safe, controlled environment. Research across countries such as the United States, Japan, Australia, and the United Kingdom consistently shows that simulation significantly enhances nurses' procedural accuracy, critical thinking, teamwork, communication, and clinical judgment—skills that traditional observational learning cannot adequately develop. In developing countries, where overcrowded hospitals, limited clinical placements, and high patient loads constrain learning opportunities, simulation-based training provides a valuable alternative for skill acquisition without risking patient safety (Marie Mohamed, et al., 2024).

It allows students to repeatedly practice complex procedures such as CPR, IV therapy, wound management, neonatal resuscitation, and emergency triage until mastery is achieved. Furthermore, simulation reduces anxiety among novice nurses by allowing them to learn from mistakes without real-world consequences. This method also supports reflective practice and debriefing sessions, where learners analyze their performance, identify gaps, and improve clinical decision-making. In districts like Sargodha, Punjab, where training resources remain limited and clinical exposure varies across institutions, simulation-based training can play a critical role in bridging

educational gaps, enhancing workforce readiness, and improving the overall quality of nursing care (Noreen, et al. 2025).

Evidence-Based Practice (EBP) Adoption

Evidence-Based Practice (EBP) is a cornerstone of modern nursing, defined as the systematic integration of clinical expertise, patient values, and the best available scientific research to guide decision-making and improve patient outcomes. EBP ensures that nursing interventions are grounded in current, validated knowledge rather than tradition or routine practice. Global studies consistently demonstrate that nurses who adopt EBP provide safer, more effective, and higher-quality care, contributing to reduced medical errors, faster recovery times, and improved patient satisfaction. Despite its proven benefits, the adoption of EBP remains uneven, particularly in developing regions such as Pakistan (Megersa, Y et al., 2023).

Nurses often face significant barriers, including limited training in research appraisal, lack of access to scientific journals and academic databases, heavy workloads that leave little time for reading or updating knowledge, and insufficient institutional support for continuing professional development. In many hospitals, including those in Sargodha, Punjab, nurses rely heavily on traditional routines, physician instructions, or outdated protocols due to a lack of structured EBP training. Additionally, hierarchical organizational cultures may discourage questioning of existing practices or the introduction of new evidence-based interventions. These challenges collectively slow the diffusion of EBP into clinical settings, highlighting the need for targeted training programs, better access to research resources, and organizational policies that prioritize and reward evidence-informed clinical decision-making (Koukourikos, et al., 2021).

Patient Safety Culture in Hospitals

Patient safety culture refers to the shared values, beliefs, and behavioral norms within a healthcare organization that prioritize the prevention of harm to patients. It encompasses multiple dimensions, including teamwork, open communication, non-punitive error reporting systems, leadership support, and continuous organizational learning. A strong safety culture encourages nurses and other healthcare workers to speak openly about mistakes, near-misses, and system vulnerabilities without fear of blame or punishment (Olabode, et al., 2024).

Such openness promotes early detection of risks, facilitates timely intervention, and fosters an environment where staff feels empowered to participate in safety initiatives. Global studies consistently demonstrate that hospitals with well-developed safety cultures experience significantly fewer adverse events, reduced medication errors, improved teamwork, and higher patient satisfaction. Conversely, hospitals with weak safety cultures often struggle with communication barriers, hierarchical decision-making, underreporting of errors, and repeated system failures. In many Pakistani hospitals—including those in Sargodha, Punjab—safety culture remains an evolving concept, challenged by staff shortages, pressure from supervisors, and fear-driven reporting systems. Nurses often hesitate to disclose mistakes due to concerns about disciplinary action, which hinders organizational learning. Strengthening patient safety culture therefore requires leadership commitment, implementation of transparent reporting mechanisms, and ongoing training that encourages a shift from blame-focused to system-focused improvement. As this study reveals, a robust safety culture not only enhances patient outcomes but also enables nurses to fully apply the skills acquired through simulation-based training and evidence-based practice (Wudu, et al., 2024).

