

"Simulation as an Optimal Strategy for Clinical Skills Training: Integrating Technical and Non-Technical Competencies"

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ABSTRACT

The integration of newer pedagogies, tools and technologies in the field of nursing education has the capabilities to motivate nursing students and most importantly to engage them in teaching-learning activities. However, existing pedagogies are challenging to ensure students' performance with promptness during emergencies and applying the knowledge they have learnt in the classroom setting, as they often fail to apply their knowledge and skills in a real highly stressed environment, leading to a question mark on how the gap between what they have been taught and what they are performing is being fulfilled.

Nurses and midwives make up over 50% of the global health workforce, yet there is a nearly 50% global shortage. Despite producing many graduates, India faces a critical gap, with only 1.7 nurses per 1,000 people—well below the WHO's recommended 3—requiring over 4.3 million more nurses. The COVID-19 pandemic further exposed the need for not just more nurses, but better-trained, autonomous professionals skilled in modern clinical and technological practices. Closing this gap is essential for strengthening health systems and achieving SDGs, demanding coordinated action in education, policy, and simulation-based training.

Keywords: Communication, Team Dynamics, Leadership, Critical Thinking, Simulation Methodology.

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Training in the nursing profession is essential to ensure safe, effective, and evidence-based patient care. It enhances clinical skills, critical thinking, and professional confidence.



Fig: 1- Benefits of the Training

Advancements in science and technology continually reshape healthcare, requiring professionals to respond with both technical expertise and ethical practice.¹ In this rapidly evolving field, ongoing training is essential—not just for doctors, but also for nurses—to stay updated, reduce clinical errors, and ensure the delivery of high-quality patient care.

Key Competency Areas Beyond Knowledge for Effective Training

Leadership	Leadership Styles and Nurses' Job Satisfaction : Results of a Systematic Review	Study reveals that the nurse's satisfaction in job, their commitment to the organisation and their intent to stay in their position while simultaneously helps in reduction of emotional exhaustion through the different styles of leadership. ² In maternal care,
	The evaluation of a framework for measuring the non-technical ward round skills of final year nursing students:	An

	observational study	women who were treated with warmth, empathy, and respect by nurses and midwives reported a more positive experience compared to those who received poor communication, influencing their perception of care quality. ³			and leads to great outcome. The burnout among the nurses is one of the major problems which can be reduced with a good team dynamic. ⁵
Teamwork & Co-ordination	Nursing teamwork is essential in promoting patient-centered care: a cross-sectional study Importance of teamwork communication in nursing practice	Research shows that effective teamwork by nurses significantly reduces patient injuries, mortality, postoperative pain, and hospital stay duration. ⁴ It not only reduces the errors rather the stress is also being relieved which patients feel	Communication	Effective Communication in Nursing Enablers and barriers to Respectful Maternity Care in Low- and Middle-Income Countries: A Literature of Qualitative Research	Results shown that the nurses who are trained enough on how to approach the patient with the good communication skills they sound more confident and satisfied while taking care of the patients. ⁶ Midwives reported a more positive experience compared to those who received poor communication, influencing

		their perception of care quality. ⁷
Decision making	Effects of Critical Thinking Disposition, Knowledge Sharing Activity and Professional Work Environment on Clinical Decision-making Ability at General Hospital Nurses	At the bedside, it is essential for nurses to gather sufficient patient information to make informed clinical decisions, using critical reasoning and clinical judgment to achieve better outcomes. ⁸

Table:1- Review Articles on the non-technical skills

Importance of Non-Technical Skills in Healthcare: Evidence from Research Studies

Studies show that adverse events in healthcare typically occur in high-pressure, unexpected situations rather than routine settings. These events often result from human-system interactions and are influenced by factors such as leadership, decision-making, communication, coordination, critical thinking, and self-confidence—even when professionals are knowledgeable about the issue.⁹

Effective communication in the health care sectors is something which is very demanding due to the type of work environment. Patient-centred care is challenging due to the complex interplay of communication, environmental, personal, and behavioural factors. Effective communication is fundamental to achieving optimal care outcomes.¹⁰

