



A Comparative Analysis of Simulation-Based and Traditional Teaching Methods in Healthcare Education: Implications for Critical Thinking and Self-Confidence

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ABSTRACT:

Healthcare education is continually evolving, with educators seeking effective methods to enhance critical thinking abilities and self-confidence among students. This article presents a comparative analysis of simulation-based and traditional teaching methods in various healthcare disciplines, including nursing and veterinary education. Through a synthesis of recent research findings, this study explores the impact of these teaching approaches on students' clinical thinking, perception abilities, and self-efficacy. While simulation-based training offers advantages in providing consistent environments for skills development and reducing preventable errors, traditional methods continue to play a significant role in clinical education. This review underscores the importance of effective educational programs in promoting critical thinking and self-confidence, irrespective of the teaching modality employed.

Keywords: Simulation-based training, traditional teaching methods, healthcare education, critical thinking, self-confidence.

Introduction:

Healthcare education faces the perpetual challenge of preparing students to navigate complex clinical scenarios while ensuring competence and confidence in their abilities. Recent advancements in educational technology have introduced simulation-based training as a promising alternative to traditional teaching methods. Simulation offers immersive learning experiences that mimic real-world patient encounters, enabling students to practice clinical skills in a controlled environment. However, the efficacy of simulation-based training compared to conventional approaches remains a subject of ongoing investigation. This article aims to compare the effects of simulation-based and traditional teaching methods on critical thinking abilities and self-confidence among healthcare students.

Material and Method: A mixed-method approach was employed in this study, which involved delivering a simulation-based session to students at DMCG in a workshop, focusing on the anatomy of the heart, followed by a demonstration using a real cadaveric heart. Following these practical sessions, a survey was conducted to gather insights from the participants, and the findings were subsequently analyzed to identify correlations between the teaching methods and student perceptions.

In the simulation-based session, participants engaged in interactive exercises utilizing simulation technology to explore the anatomical structures. This allowed students to interact with lifelike models and simulations, facilitating hands-on learning experiences.

Following the simulation-based session, participants were provided with a demonstration using a real cadaveric heart. This hands-on demonstration enabled students to observe and palpate actual anatomical structures, offering a complementary learning experience to the simulation-based session.

After completing both practical sessions, participants were asked to complete a survey designed to assess their experiences and perceptions regarding the effectiveness of each teaching method. The survey included questions related to satisfaction levels, confidence in identifying cardiac structures, perceived educational value, and preferences between the simulation-based and cadaver-based approaches.

The collected survey data were then analyzed to identify correlations and patterns among the responses. By comparing the responses from the simulation-based and cadaver-based sessions, researchers were able to evaluate the relative effectiveness of each teaching method and determine which approach resonated more with the participants.

Through this mixed-method approach, we were able to gain comprehensive insights into the impact of simulation-based and cadaver-based teaching methods on student learning experiences and perceptions of cardiac anatomy. The findings of the survey provided valuable feedback that could inform future educational practices in healthcare education settings.

Observations: High Satisfaction Levels:

The satisfaction levels reported by the 60 participating students with both the simulation-based and cadaver-based practical sessions indicate a robust response across a significant sample size, reinforcing the positive experiences observed in the research.

Increased Confidence: With a larger participant pool, the increased confidence observed among the students in their ability to identify cardiac structures and interpret clinical findings after completing both practical sessions is further substantiated, reflecting the effectiveness of both teaching modalities in boosting students' confidence levels.

Perceived Educational Value: The perception of high educational value attributed to both simulation-based and cadaver-based sessions by the 60 students emphasizes the broad consensus among participants regarding the efficacy of these teaching approaches in enhancing their understanding of cardiac anatomy and physiology.

Preference for Simulation-Based Approach: Despite the larger sample size, the significant proportion of students expressing a preference for the simulation-based approach underscores the appeal of its interactive nature and ability to simulate clinical scenarios, which resonates consistently across a larger student cohort.

Cook et al. (2012) conducted a systematic review and meta-analysis, highlighting the benefits of simulation-based education in enhancing learning outcomes. They emphasized the importance of practicing on simulators to replicate realistic patient features and provide opportunities for repeated skill acquisition and feedback.

Arslan et al. (2017) investigated the impact of simulation-based nursing training on pediatric skills and self-efficacy. Their findings indicated that students who received simulation-based training exhibited greater self-efficacy and lower trait anxiety levels compared to those in traditional training programs.

Badowski et al. (2012) explored student perceptions of virtual simulation and traditional methods in healthcare education. They found that both manikin-based and virtual simulation meet specific learning needs, emphasizing the importance of integrating diverse teaching modalities to cater to varying student preferences and learning styles.

Alamrani et al. (2017) found no significant differences between simulator-based and traditional teaching methods concerning clinical thinking and self-confidence among nursing students. They concluded that effective educational programs promote critical thinking and self-confidence regardless of the teaching method employed.

Chang et al. (2017) conducted a randomized controlled study comparing simulation-based training with lecture-based education in teaching situation awareness. They observed no difference in comprehension and projection scores between the simulation and lecture groups. However, perception ability appeared to be higher in the simulation group, possibly contributing to higher SAGAT scores in this group.

Bienstock and Heuer (2022) highlighted the persistent quality and safety issues in healthcare despite the employment of simulation-based training. They emphasized the potential benefits of simulation sessions in reducing preventable errors, thereby addressing healthcare challenges.

Marlow et al. (2014) compared traditional training of laparoscopic skills with simulation-based training. They found that simulation-based training provides a consistent environment for skills development, enabling tasks to be repeated and basic competency standards to be established.

Noyes et al. (2022) conducted a meta-analysis and systematic review comparing training with simulators versus traditional instruction in veterinary education. They emphasized the benefits of simulator training, including skill transfer to clinical settings and decreased complication rates for novice practitioners.

Poikela et al. (2015) explored meaningful learning characteristics in simulated nursing practice after traditional versus computer-based simulation methods. They emphasized the importance of developing new teaching methods, including simulation, to achieve better student outcomes in healthcare education.

Overall, these studies collectively highlight the potential advantages of simulation-based education in healthcare, including enhanced learning outcomes, increased self-efficacy, and improved patient safety. However, they also underscore the importance of considering individual student preferences and learning needs when designing educational programs

Discussion:

The literature reviewed and study conducted suggests that simulation-based training offers several advantages in healthcare education, including enhanced skill acquisition, reduced anxiety levels, and increased self-efficacy among students. Simulation provides a safe environment for learners to practice clinical skills, receive feedback, and develop critical thinking abilities. However, traditional teaching methods remain relevant, particularly in resource-constrained settings where access to simulation facilities may be limited.

Conclusion:

In conclusion, both simulation-based and traditional teaching methods play integral roles in healthcare education. While simulation offers immersive learning experiences and opportunities for skills development, traditional methods remain valuable in certain contexts. Educational programs that are effectively designed and implemented have the potential to promote critical thinking abilities and self-confidence among students, regardless of the teaching modality employed. Future research should focus on identifying optimal strategies for integrating simulation into curricula and addressing barriers to its widespread adoption.

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