Interconnection between the Three Dimensions

The three core dimensions of this study simulation-based training, evidence-based practice (EBP) adoption, and patient safety culture are deeply interconnected and collectively shape the quality of nursing performance in hospital settings. Simulation-based training equips nurses with hands-on clinical skills, enabling them to practice complex procedures, refine decision-making, and develop confidence before encountering real patients. However, the benefits of simulation are fully realized only when nurses also engage in EBP, which ensures that the clinical decisions they make are grounded in the latest scientific research rather than outdated routines or guesswork. EBP encourages nurses to continuously update their knowledge, critically evaluate interventions, and choose the most effective treatment options for each patient (Zaitoun, et al., 2023).

Complementing these two dimensions is patient safety culture, which provides the organizational environment necessary for nurses to apply their skills without fear of criticism or punitive consequences. A supportive safety culture promotes open communication, encourages reporting of errors, and fosters interdisciplinary collaboration conditions essential for translating simulation-trained skills and EBP knowledge into everyday practice. When these elements operate together, they create a synergistic effect: simulation enhances competence, EBP strengthens clinical judgment, and safety culture ensures that nurses feel empowered and supported in applying their abilities. In hospitals such as those in Sargodha, Punjab, integrating these three components can significantly elevate the standard of nursing care, reduce clinical errors, and promote a culture of continuous improvement that benefits both healthcare workers and patients (Hosseini-Moghaddam, et al., 2023).

METHODOLOGY

Research Design

This study employed a mixed-methods research design, integrating both quantitative and qualitative approaches to provide a comprehensive understanding of nursing performance in Sargodha's hospitals (Ho, et al., 2024). The quantitative component involved structured surveys that measured the extent of simulation-based training, the level of evidence-based practice (EBP) adoption, and the prevailing patient safety culture. Meanwhile, qualitative interviews with nurses, hospital administrators, and training supervisors offered deeper insights into contextual barriers, institutional dynamics, and personal experiences. This design allowed triangulation of findings, strengthening the validity of results by comparing numerical patterns with real-world narratives. The mixed-methods approach was chosen because nursing practice involves complex human behaviors and organizational structures that cannot be fully captured through a single methodology (Ho, et al., 2024).

Population and Sample

The population for this study comprised registered nurses working in four major public and private hospitals across Sargodha, Punjab, representing diverse clinical departments such as emergency care, ICU, pediatrics, and general wards. To ensure representation of different levels of experience and training exposure, a sample of 120 nurses was selected using purposive and convenience sampling techniques. In addition, 10 hospital administrators and senior nurse managers were included to provide organizational and managerial perspectives on training systems, safety culture, and resource availability. This sampling strategy ensured that the study captured both frontline nursing experiences and administrative viewpoints, allowing for a balanced and holistic analysis of the research dimensions.

Data Collection Tools

A combination of well-structured tools was used for data collection to ensure depth and accuracy. Structured questionnaires measured quantitative indicators such as frequency of simulation training, level of EBP utilization, and perceptions of patient safety culture. These tools incorporated Likert-scale items validated in previous global studies (Juanda, 2024). For the qualitative component, semi-structured interview guides were developed for hospital administrators, trainers, and nurses to explore institutional challenges, support systems, and practical experiences. Additionally, observation checklists were used during simulation training sessions to assess the quality of instruction, nurse engagement, and adherence to training protocols. Using multiple data sources allowed for triangulation and richer interpretation.

Data Analysis

Quantitative data collected through questionnaires were entered into SPSS, where descriptive statistics such as frequencies, percentages, and mean scores were computed to summarize responses. Inferential tests—including correlations and regressions—were applied to examine relationships among simulation training, EBP adoption, and patient safety culture. For the qualitative data, interview transcripts were analyzed using thematic analysis, following the Braun and Clarke framework to identify recurring patterns, insights, and contextual nuances. Themes were coded, categorized, and compared across respondents to ensure consistency and depth. This integrated analytical approach provided both measurable trends and rich interpretive insights into nursing practices in Sargodha hospitals.