Research shows that effective communication between patients and healthcare professionals is crucial for recovery. In maternal care, women who were treated with warmth, empathy, and respect by nurses³

According to CDC, about 85% of adults engage with healthcare services annually, largely due to collaborative teamwork aimed at delivering optimal care. However, poor teamwork among healthcare professionals often leads to adverse outcomes such as diagnostic errors, patient falls, and infections. Research shows that effective teamwork by nurses significantly reduces patient injuries, mortality, postoperative pain, and hospital stay duration.¹¹

Coordinated team care not only reduces errors but also alleviates patient stress and improves outcomes. It also helps address nurse burnout, a major concern in healthcare shows in one of the research studies.⁹ A cross-sectional study of 3,675 nurses across five hospitals found that strong teamwork within nursing units significantly increased job satisfaction with both position and profession.¹⁰

A study found that perceived teamwork among healthcare workers enhances job satisfaction, leading to improved quality of care and patient safety. Additionally, strong teamwork fosters a healthier, more positive work environment with reduced burnout.¹¹ Leadership in nursing plays a crucial role in healthcare, directly influencing performance and patient outcomes. As the largest segment of the healthcare workforce, nurses have a significant impact on care delivery, making strong, effective nursing leadership essential and impossible to overlook.¹²

Decision-making is crucial for nurses, as they provide direct, personalized care to patients. It allows nurses to apply their clinical experience and professional knowledge, rather than simply following routines or checklists.¹³

As clinicians, nurses are trained to think critically and make decisions for the patients in their care. Studies show that healthcare organizations that value and empower nurses' decision-making benefit from improved coordinated care, leading to higher job satisfaction and better patient outcomes.

At the bedside, it is essential for nurses to gather sufficient patient information to make informed clinical decisions, using critical reasoning and clinical judgment to achieve better outcomes.¹⁴

The European Higher Education Area (EHEA) emphasizes both theoretical and practical skills in nursing education, focusing on cognitive, social, and personal skills alongside technical abilities. These non-technical skills, along with human factors, are crucial for safe and efficient task performance, as recognized in fields like aviation, industry, and healthcare.¹⁵

Nurse training should encompass not only knowledge but also communication, leadership, teamwork, and decision-making skills, enabling nurses to work independently. Studies, such as one from 2022, show that clinical decision-making training, especially for experienced nurses with high workloads, improves decision-making approaches. Organizations and policymakers should ensure standardized nurse-patient ratios and focus on training for managing unexpected situations to enhance decision-making.¹⁶

Choosing the right training method is crucial to make the training effective and worthwhile. Various methods can be selected based on the objectives and needs, and combining different approaches can enhance competency development in nursing students.

Simulation training:

Simulation-based education is a powerful and learner-centred method for training healthcare professionals, allowing students to learn through real-life, controlled scenarios. It involves experiential learning during pre-briefing and scenarios, and

reflective learning during debriefing, which is considered the core of the process. This approach helps students learn from their mistakes and enhances their skills through immersion and reflection.¹⁷

Low-dose, high-frequency simulation is an effective approach that allows learners to practice realistic clinical scenarios in a controlled environment, free from harm or ethical concerns. A randomized controlled study on newborn resuscitation found that frequent, short-duration simulation training improved and maintained ventilation skills in a high-resource setting among multidisciplinary teams.¹⁸

A 2015 qualitative study involving 21 nursing, pharmacy, and medical students used simulation with a virtual patient avatar to explore medication errors. The students found the experience realistic, effective, and a safe platform for learning, as it allowed them to make mistakes without harm or fear.¹⁹

In another study, it was found that virtual simulation in a fundamental nursing course has been added as complementary would have helped in increasing the knowledge of the students when it was compared to the other students who have taken only the usual course content.²⁰

How simulation process is helpful as an individual component to enhance the clinical skills:

