


Implementing Simulation-Based Learning to Enhance Clinical Competency in Nursing Education: A Case Report

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Case Report	Abstract:
<p>*Corresponding Author: Tanzina Islam</p> <p>Citation: Tanzina Islam (2023); Implementing Simulation-Based Learning to Enhance Clinical Competency in Nursing Education: A Case Report. <i>iraetc j. nur. health care</i>; 1(2) 59-61.</p>  <p>This work is licensed under a Creative Commons Attribution- NonCommercial 4.0 International license.</p>	<p>Simulation-Based Learning (SBL) has become a vital aspect of nursing education, offering students a safe and controlled environment to develop and refine their clinical skills. This case report examines the implementation of SBL at Rajshahi Medical College Hospital in Bangladesh, with a focus on its effectiveness in enhancing the clinical competency of nursing students. The study outlines the design and execution of the SBL sessions, as well as the outcomes observed in student performance. Findings indicate significant improvements in clinical decision-making, patient assessment, and overall preparedness for real-world clinical scenarios. The report also discusses challenges encountered during implementation and provides recommendations for optimizing SBL in similar educational settings. The successful integration of SBL at Rajshahi Medical College Hospital underscores its potential to transform nursing education in resource-limited environments.</p> <p>Key Words: Simulation-Based Learning, Nursing Education.</p>
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INTRODUCTION

Nursing education in Bangladesh, similar to many other developing countries, encounters significant challenges in providing adequate clinical training [1]. These challenges are primarily due to limited resources, overcrowded healthcare facilities, and a high patient-to-nurse ratio, which collectively strain the traditional methods of clinical teaching. These conventional approaches often fall short of providing nursing students with the necessary hands-on experience required to manage complex and critical patient care scenarios effectively. As a result, there is a growing need for innovative educational strategies that can bridge the gap between theoretical knowledge and practical skills. Simulation-Based Learning (SBL) has emerged as a promising solution to these challenges. SBL enables students to engage in realistic clinical scenarios within a controlled, risk-free environment, allowing them to develop and refine their clinical skills without compromising patient safety [2]. This case report explores the implementation of SBL at Rajshahi Medical College Hospital, focusing on its impact on the clinical competency of nursing students. Additionally, the report addresses the challenges encountered during the implementation process and offers recommendations for enhancing SBL initiatives in similar educational settings.

CASE PRESENTATION

Rajshahi Medical College Hospital is one of the leading healthcare institutions in Bangladesh, serving a large population with diverse healthcare needs. The SBL initiative was introduced as part of the nursing education program at the hospital, targeting third-year nursing students who were about to begin their clinical rotations. The cohort consisted of 60 nursing students who had completed their theoretical coursework and were preparing for hands-on clinical practice. The students were divided into groups of 10 for the simulation sessions to ensure a more personalized learning experience.

Simulation Design:

The SBL sessions were designed to simulate common and critical clinical scenarios that nursing students are likely to encounter during their practice at the hospital. Scenarios included managing patients with acute respiratory distress, administering emergency medications, and responding to post-operative complications. The simulations were conducted using high-fidelity mannequins and simulation software that replicated vital signs and patient responses in real-time. The scenarios were developed in collaboration with experienced nursing educators and clinicians to ensure they reflected the realities of patient care at Rajshahi Medical College Hospital.

Procedure:

- **Pre-briefing:** Each session began with a pre-briefing where students were provided with the patient's background, the clinical scenario, and the learning objectives. This was essential in helping students understand the context and prepare mentally for the simulation.
- **Simulation Activity:** During the simulation, students were required to assess the patient, make clinical decisions, and perform necessary interventions. Faculty members observed the students' actions and provided guidance as needed, without directly intervening in the scenario.
- **Debriefing:** After the simulation, a debriefing session was conducted where students and faculty discussed the scenario in detail. The debriefing focused on the students' decision-making processes, the effectiveness of their interventions, and areas for improvement. This reflective practice was crucial in helping students internalize their learning experiences.

Evaluation:

To evaluate the effectiveness of the SBL intervention, a mixed-methods approach was used. Quantitative data were collected through pre- and post-simulation assessments, which measured the students' clinical competency using a standardized evaluation rubric. Qualitative data were gathered through student feedback surveys and focus group discussions to capture their perceptions of the SBL experience.