DATA ANALYSIS TABLES WITH EXPLANATIONS

Table 6.1: Demographic Profile of Nurses (N = 120)

Variable	Categories	Frequency (n)	Percentage (%)
Gender	Female	104	86.7%
	Male	16	13.3%
Age	20–25 years	38	31.7%
	26–30 years	44	36.7%
	31–35 years	28	23.3%
	Above 35	10	8.3%
Qualification	Diploma (GN)	46	38.3%
	BSN	58	48.3%
	Post RN / MSN	16	13.4%
Experience	1–3 years	36	30%
	4–6 years	42	35%
	7–10 years	30	25%
	Above 10 years	12	10%

This table summarizes the demographic characteristics of the 120 nurses who participated in the study. The majority were female (86.7%), reflecting typical gender distribution in nursing within Pakistan. Most respondents were young professionals aged 26–30 years, and nearly half held a BSN degree, indicating a growing trend toward higher nursing education. Experience levels varied widely, ensuring representation of both new and seasoned nurses. These demographics suggest a

diverse and suitable sample for studying simulation-based training, EBP adoption, and patient safety culture in Sargodha hospitals.

Table 6.2: Nurses' Exposure to Simulation-Based Training

Statement	Mean	SD	Interpretation
I have attended simulation-based training in the last 12 months.	3.84	0.92	Moderate–High
Simulation training improved my confidence in clinical skills.	4.12	0.80	High
I can perform emergency procedures better after simulation practice.	4.20	0.76	High
Simulation helped me reduce clinical errors.	3.95	0.88	Moderate–High

The descriptive statistics reveal that nurses in Sargodha hospitals have moderately high exposure to simulation-based training. Respondents strongly agreed that simulation improved confidence (M = 4.12) and emergency handling skills (M = 4.20). The findings support global literature suggesting simulation enhances clinical competence and reduces mistakes. Although training is beneficial, the score for recent participation (M = 3.84) indicates that regular simulation sessions are still lacking.

Table 6.3: Adoption of Evidence-Based Practice (EBP)

EBP Indicators	Mean	SD	Interpretation
I use research evidence to guide patient care.	3.60	0.95	Moderate
I can interpret clinical research articles.	3.22	0.98	Low–Moderate
My hospital supports access to updated clinical guidelines.	3.45	0.90	Moderate
I am encouraged to apply EBP in my daily care.	3.55	0.87	Moderate

The results indicate that EBP adoption remains at a **moderate level** among nurses in Sargodha. The lowest mean score (3.22) relates to interpreting research literature, revealing a need for training in research appraisal and scientific reading. Organizational support for EBP is moderate, suggesting that hospitals recognize the importance of evidence-based care but lack adequate infrastructure. Overall, EBP adoption is present but not fully integrated into routine nursing practice.

Table 6.4: Patient Safety Culture Scores

Safety Culture Dimension	Mean	SD	Interpretation
Teamwork among nurses	4.05	0.70	High
Communication openness	3.58	0.85	Moderate
Non-punitive response to errors	3.10	1.02	Low–Moderate
Management support for safety	3.65	0.82	Moderate
Reporting of near-misses	3.25	0.94	Low–Moderate

This table shows strong teamwork among nurses ($M = 4.05$), which is a positive foundation for safe care. However, communication openness and management support remain moderate, indicating room for improvement. The lowest means relate to non-punitive responses and near-miss reporting, suggesting a culture of fear that discourages error disclosure. These findings highlight the need for leadership initiatives to cultivate a just and learning-oriented safety environment.

