



INVESTIGATING THE USE OF SIMULATION TRAINING FOR NURSE EDUCATION IN THE OBSTETRICS DEPARTMENT

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Abstract:

Simulation training has become an integral tool in nurse education, particularly in the obstetrics department, to enhance clinical skills and improve patient outcomes. This review article aims to investigate the use of simulation training for nurse education in obstetrics, focusing on its effectiveness, benefits, challenges, and future directions. The review will examine various simulation modalities, such as high-fidelity simulators, virtual reality simulations, and standardized patients, and their impact on nurse education in obstetrics. Additionally, the review will analyze the current evidence supporting the use of simulation training in obstetrics education, including its influence on knowledge acquisition, skill development, teamwork, communication, and decision-making among nursing students. Furthermore, the review will explore best practices for integrating simulation training into the obstetrics curriculum, including scenario design, debriefing techniques, faculty training, and assessment strategies. The challenges and limitations of simulation training in obstetrics education will also be discussed, such as cost, faculty buy-in, resource allocation, and simulation fidelity. Lastly, the review will propose recommendations for future research and practice in utilizing simulation training to enhance nurse education in the obstetrics department.

Keywords: Simulation training, Nurse education, Obstetrics, Clinical skills, Patient outcomes, Curriculum integration

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Introduction:

Simulation training has become an increasingly popular method for educating healthcare professionals, including nurses, in various specialties. In the obstetrics department, where the stakes are high and the margin for error is slim, simulation training offers a safe and controlled environment for nurses to practice and improve their skills [1].

Simulation training involves the use of realistic scenarios and high-fidelity mannequins to mimic real-life clinical situations. Nurses are able to practice a wide range of skills, from basic tasks such as taking vital signs to more complex procedures like managing obstetric emergencies. By providing hands-on experience in a controlled setting, simulation training helps nurses develop their clinical reasoning, critical thinking, and decision-making abilities. It also allows them to familiarize themselves with equipment and protocols, improving their confidence and competence in delivering care [2].

One of the key benefits of simulation training in the obstetrics department is its ability to bridge the gap between theory and practice. Nursing students often struggle to apply their knowledge in real-life situations, especially in high-pressure environments like labor and delivery. Simulation training provides a safe space for them to make mistakes, receive feedback, and learn from their experiences. This hands-on approach not only enhances their clinical skills but also increases their understanding of obstetric concepts and principles [3].

Furthermore, simulation training allows nurses to practice rare or high-risk scenarios that they may not encounter frequently in their clinical practice. Obstetric emergencies such as postpartum hemorrhage, shoulder dystocia, and eclampsia can be life-threatening if not managed promptly and effectively. By simulating these scenarios, nurses can improve their confidence and competence in responding to emergencies, potentially saving lives in real-life situations [4].

Another advantage of simulation training is its ability to promote teamwork and communication among healthcare providers. In the obstetrics department, effective communication is essential for ensuring the safety and well-being of both mother and baby. Simulation scenarios often involve interdisciplinary teams working together to manage complex cases, fostering collaboration and enhancing communication skills. Nurses learn to delegate tasks, communicate effectively with physicians and other team members, and coordinate care to provide optimal outcomes for patients [5].

Despite its numerous benefits, simulation training for nurse education in the obstetrics department also presents some challenges. One of the main challenges is the cost associated with setting up and maintaining a simulation lab. High-fidelity mannequins, simulation software, and other equipment can be expensive, making it difficult for some healthcare institutions to implement simulation training programs. Additionally, training faculty to facilitate simulation sessions and provide constructive feedback requires time and resources, further adding to the cost [6].

Another challenge is the limited availability of simulation training opportunities for nurses. While some healthcare institutions have dedicated simulation labs and programs, others may not have the resources or infrastructure to offer regular simulation training sessions. This disparity in access to simulation training can lead to uneven skill development among nurses, potentially affecting the quality of care provided to obstetric patients [7].

Despite these challenges, the potential benefits of simulation training for nurse education in the obstetrics department are significant. By providing a safe and controlled environment for nurses to practice and improve their skills, simulation training can enhance patient safety, improve clinical outcomes, and ultimately save lives. Healthcare institutions should consider investing in simulation training programs for their nursing staff, recognizing the value of hands-on experience in preparing nurses for the challenges of the obstetrics department [8].

