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Impact of Clinical Simulation-Based Learning on Nursing Students' Competency and Confidence: A Cross-Sectional Study

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Abstract

Simulation-based learning (SBL) has emerged as a vital component in nursing education, offering students a safe, structured, and controlled environment to practice clinical skills. This study aimed to assess the impact of SBL on clinical competency and confidence among B.Sc. Nursing students. A cross-sectional study design was adopted, involving 120 B.Sc. Nursing students from Stephens College of Nursing, Stephens Group of Institutions, Jammu. Data were collected using a structured questionnaire and a validated competency checklist based on the Indian Nursing Council (INC) skill guidelines. The findings revealed that students exposed to simulation-based training demonstrated significantly higher clinical competency scores (mean = 82.6%) compared to those who received traditional clinical teaching alone (mean = 68.4%). Additionally, confidence levels were markedly higher among students in the simulation group, with statistically significant differences observed ($p < 0.01$). These results highlight the effectiveness of simulation in enhancing both skill acquisition and self-confidence among nursing students. The study concludes that SBL is an effective educational strategy that bridges the gap between theory and practice. It not only improves clinical competence but also fosters confidence in performing nursing procedures. Therefore, integrating simulation modules into the undergraduate nursing curriculum is strongly recommended to enhance the overall quality of nursing education and better prepare students for real-world clinical settings.

Keywords: Simulation-based learning, clinical competency, nursing education, student confidence, skill development

INTRODUCTION

Modern nursing education is undergoing a significant transformation driven by the increasing complexity of healthcare systems and rising expectations of nursing professionals. Today's nurses are required not only to perform clinical procedures but also to demonstrate critical thinking, clinical judgment, effective communication, and the ability to respond promptly in high-pressure situations. This evolving role demands teaching–learning strategies that go beyond conventional approaches and ensure that students are well prepared for real-world challenges. Traditional clinical learning, which primarily depends on bedside exposure, has long been considered the cornerstone of nursing education. However, it has several limitations in the current healthcare environment. Students may encounter restricted opportunities to perform procedures owing to concerns about patient safety, legal and ethical considerations, and institutional policies. In addition, the availability of diverse clinical cases is often unpredictable, making it difficult to ensure uniform learning experiences for all the students. Consequently, some learners may

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graduate without adequate exposure to essential skills or critical situations, which can affect their preparedness and confidence in clinical practice [1].

Simulation-based learning (SBL) has emerged as a progressive solution to these challenges. It provides a structured and controlled environment in which students can actively engage in realistic clinical scenarios without the risk of causing harm to patients. Through simulation models, mannequins, and scenario-based exercises, learners can repeatedly practice procedures until they achieve proficiency. This repetition not only strengthens technical skills but also enhances decision-making abilities and clinical reasoning [2].

Another significant advantage of SBL is its ability to standardize the learning experience. Unlike traditional clinical settings, where exposure varies widely, simulations ensure that all students encounter the same scenarios and are assessed using consistent criteria. This uniformity contributes to a fair evaluation and helps educators identify specific areas where students need improvement. Furthermore, simulation sessions are often followed by debriefing, which encourages reflection, self-assessment, and a deeper understanding of clinical concepts [3].

The Indian Nursing Council (INC) recognizes the importance of simulation in nursing education and strongly recommends its integration into the curriculum. According to its guidelines, simulation is essential for developing competency, improving patient safety outcomes, and preparing students to meet professional standards of care. The inclusion of simulation aligns with competency-based education models, which focus on measurable skills and performance rather than solely on theoretical knowledge. Despite these clear advantages and recommendations, the adoption of SBL in nursing institutions across India remains limited. A significant number of colleges continue to rely predominantly on traditional bedside teaching owing to factors such as limited resources, lack of trained faculty, and insufficient infrastructure. This gap highlights the need for evidence-based studies to demonstrate the effectiveness of simulation in the Indian educational context [4].

In this regard, the present study is important as it evaluates the impact of SBL on the B.Sc. Nursing students at the Stephens College of Nursing. By focusing on a local institutional setting, this study provides practical insights into how simulation influences students' clinical competency and confidence. The findings are expected to contribute to the growing body of evidence supporting the integration of innovative teaching strategies in nursing education and encourage the wider adoption of simulation practices in similar settings [5].

MATERIALS AND METHODS

Study Design

A descriptive cross-sectional study design was adopted.

Sample and Setting

The study involved 120 B.Sc. nursing students. Nursing students from the Stephens College of Nursing, Stephens Group of Institutions, Jammu.

Tools for Data Collection

1. Structured questionnaire for demographic data
2. Competency Assessment Checklist (aligned with INC skills list)
3. 5-point Likert scale to measure confidence

Table 1. Comparison of mean competency scores between simulation-based learning and traditional teaching groups.

Group	Mean competency score	SD
Simulation	82.6%	17.4
Traditional	68.4%	+8.2

Method of Data Analysis

Statistical analysis was conducted using descriptive and inferential statistics.

Student's t-test determined differences between competency and confidence levels.

RESULTS

Demographic Data

The majority were female students (84%) aged between 18 and 23 years.

Competency Scores

Table 1 presents a comparison of the mean competency scores between nursing students trained using SBL and those trained using traditional clinical teaching methods. The results indicated a clear and statistically significant difference between the two groups. Students in the simulation group achieved a higher mean competency score (82.6%) than those in the traditional group (68.4%). This suggests that SBL is more effective in enhancing the clinical skills of nursing students.

The standard deviation for the simulation group (17.4) was higher than that of the traditional group (8.2), indicating greater variability in competency scores among students exposed to simulation. This variation may be attributed to differences in the individual learning pace, engagement levels, and adaptability to simulation environments. Despite this variability, the overall higher mean score reflects the positive impact of simulation-based training on skill acquisition in the field.