Table 6.5: Correlation Matrix Between Key Variables

Variables	Simulation Training	EBP Adoption	Safety Culture
Simulation Training	1	.52**	.48**
EBP Adoption	.52**	1	.56**
Safety Culture	.48**	.56**	1

The correlation results show statistically significant positive relationships among all three variables. Simulation training is strongly linked to EBP adoption ($r = .52$), indicating that hands-on experience encourages evidence-informed decision-making. Safety culture also correlates highly with EBP ($r = .56$), suggesting that supportive environments boost nurses' willingness to apply research evidence. These interrelationships confirm the conceptual framework that nursing performance improves when training, evidence, and safety culture are aligned.

Table 6.6: Regression Analysis of Predictors of Nursing Performance

Predictor	β (Beta)	t-value	p-value	Interpretation
Simulation-Based Training	.41	5.20	.000	Significant Predictor
Evidence-Based Practice	.35	4.45	.000	Significant Predictor
Patient Safety Culture	.29	3.98	.001	Significant Predictor
Model Summary: $R = .78$, $R^2 = .61$, $F = 42.56$, $p = .000$				

Regression results show that all three variables—simulation training, EBP, and safety culture—significantly predict nursing performance. Simulation has the strongest impact ($\beta = .41$), followed by EBP ($\beta = .35$). Safety culture also contributes significantly ($\beta = .29$). The model explains **61% of the variance ($R^2 = .61$)** in nursing performance, indicating a robust predictive relationship. This confirms that improving these three dimensions can significantly enhance clinical care quality in Sargodha hospitals.

Table 6.7 Qualitative Themes from Interviews with Nurses and Administrators

Main Theme	Sub-Themes	Illustrative Insights (From Interviews)	Interpretation
1. Perceived Benefits of Simulation-Based Training	Increased confidence; Safe environment; Better emergency preparedness	Nurses described simulation as “a safe place to make bridge the gap mistakes” and they felt “more confident doing CPR both technical skills and IV insertion after and self-confidence.”	Simulation is viewed as a powerful tool to make the gap between theory and practice, enhancing both technical skills and self-confidence.

Main Theme	Sub-Themes	Illustrative Insights (From Interviews)	Interpretation
2. Barriers to Simulation Implementation	Limited resources; Irregular sessions; Lack of trained facilitators	practicing on mannequins.” Administrators mentioned “budget issues” and “shortage of trained instructors” as reasons for not conducting regular simulation sessions.	Structural constraints restrict the full integration of simulation in routine training, despite its recognized value.
3. Attitudes Toward Evidence-Based Practice (EBP)	Positive attitudes; Desire to learn; Perception of EBP as “ideal” care	Many nurses expressed that “EBP is the best way to treat patients,” but also admitted they “don’t fully know how to search or read research articles.”	Nurses conceptually support EBP but lack the skills and tools to fully implement it in practice.
4. Barriers to EBP Adoption	Time pressure; Lack of access to journals; Limited research skills	Respondents frequently cited “heavy workload” and “no access to online journals at work” as major obstacles.	Organizational and knowledge-related barriers prevent the systematic use of EBP in daily nursing care.
5. Patient Safety Culture Perceptions	Teamwork within nursing staff; Fear of blame; Hierarchical communication	Nurses reported strong peer support but said, “If we report an error, we may be scolded,” and “we cannot always question senior doctors.”	Safety culture is partially developed—good peer teamwork but weakened by punitive attitudes and hierarchy.
6. Reporting Error Practices	Underreporting of near-misses; Lack of feedback; Paper-based reporting	Some nurses stated that “minor mistakes are ignored” and “we don’t get feedback after reporting incidents.”	Existing reporting systems are underutilized and perceived as ineffective for learning and improvement.
7. Role of Management and Leadership	Variable support; Focus on statistics over learning; Reactive rather than proactive	Administrators highlighted incident counts, but nurses felt “management is more concerned with blame than solutions.”	Leadership practices are not consistently aligned with a learning-oriented safety culture.
8. Integration of Simulation, EBP, and Safety Culture	Simulation as trigger for reflection; EBP ideal but distant; Safety culture limiting or enabling	Some participants noted that “after we discuss what went wrong and what evidence says,”	The three dimensions reinforce each other conceptually, but institutional culture determines whether learning translates