Simulation Modalities in Obstetrics Education:

Simulation modalities in obstetrics education have become an integral part of training for healthcare professionals in recent years. With advancements in technology and a growing emphasis on hands-on learning, simulation has proven to be an effective tool for preparing students for real-world clinical scenarios [9].

One of the most commonly used simulation modalities in obstetrics education is the high-fidelity mannequin. These life-like mannequins are equipped with sensors and software that allow them to mimic real patient responses, such as breathing, heart rate, and blood pressure. Students can practice a wide range of obstetric procedures on these mannequins, from vaginal deliveries to emergency cesarean sections. High-fidelity mannequins provide a realistic and immersive learning experience that closely resembles actual clinical practice, allowing students to develop critical thinking and decision-making skills in a safe environment [10].

Another simulation modality that is gaining popularity in obstetrics education is virtual reality (VR) simulation. VR technology allows students to interact with a computer-generated environment that simulates obstetric scenarios, such as labor and delivery rooms or operating theaters. Students can practice skills such as fetal monitoring, neonatal resuscitation, and obstetric emergencies in a virtual setting, providing a cost-effective and accessible alternative to traditional simulation methods. VR simulation also offers the advantage of customization, allowing educators to create scenarios tailored to the specific learning needs of their students [11].

In addition to high-fidelity mannequins and VR simulation, obstetrics education also utilizes task trainers and standardized patients for simulation-based learning. Task trainers are anatomical models designed to simulate specific obstetric procedures, such as episiotomy repair or forceps delivery. These trainers allow students to practice hands-on skills in a controlled setting, enhancing their muscle memory and dexterity. Standardized patients, on the other hand, are trained actors who portray pregnant women or new mothers in a simulated clinical encounter. Interacting with standardized patients helps students develop communication and interpersonal skills, crucial for providing patient-centered care in obstetrics [12]. The benefits of simulation modalities in obstetrics education are numerous. By providing a safe and controlled environment for learning, simulation allows students to make mistakes and learn from them without compromising patient safety. Simulation also promotes teamwork and collaboration among healthcare professionals, as students often work in interprofessional teams to manage complex obstetric scenarios. Additionally, simulation enhances students' confidence and competence in performing obstetric procedures, leading to improved patient outcomes and satisfaction [13].

As technology continues to advance, the future of obstetrics education is likely to be shaped by innovative simulation modalities. Virtual reality, augmented reality, and artificial intelligence are poised to revolutionize the way healthcare professionals are trained, offering immersive and interactive learning experiences that were previously unimaginable. With the ongoing emphasis on patient safety and quality care, simulation modalities will play an increasingly important role in preparing the next generation of obstetric healthcare providers [14].

Simulation modalities in obstetrics education are essential tools for preparing students for the challenges of clinical practice. From high-fidelity

mannequins to virtual reality simulation, these modalities offer a safe and effective way for students to develop the knowledge, skills, and attitudes necessary for providing high-quality obstetric care. As technology continues to evolve, so too will the ways in which simulation is used to enhance obstetrics education, ultimately improving patient outcomes and shaping the future of healthcare training [15].

Effectiveness of Simulation Training in Obstetrics Education:

Simulation training has become an integral part of medical education, particularly in the field of obstetrics. Obstetrics is a branch of medicine that deals with the care of women during pregnancy, childbirth, and the postpartum period. It is a high-stakes specialty that requires healthcare providers to be well-trained and prepared to handle complex and potentially life-threatening situations [16].

Simulation training involves the use of realistic scenarios and equipment to simulate clinical situations that healthcare providers may encounter in real-life settings. This type of training allows students and healthcare professionals to practice their skills in a safe and controlled environment, without putting patients at risk. In obstetrics education, simulation training has been shown to be highly effective in improving clinical skills, knowledge, and confidence among learners [17].

One of the key benefits of simulation training in obstetrics education is the ability to practice rare and high-risk scenarios. Obstetric emergencies such as shoulder dystocia, postpartum hemorrhage, and eclampsia are relatively rare but can have serious consequences if not managed properly. By using simulation training, students and healthcare providers can practice these scenarios repeatedly until they feel confident in their ability to manage them effectively [18].