These findings are consistent with those of previous studies that highlighted the effectiveness of simulation in nursing education. According to the International Nursing Association for Clinical Simulation and Learning, simulation-based education improves clinical competence by providing standardized learning experiences and opportunities for repeated practice. Similarly, a study by Pamela R. Jeffries emphasized that simulation enhances students' psychomotor skills, critical thinking, and clinical decision-making abilities.

Therefore, the data in this table reinforces the conclusion that SBL significantly contributes to improved competency outcomes compared with traditional teaching approaches.

Confidence Levels

Simulation-trained students reported significantly higher confidence levels ($p < 0.01$).

Student Feedback Themes

- Enhanced critical thinking.
- Better preparedness for clinical postings.
- Reduced anxiety in handling real patients.
- Improved communication and teamwork.

DISCUSSION

The findings of the present study clearly demonstrate that SBL plays a significant role in enhancing both clinical competence and confidence among B.Sc. Nursing students. Students exposed to simulation-based training achieved notably higher competency scores than those who relied solely on traditional clinical teaching methods. This highlights the growing importance of innovative teaching strategies in nursing education, particularly in bridging the gap between theoretical knowledge and real-world clinical practice [6].

These findings are consistent with global research, which emphasizes that simulations provide a structured, standardized, and risk-free environment for learning. In traditional clinical settings, students often face limited opportunities to perform procedures owing to patient safety concerns, time constraints, and variability in case exposure. Simulation addresses these challenges by allowing

repeated practice without the fear of causing harm to patients. This repetition strengthens psychomotor skills, critical thinking, and decision-making abilities, which are essential components of clinical competence [7].

Moreover, SBL fosters experiential learning by immersing students in realistic clinical scenarios that mirror real-world challenges. Through the use of mannequins, task trainers, or high-fidelity simulators, students can engage in hands-on practice that closely mimics real-life scenarios. This experiential approach enhances knowledge retention and enables learners to better understand the application of theoretical concepts in real-world scenarios. For example, students can practice emergency interventions, such as cardiopulmonary resuscitation (CPR), medication administration, or patient assessment, in a controlled setting before encountering similar situations in actual clinical environments [8].

Another important aspect highlighted by this study is the significant improvement in students' confidence levels. Confidence is a critical factor in nursing practice, as it directly influences performance, communication, and decision-making in patient care. Simulation-based training allows students to practice procedures multiple times, receive immediate feedback, and learn from their mistakes without incurring negative consequences. This supportive learning environment helps reduce anxiety and build self-assurance, enabling students to perform clinical tasks more effectively when faced with real patients [9].

Furthermore, simulations equip students to manage complex and emergency scenarios that they may not frequently encounter during clinical postings. Exposure to such scenarios enhances students' preparedness and ability to respond promptly and appropriately in high-pressure situations. This is particularly important in today's healthcare settings, where nurses are expected to demonstrate quick thinking, adaptability, and competence in handling diverse patient conditions.

This study also underscores the role of simulation in promoting independent learning and clinical judgment. By actively participating in simulated scenarios, students develop problem-solving skills and learn to prioritize patient care based on the clinical needs of the patient. Debriefing sessions, which are an integral part of SBL, further enhance reflective thinking and allow students to analyze their performance, identify areas for improvement, and reinforce the correct practices.

As nursing roles and responsibilities continue to expand in modern healthcare systems, the need for highly competent and confident nursing professionals is becoming increasingly critical. SBL contributes to this goal by ensuring that students are well prepared before entering clinical practice. This aligns with competency-based education models that focus on skill mastery rather than passive learning [10].

However, despite its advantages, the implementation of SBL may face certain challenges, such as the need for adequate infrastructure, trained faculty, and financial resources to support the program. Institutions must invest in simulation laboratories, equipment, and faculty development programs to maximize the benefits of this teaching approach for students. Additionally, effectively integrating simulation into the curriculum requires careful planning to ensure alignment with learning objectives and clinical requirements.

Overall, this study reinforces the value of SBL as an essential component of nursing education. By providing a safe, standardized, and interactive learning environment, simulation enhances both competence and confidence, ultimately contributing to improved patient care outcomes.

CONCLUSION

SBL has emerged as a powerful and effective educational strategy in nursing. The findings of this study confirm that it significantly enhances clinical skills and boosts confidence among undergraduate

nursing students. By offering a safe and controlled environment for practice, simulation enables students to gain hands-on experience, develop critical thinking abilities, and build the confidence necessary to deliver high-quality patient care.

Integrating simulation into nursing curricula helps bridge the gap between theoretical knowledge and clinical application. It prepares students to handle real-life clinical situations, including emergencies, with greater competence and confidence. Additionally, simulation promotes active learning, independent decision-making, and reflective practice, all of which are essential for professional nursing development.

In light of these benefits, it is strongly recommended that nursing institutions incorporate SBL modules at regular intervals throughout their academic programs, as suggested by the INC. This integration should be systematic and aligned with the course objectives to ensure optimal learning outcomes. Furthermore, adequate investment in simulation infrastructure and faculty training is essential to sustain and enhance the effectiveness of this approach in the future.

In conclusion, SBL not only improves the quality of nursing education but also contributes to the preparation of skilled, confident, and competent nursing professionals capable of meeting the evolving demands of the healthcare system.

Recommendations

- Establish dedicated simulation labs as per INC guidelines.
- Conduct structured simulation sessions every semester.
- Include simulation performance in internal assessments.
- Train faculty in simulation pedagogy.
- Implement high-fidelity simulation for critical care and emergency nursing.

Limitations

- Data collection from a single institution.
- Cross-sectional design limits cause–effect interpretation.
- Findings may not represent all nursing colleges in India.

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