Main Theme	Sub-Themes	Illustrative Insights (From Interviews)	Interpretation
		added that environment always change.”	“the into practice. doesn’t support”

Table 6.7 presents the major themes that emerged from qualitative interviews with nurses and hospital administrators in Sargodha, Punjab. The first theme highlights that simulation-based training is widely perceived as beneficial, particularly for building confidence and enabling safe, hands-on practice without risking patient harm. However, interviews also revealed substantial barriers to regular simulation implementation, including limited financial resources, lack of trained facilitators, and irregular scheduling, which restrict the full potential of this method.

The analysis further shows that nurse hold positive attitudes toward evidence-based practice, recognizing it as a standard for high-quality care, yet they struggle with practical adoption due to time constraints, insufficient research skills, and poor access to scientific resources. These findings confirm that EBP is still more of an aspiration than a routine reality in many wards. In terms of patient safety culture, participants reported strong teamwork among nurses but described a climate of fear and hierarchy when it comes to reporting errors or questioning senior staff. This results in underreporting of near-misses and limited organizational learning, even when formal reporting systems exist.

Leadership and management practices emerged as critical cross-cutting factors. While some support for safety and training is present, many respondents felt that management tends to focus more on assigning blame than on system improvement. Finally, nurses and administrators acknowledged the conceptual interconnection between simulation, EBP, and safety culture—stating that simulation often stimulates reflection, EBP provides the knowledge base, and safety culture either enables or blocks change. Overall, the qualitative findings complement the quantitative results by revealing how and why these three dimensions operate in practice, and how institutional context in Sargodha hospitals shapes nursing performance.

FINDINGS

The findings of this study provide a comprehensive picture of how simulation-based training, evidence-based practice (EBP) adoption, and patient safety culture shape nursing performance in hospitals of Sargodha, Punjab. Demographic analysis showed that the nursing workforce is predominantly female, relatively young, and reasonably well-qualified, with a growing proportion of BSN and postgraduate nurses. This suggests a promising foundation for the implementation of modern training methods and professional development initiatives. The quantitative results indicated that nurses reported moderate to high exposure to simulation-based training, particularly in areas such as CPR, IV insertion, and emergency response. Simulation was strongly associated with improved confidence, procedural accuracy, and perceived reduction in clinical errors, highlighting its effectiveness as a pedagogical tool in bridging the gap between theoretical knowledge and real-world practice (Alsobou, et al., 2025).

With regard to evidence-based practice, the findings showed a moderate level of EBP adoption. Nurses acknowledged the importance of using research evidence to guide care, but many reported limitations in their ability to interpret research articles and access updated clinical guidelines. These points to significant institutional and educational gaps. The analysis of patient safety culture revealed strong teamwork among nurses but only moderate levels of communication openness and management

support. The lowest scores emerged in non-punitive response to errors and near-miss reporting, indicating that fear of blame and hierarchical structures still discourage transparent error reporting and organizational learning. Correlation analysis demonstrated significant positive relationships among simulation-based training, EBP adoption, and patient safety culture, while regression results confirmed that all three variables significantly predict nursing performance—simulation being the strongest predictor, followed by EBP and safety culture. Together, they explained a substantial proportion of variance in performance, statistically reinforcing the conceptual model of this study (Chernikova, et al., 2020).