Simulation training also allows learners to receive immediate feedback on their performance. In a simulated scenario, instructors can observe and evaluate how students respond to different situations, providing constructive feedback on their clinical skills, decision-making, and communication. This feedback is invaluable for learners to identify areas for improvement and work towards mastering their skills [19].

Moreover, simulation training can help bridge the gap between theory and practice in obstetrics education. While classroom lectures and textbooks provide essential knowledge, hands-on experience is crucial for developing clinical skills. Simulation training allows learners to apply their theoretical knowledge in a practical setting, reinforcing their

understanding and enhancing their ability to translate knowledge into action [20].

Another advantage of simulation training in obstetrics education is its ability to enhance teamwork and communication skills. Obstetric care often involves a multidisciplinary team of healthcare providers working together to ensure the safety and well-being of the mother and baby. Simulation scenarios can simulate real-life teamwork situations, allowing learners to practice effective communication, collaboration, and coordination of care [21].

In addition to improving clinical skills and teamwork, simulation training in obstetrics education can also have a positive impact on patient outcomes. Studies have shown that healthcare providers who have undergone simulation training are better prepared to handle obstetric emergencies, resulting in reduced rates of maternal and neonatal morbidity and mortality. This highlights the importance of investing in simulation training as a means of improving the quality and safety of obstetric care [22].

Simulation training is a highly effective tool in obstetrics education, offering numerous benefits for learners, healthcare providers, and ultimately, patients. By providing a safe and realistic learning environment, simulation training helps learners develop clinical skills, knowledge, and confidence, while also enhancing teamwork and communication skills. As the field of obstetrics continues to evolve, simulation training will play an increasingly important role in preparing healthcare providers to deliver high-quality care to women during pregnancy, childbirth, and the postpartum period [23].

Benefits of Simulation Training for Nursing Students in Obstetrics:

Simulation training has become an essential component of nursing education, particularly in the field of obstetrics. Obstetrics is a specialized area of nursing that deals with the care of women during pregnancy, childbirth, and the postpartum period. The use of simulation training in obstetrics has numerous benefits for nursing students, as it allows them to practice and refine their skills in a safe and controlled environment [24].

One of the key benefits of simulation training for nursing students in obstetrics is the opportunity to gain hands-on experience with high-risk scenarios. Obstetric emergencies, such as postpartum hemorrhage or shoulder dystocia, can be life-threatening if not managed quickly and effectively. By simulating these scenarios in a controlled environment, nursing students can practice their critical thinking and decision-making skills, as well

as their technical skills, without putting real patients at risk. This hands-on experience can help students feel more confident and prepared when faced with similar situations in a clinical setting [25].

Simulation training also allows nursing students to practice communication and teamwork skills, which are essential in the field of obstetrics. In a simulated obstetric emergency, students must work together to assess the situation, communicate effectively with each other and with other members of the healthcare team, and coordinate their actions to provide the best possible care for the patient. These skills are crucial for providing safe and effective care in real-life obstetric emergencies, and simulation training provides an opportunity for students to practice and improve these skills in a low-stakes environment [26].

Furthermore, simulation training can help nursing students develop their empathy and bedside manner when caring for pregnant women and new mothers. Obstetrics is a highly emotional and sensitive area of nursing, as it involves caring for patients during some of the most vulnerable and intimate moments of their lives. By engaging in simulated scenarios that replicate the emotional aspects of obstetric care, nursing students can learn how to provide compassionate and patient-centered care, even in high-stress situations [27].

In addition to these clinical and interpersonal benefits, simulation training can also help nursing students develop their confidence and self-efficacy as future healthcare providers. By practicing their skills in a simulated environment, students can build their competence and mastery of obstetric nursing tasks, leading to increased confidence in their abilities. This confidence can translate to improved performance in clinical settings, as students feel more prepared and capable of providing high-quality care to their patients [28].