RESULTS

The pre- and post-simulation assessments showed a marked improvement in students' clinical competency. On average, students' assessment scores increased by 30% following the SBL sessions. Significant improvements were noted in critical areas such as patient assessment, clinical decision-making, and teamwork [3]. The data indicated that SBL was particularly effective in enhancing students' ability to perform under pressure, a critical skill in the high-stakes environment of Rajshahi Medical College Hospital [4]. The feedback from students was overwhelmingly positive. Many students reported that the SBL sessions provided them with a much-needed bridge between theoretical knowledge and practical application. The realistic nature of the simulations helped students feel better prepared for real-life clinical situations. Students particularly appreciated the debriefing sessions, which they found invaluable for gaining insights into their strengths and areas for improvement. Some students initially expressed anxiety about participating in the simulations, particularly those who felt less confident in their clinical skills. However, as they progressed through the sessions, their confidence grew, and they began to see the value of making mistakes in a controlled environment where they could learn without harming real patients. Despite the positive outcomes, the implementation of SBL at Rajshahi Medical College Hospital faced several challenges. The high cost of simulation equipment and the need for specialized training for faculty were significant obstacles. The hospital had to rely on donations and partnerships with international organizations to acquire the necessary resources [5]. Additionally, scheduling the simulation sessions was challenging due to the high demand for clinical space and the busy schedules of both students and faculty [6]. Ensuring that all students received equal opportunities to participate in the simulations required careful planning and coordination.

DISCUSSION

The successful implementation of Simulation-Based Learning (SBL) at Rajshahi Medical College Hospital demonstrates the significant potential of this educational approach to enhance clinical competency among nursing students [7]. The notable improvements observed in students' clinical assessment scores, alongside their overwhelmingly positive feedback, underscore the effectiveness of SBL in bridging the gap between theoretical knowledge and practical application [8]. This finding is particularly relevant in the context of Rajshahi Medical College Hospital, where the challenges of limited resources, overcrowded facilities, and high demands on healthcare providers necessitate innovative training methods that can adequately prepare students for real-world clinical environments. One of the most significant advantages of SBL is its capacity to create a controlled, risk-free environment where students can engage in hands-on practice. This setting allows students to develop and refine their clinical skills without the fear of causing harm to patients, which is a crucial consideration in resource-constrained healthcare settings. By simulating realistic clinical scenarios, SBL enables students to experience and respond to the complexities of patient care, thus enhancing their readiness for actual clinical practice [9].

The debriefing process emerged as an essential component of the SBL sessions, reinforcing the learning experience and facilitating the development of critical decision-making skills. During debriefing, students are encouraged to reflect on their performance, discuss their clinical decisions, and identify areas for improvement. This reflective practice not only helps solidify the knowledge and skills gained during the simulation but also fosters a deeper understanding of the clinical reasoning process [10]. However, the effectiveness of debriefing is heavily reliant on the faculty's ability to guide these discussions effectively. Faculty members need to be well-trained in debriefing techniques to create a supportive environment where students feel comfortable sharing their thoughts and learning from their experiences. Despite the

evident benefits of SBL, its successful implementation at Rajshahi Medical College Hospital highlights the importance of ongoing faculty development. Ensuring that faculty members are adequately trained in both simulation facilitation and debriefing is crucial for maximizing the educational outcomes of SBL. Continuous professional development and support for faculty will help sustain and further enhance the impact of SBL on nursing education, ultimately contributing to the improvement of healthcare delivery in Bangladesh.

Recommendations

- To maximize the benefits of SBL, it is essential to provide faculty members with ongoing training in simulation facilitation and debriefing techniques. This will ensure that they are well-prepared to guide students effectively through the learning process.
- Given the high cost of simulation equipment and technology, institutions should actively seek external funding and partnerships with international organizations and healthcare providers. These partnerships can provide financial support and access to the latest simulation technologies.
- Introducing SBL early in the nursing curriculum can help students build confidence and competence as they progress through their education. Early exposure to simulation can also help alleviate the anxiety associated with clinical practice.
- To ensure that all students benefit from SBL, institutions should explore ways to increase access to simulation resources. This could include developing low-cost simulation alternatives or using virtual simulation platforms.
- While this case report provides insights into the short-term benefits of SBL, long-term follow-up studies are needed to assess the sustained impact of SBL on students' clinical performance in real-world settings. These studies could help identify areas for improvement and guide future SBL initiatives.

CONCLUSION

The implementation of Simulation-Based Learning at Rajshahi Medical College Hospital has proven to be a valuable addition to the nursing education program, significantly enhancing the clinical competency of nursing students. The success of the SBL initiative is evident in the marked improvement in students' clinical skills and their positive feedback on the learning experience. However, the challenges encountered during implementation highlight the need for careful planning, adequate resource allocation, and ongoing faculty development to sustain and expand SBL programs. As healthcare demands continue to evolve, the importance of preparing nursing students with the skills and confidence needed to deliver high-quality patient care cannot be overstated. By continuing to refine and expand SBL initiatives, Rajshahi Medical College Hospital can play a leading role in advancing nursing education in Bangladesh, ultimately improving healthcare outcomes for the communities it serves.

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