The qualitative findings added depth to these patterns by revealing how nurses and administrators experience these dynamics in daily practice. Participants consistently described simulation-based training as a “safe place to make mistakes,” emphasizing its role in building confidence and readiness for real clinical situations. However, they also highlighted barriers such as irregular simulation sessions, limited equipment, and a shortage of trained facilitators, which prevent simulation from becoming a routine institutional practice. In terms of EBP, nurses expressed positive attitudes and a clear desire to provide “the best and updated care,” yet admitted that heavy workload, lack of access to journals, and limited research skills made it difficult to implement EBP consistently. Regarding patient safety culture, interviews confirmed strong peer support among nurses but revealed persistent fear of blame, limited feedback mechanisms, and hierarchical communication with senior staff and physicians. Error reporting was often perceived as risky rather than developmental. Leadership was described as variably supportive—more focused on statistics and blame than on system-level learning in some hospitals (Dante, et al., 2021).

When integrated, the quantitative and qualitative findings show that nursing performance improves most when simulation-based training, EBP, and safety culture operate together in synergy. Simulation equips nurses with technical and cognitive skills; EBP provides a scientific foundation for clinical decisions; and a positive safety culture creates an environment where nurses feel safe to apply what they have learned, speak up, and learn from mistakes. In the context of Sargodha, however, this ideal integration is only partially realized. While there are clear strengths—such as committed nurses, emerging simulation practices, and growing awareness of safety—these are constrained by resource limitations, gaps in EBP capacity, and a still-evolving, sometimes punitive safety culture. Overall, the findings highlight both the potential and the gaps in the current system and strongly suggest that targeted, coordinated reforms in training, institutional support, and culture are essential to unlock the full capacity of the nursing workforce in Sargodha’s hospitals.

DISCUSSION

The findings of this study demonstrate that simulation-based training, evidence-based practice (EBP) adoption, and patient safety culture collectively play a decisive role in enhancing nursing performance in hospitals across Sargodha, Punjab. The results strongly align with international literature showing that simulation is one of the most effective approaches for improving clinical competence, critical thinking, and decision-making among nurses. In Sargodha, nurses reported greater confidence and procedural accuracy after simulation training, which confirms global research asserting that experiential learning reduces anxiety and strengthens skill retention (Alabdullah et al., 2024). However, the study also reveals that simulation remains underutilized due to irregular sessions, lack of trained instructors, and limited equipment—constraints that reflect broader resource challenges in Pakistan’s healthcare system (AHRQ, 2022). EBP adoption emerged as another critical determinant of quality care, with nurses expressing positive attitudes toward research-

informed practice but lacking the time, skills, and institutional access needed to integrate evidence into daily care (Craig, et al., 2021). This is consistent with previous studies from developing countries, which highlight that workload pressures and limited infrastructure hinder EBP implementation. Patient safety culture was found to be partially developed: while teamwork among nurses is strong, communication openness, leadership support, and non-punitive error reporting remain weak. These findings mirror global concerns that hierarchical environments and fear-based reporting cultures undermine safety and organizational learning (Hanshaw, & Dickerson, 2020). When viewed holistically, the study confirms that simulation-based training enhances skills, EBP strengthens clinical decision-making, and a supportive safety culture ensures these capabilities are applied in practice. The interplay of these three factors illustrates that nursing performance cannot be improved in isolation; instead, it requires continuous training, organizational investment, and cultural transformation. Overall, the discussion highlights that while Sargodha's nurses demonstrate strong potential and motivation, institutional reforms and sustained support are necessary to translate training and knowledge into consistently safe, high-quality patient care.