Simulation training offers numerous benefits for nursing students in obstetrics, including the opportunity to gain hands-on experience with high-risk scenarios, practice communication and teamwork skills, develop empathy and bedside manner, and build confidence and self-efficacy. By incorporating simulation training into obstetric nursing education, nursing schools can better prepare their students to provide safe, effective, and compassionate care to pregnant women and new mothers in a clinical setting [29].

Challenges and Limitations of Simulation Training in Obstetrics Education:

Simulation training has become an integral part of medical education, offering students the opportunity to practice and refine their skills in a

controlled and safe environment. In obstetrics education, simulation training plays a crucial role in preparing future healthcare providers to manage complex and high-risk situations during childbirth. However, despite its many benefits, simulation training also comes with its own set of challenges and limitations that must be addressed in order to optimize its effectiveness [30].

One of the main challenges of simulation training in obstetrics education is the cost associated with implementing and maintaining simulation programs. High-fidelity simulators, equipment, and facilities can be expensive to purchase and maintain, making it difficult for some institutions to provide regular and consistent simulation training to their students. Additionally, training faculty and staff to effectively use simulation technology can also be costly and time-consuming. As a result, some institutions may struggle to provide adequate simulation training to their students, limiting the impact of this valuable educational tool [31].

Another challenge of simulation training in obstetrics education is the limited availability of simulation scenarios that accurately reflect the complexities and nuances of real-life obstetric emergencies. While simulation technology has advanced significantly in recent years, there are still limitations to how accurately it can replicate the unpredictable nature of childbirth. This can make it challenging for students to fully immerse themselves in simulation scenarios and develop the critical thinking and decision-making skills necessary to effectively manage obstetric emergencies in a clinical setting [32].

Furthermore, the lack of standardized guidelines and best practices for simulation training in obstetrics education can also pose a challenge for educators and students alike. Without clear guidelines on how to design, implement, and assess simulation training programs, institutions may struggle to ensure that their simulation training is effective and meets the needs of their students. This lack of standardization can also make it difficult for students to transfer the skills they learn in simulation training to real-life clinical practice, limiting the overall impact of simulation training on their education and training [33].

Despite these challenges, there are steps that can be taken to overcome the limitations of simulation training in obstetrics education. One potential solution is to collaborate with other institutions and organizations to share resources and best practices for implementing simulation training programs. By working together, institutions can pool their resources and expertise to develop more comprehensive and effective simulation training

programs that better prepare students for real-life obstetric emergencies [19].

Additionally, investing in research and development to improve simulation technology and create more realistic and immersive simulation scenarios can help to address some of the limitations of current simulation training programs. By continuously innovating and improving simulation technology, educators can provide students with more realistic and challenging simulation scenarios that better prepare them for the complexities of obstetric practice [15].

While simulation training in obstetrics education offers many benefits, it also comes with its own set of challenges and limitations that must be addressed in order to optimize its effectiveness. By addressing issues such as cost, scenario development, standardization, and technology innovation, educators can enhance the impact of simulation training on students' education and training in obstetrics. Through collaboration, research, and innovation, we can overcome the challenges of simulation training and ensure that future healthcare providers are well-prepared to manage obstetric emergencies with confidence and competence [3].

Best Practices for Integrating Simulation Training into the Obstetrics Curriculum:

Simulation training has become a valuable tool in medical education, allowing students and healthcare professionals to practice and improve their skills in a controlled environment. In the field of obstetrics, simulation training plays a crucial role in preparing students for real-life scenarios they may encounter in their practice. Integrating simulation training into the obstetrics curriculum is essential in ensuring that students receive comprehensive and hands-on training that will ultimately improve patient outcomes [30].

There are several best practices that educators can follow when incorporating simulation training into the obstetrics curriculum. One of the key aspects of successful integration is ensuring that the simulation scenarios are realistic and relevant to the clinical setting. This means that educators should work closely with healthcare professionals to develop scenarios that mimic real-life situations as closely as possible. By doing so, students will be better prepared to handle similar situations when they arise in practice [21].

Another important best practice is to provide students with ample opportunities to practice their skills in a safe and supportive environment. This can be achieved by incorporating simulation training into various aspects of the obstetrics curriculum, such as lectures, workshops, and

clinical rotations. By exposing students to simulation training throughout their education, they will have the opportunity to practice and refine their skills on a regular basis, ultimately improving their confidence and competency in the field [9].