Pre briefing: It is not the first thing in whole simulation, but the process of simulation starts with pre-briefing considered as an introductory phase where the students are being provided with the psychological safe environment to perform. This phase is started with welcoming the students where they know each other and their teacher as well adding further the students are being informed about the objectives and the purpose of simulation. It is even an opportunity for the facilitator to "set the stage" to run the session through psychological preparation of students. The students get to know what is expected from them in a way they can feel free to do errors

with less fear. The effects of prebriefing on psychological safety and learning outcomes by Young Sook et al. (2018) where the experimental group has been prebriefed in structured method and control group with the same traditional prebriefing shows that the nursing students with higher team psychological safety and good performance in the management of the case. So the team is psychological safe in case there is structured prebriefing is being conducted to make the students comfortable to achieve the objective planned by the facilitator.²¹

Simulation scenario: The second component is when the participants perform as per their knowledge, skills and the decision-making abilities not only this also they perform the team tasks and their attitude towards the patient care is observed by the facilitator. The students are not being stopped for any of their wrong decisions and the steps, moreover they are allowed to do the mistakes. The role the facilitator plays here is just observing the actions, their approach towards the patient and their communication amongst the team and writing down the observations. One most important role the facilitator plays here as the students have the tendency to take the scenario in any direction which is not the plan of facilitator so here the facilitator will play as a life saver so that the scenario can be on the track in case it is deviating. Life saver is an important component to be planned during the scenario designing. Peter Dieckman et al, reveals that the interventions which are required can be logically from the same part of the scenario or considered as they are not being the part of the scenario already planned. These life savers should be kept in mind while preparing the scenario and should be carefully used so that maximum learning can take place for the students as per the objectives planned also the life saver helps the students to be on the track to get the holistic exposure in the form of experiential learning.²²

Debriefing: The last and critical component of simulation process where the maximum learning takes place as research studies says that if structured debriefing is conducted then maximum learning takes place during this phase. Debriefing is the component where reflective learning comes in after the experiential learning in the pre briefing and the simulation scenario. Debriefing has further 3 phases includes Reaction, analysis and summary.

A qualitative meta-synthesis conducted on the entry to practice nursing students' experiences of debriefing during clinical practice with the objectives to identify, explore and synthesize existing evidence in the literature of nursing students' experiences of debriefing in their clinical practice placements shows that nurses found relief, confidence, and new ways of thinking through a shared understanding. Debriefing supported student learning and the clinical-academic education team had a key role in creating this opportunity.²³

Conclusion:

Training in the nursing profession must extend beyond the acquisition of technical knowledge and procedural skills to include the development of critical non-technical competencies such as leadership, communication, teamwork, coordination, and clinical decision-making. Evidence consistently demonstrates that many adverse events in healthcare arise not from a lack of knowledge, but from gaps in these human factors, particularly in high-pressure and unpredictable clinical situations. Therefore, a holistic approach to training is essential to ensure safe, patient-centered, and high-quality care.

Non-technical skills significantly influence both patient outcomes and healthcare professionals' well-being. Effective communication enhances patient satisfaction and recovery, teamwork reduces clinical errors and burnout, leadership fosters a positive work environment, and strong decision-making abilities enable timely and appropriate

interventions. Together, these competencies create a resilient and efficient healthcare system.

Simulation-based training emerges as one of the most effective educational strategies to address this need. By integrating experiential learning (through scenarios) with reflective learning (through structured debriefing), simulation provides a safe and controlled environment where learners can practice, make mistakes, and improve risk to patients. Components such as pre-briefing enhance psychological safety, simulation scenarios promote active engagement and skill application, and debriefing consolidates learning through reflection and shared understanding.

In conclusion, effective nursing training should adopt a comprehensive, simulation-enhanced approach that equally emphasizes technical proficiency and non-technical skills. Such an approach not only improves clinical competence but also strengthens confidence, teamwork, and professional judgment, ultimately leading to better patient outcomes, reduced errors, and a more sustainable healthcare workforce.

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