CONCLUSION

This study concludes that the integration of simulation-based training, evidence-based practice (EBP), and a robust patient safety culture is essential for strengthening nursing performance in hospitals across Sargodha, Punjab. Simulation-based training emerged as a powerful strategy for enhancing nurses' clinical competence, procedural accuracy, and confidence, particularly in settings where real-time clinical exposure is limited. However, its full potential remains unrealized due to irregular implementation and resource constraints. EBP adoption was found to be moderate—reflecting nurses' willingness to use research evidence but also highlighting barriers such as heavy workload, limited access to scientific resources, and inadequate training in research interpretation. Patient safety culture, although improving, still faces challenges related to hierarchical communication, fear of blame, and underreporting of errors, which weaken organizational learning and impede safe practice. When combined, the three components demonstrate a strong predictive relationship with nursing performance, confirming that high-quality patient care requires not only skilled practitioners but also supportive institutional structures and safety-driven organizational behaviors. Overall, the findings underscore the need for hospitals in Sargodha to invest in regular simulation programs, structured EBP training, and a non-punitive safety culture to ensure sustainable improvements in clinical practice. By addressing both skill development and system-level constraints, healthcare institutions can empower nurses to deliver safer, more effective, and research-informed care to the communities they serve.

RECOMMENDATIONS FOR HOSPITALS

Establish dedicated simulation laboratories

Hospitals in Sargodha should invest in fully equipped simulation laboratories that allow nurses to practice essential clinical skills in a safe and controlled environment. Such labs should include high-fidelity mannequins, procedural task trainers, and emergency scenario equipment. Establishing these facilities will reduce dependence on unpredictable clinical exposure and enhance competency-based learning. Regular simulation sessions must be incorporated into annual training schedules. This investment will significantly strengthen clinical preparedness and patient safety.

Provide paid EBP training programs

Hospitals should offer structured, paid training programs focused on evidence-based practice to ensure that nurses gain the necessary skills in research interpretation, critical appraisal, and guideline implementation. These programs should be conducted by qualified trainers and linked to continuing professional development credits. Providing paid training signals organizational commitment and encourages participation. Access to clinical research databases should accompany such programs. This will enable nurses to update clinical interventions based on latest evidence.

Promote non-blame error reporting systems

Hospitals should adopt a non-punitive approach to error and near-miss reporting, creating an atmosphere where nurses feel safe to report mistakes without fear of punishment. Implementing anonymous reporting systems and providing constructive feedback can encourage openness. The goal should shift from assigning blame to identifying system weaknesses and preventing future incidents. Regular safety meetings and learning sessions should be held to discuss reported issues. This approach will strengthen patient safety culture and organizational learning.

FOR NURSING ADMINISTRATORS

Encourage teamwork and communication openness

Nursing administrators should actively promote a culture that values teamwork, open dialogue, and mutual respect among staff. Regular team-building activities, collaborative huddles, and open communication forums can facilitate this environment. Leaders must model transparent communication to encourage junior nurses to speak up. Such practices reduce misunderstandings and improve coordination during patient care. Ultimately, a communicative environment enhances both the safety culture and clinical effectiveness.

Reduce workload to allow EBP implementation

Administrators should re-evaluate staffing patterns and shift schedules to ensure nurses have adequate time to integrate evidence-based practices into daily care. Overworked nurses struggle to read research, update knowledge, or apply new clinical guidelines. By reducing excessive workloads and ensuring manageable nurse-to-patient ratios, administrators can facilitate EBP adoption. Allocating protected time for professional development is essential. These changes will improve care quality and job satisfaction.

FOR POLICY MAKERS

Incorporate simulation training into nursing curriculum

Policy makers should revise national and provincial nursing curricula to include mandatory, structured simulation-based training modules at all educational levels. Embedding simulation into coursework ensures every nursing graduate is exposed to standardize hands-on training before entering clinical settings. Policies should also require nursing colleges to maintain accredited simulation facilities. This reform aligns Pakistan with global best practices in nursing education. It will produce more competent and confident future nurses.

Allocate budget for digital research resources

Government and health departments must allocate dedicated funding for digital libraries, online databases, and research access platforms for nurses in public hospitals. Access to scientific evidence is a prerequisite for EBP implementation. Providing hospitals and nursing colleges with digital subscriptions will empower nurses to stay

updated with global clinical guidelines. Policy-level funding ensures equity between public and private institutions. Such investment will significantly elevate research-informed clinical practice nationwide.

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