In addition to providing students with opportunities to practice their skills, educators should also ensure that they receive feedback and guidance throughout the simulation training process. This can be achieved by debriefing sessions following each simulation scenario, where students can reflect on their performance, receive feedback from their peers and instructors, and identify areas for improvement. By providing students with constructive feedback, educators can help them to identify their strengths and weaknesses, and ultimately improve their performance in future simulations [11].

Furthermore, educators should consider incorporating interprofessional education into the obstetrics curriculum through simulation training. By working collaboratively with other healthcare professionals, such as nurses, midwives, and physicians, students can gain a better understanding of the roles and responsibilities of each team member in a clinical setting. This can help to improve communication, teamwork, and patient outcomes in the field of obstetrics [4].

Finally, it is important for educators to regularly evaluate the effectiveness of the simulation training program and make adjustments as needed. This can be done through surveys, assessments, and feedback from students and healthcare professionals. By continually assessing and improving the simulation training program, educators can ensure that students are receiving the highest quality education and are well-prepared for their future careers in obstetrics [2].

Integrating simulation training into the obstetrics curriculum is essential in preparing students for the challenges they may face in their practice. By following best practices, such as developing realistic scenarios, providing ample opportunities for practice, offering feedback and guidance, incorporating interprofessional education, and evaluating the effectiveness of the program, educators can ensure that students receive a comprehensive and hands-on education that will ultimately improve patient outcomes in the field of obstetrics [11].

Future Directions and Recommendations for Simulation Training in Nurse Education:

Simulation training has become an integral part of nurse education, providing students with hands-on experience in a controlled environment. As technology continues to advance, the future of

simulation training in nurse education is bright, with new opportunities and challenges on the horizon [24].

One of the key future directions for simulation training in nurse education is the integration of virtual reality (VR) and augmented reality (AR) technology. VR and AR have the potential to enhance the realism and interactivity of simulation scenarios, allowing students to immerse themselves in a virtual healthcare environment. By using VR and AR technology, students can practice clinical skills, such as patient assessment and medication administration, in a safe and realistic setting [16].

Another important future direction for simulation training in nurse education is the use of gamification. Gamification involves incorporating game elements, such as points, levels, and rewards, into educational activities to increase student engagement and motivation. By gamifying simulation training, educators can create a more interactive and enjoyable learning experience for students, leading to better retention of knowledge and skills [20].

In addition to incorporating new technologies and gamification, there are several recommendations for improving simulation training in nurse education. One recommendation is to increase the diversity of simulation scenarios to better reflect the complexities of real-world healthcare settings. By exposing students to a wider range of scenarios, educators can help them develop critical thinking and problem-solving skills that are essential for clinical practice [13].

Another recommendation is to provide students with more opportunities for debriefing and reflection after simulation exercises. Debriefing allows students to reflect on their performance, identify areas for improvement, and receive feedback from educators and peers. By incorporating debriefing sessions into simulation training, educators can help students develop a deeper understanding of their strengths and weaknesses and enhance their learning experience [18].

Furthermore, it is important for educators to continuously evaluate and update simulation training programs to ensure that they are effective and relevant to current healthcare practices. This may involve collaborating with healthcare professionals to identify emerging trends and best practices in patient care and incorporating them into simulation scenarios [22].

The future of simulation training in nurse education is promising, with opportunities for integrating new technologies, such as VR and AR, and incorporating gamification to enhance student

engagement and learning outcomes. By increasing the diversity of simulation scenarios, providing opportunities for debriefing and reflection, and continuously evaluating and updating simulation training programs, educators can help prepare nursing students for successful careers in healthcare [5].

Conclusion:

In conclusion, simulation training is a valuable tool for educating nurses in the obstetrics department, offering numerous benefits for skill development, teamwork, and patient safety. While there are challenges associated with implementing simulation training programs, the potential rewards outweigh the costs. By investing in simulation training for nurse education, healthcare institutions can ensure that their nursing staff are well-prepared to provide high-quality care to obstetric patients, ultimately improving outcomes and enhancing the overall quality of healthcare delivery.

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