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Review Article

The Value of Simulation-Based Training in Midwifery

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Abstract: Simulation-based learning (SBL) is a pedagogical method of teaching and assessing clinical skills across all levels of midwifery education. The SBL is based on implementing scenarios. The stages of a clinical scenario include briefing, action and debriefing. Briefing includes information to guide trainees on the scenario and the objectives. The training of participants in the clinical scenarios begins under the supervision of the instructors which is referred to as action. After each scenario, a debriefing takes place to provide immediate feedback on participants and their performance. Finally, an assessment of the trainees' attitudes, skills and knowledge, is provided. The skills developed during simulation training are knowledge of algorithms, learning clinical skills and handling emergency situations, developing ethical values and decision-making, self-confidence and competence, communication with the patient and the colleagues, teamwork and leadership, patient safety and finally the satisfaction of being part of a multidisciplinary team. It is highly recommended that simulation is incorporated into midwifery curricula because it combines theory with practice and the development of specialized clinical skills to handle complex situations and get ready for future midwifery care.

Keywords: Value, simulation, simulation-based learning, training, midwifery, education, students.

INTRODUCTION

Emergency obstetric situations can be life-threatening for both the mother and the neonate and therefore teamwork by a multidisciplinary team is necessary for timely and coordinated action (Monod *et al.*, 2014). In such a team, obstetricians, midwives, nurses, anesthesiologists and pediatricians/neonatologists are usually included. It is essential that each member of the team has specialized knowledge and skills pertaining to obstetric emergencies. Professionals should be able to cooperate efficiently to ensure the best possible outcome for the mother-neonate dyad. Communication is crucial in these situations and all team members should have a clear understanding of each member's role and responsibilities. The implementation of protocols and guidelines is therefore critical to ensuring that all essential steps are taken promptly and appropriately (Lippke *et al.*, 2019).

Midwifery education has implemented new pedagogical methods to prepare students for their future demanding work. According to the World Health Organization, "simulation is a pedagogical strategy using one or more educational methods or types of equipment to provide a simulated experience to promote or validate students' progression from novices to experts and has been widely used in clinical training of healthcare students and professionals" (WHO, 2018). Simulation-based learning (SBL) is a valuable method of teaching, learning and assessing clinical skills across all levels of midwifery education: undergraduate, postgraduate and lifelong education (WHO, 2018; Coffey, 2015).

Implementation of SBL

The SBL is based on implementing scenarios. Examples of emergency situations commonly performed during simulation training in midwifery curricula are placental abruption, umbilical cord prolapse management, vaginal breech delivery, shoulder dystocia, postpartum hemorrhage, maternal and neonatal cardiopulmonary resuscitation. Nevertheless, simulation is also used to teach basic midwifery skills to first-year undergraduate students, i.e. injection, specimen collection skills, intravenous cannulation, and urinary bladder catheter placement.

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Prior to implementing a simulation-based course, planning should be conducted to determine the level and educational needs of students and accordingly set out the objectives (Coffey, 2015). The objectives should be explicit and orientated towards the development of specific midwifery competencies. A scenario, should in general, consist of 2-4 core objectives which emphasize on understanding, abilities, decisions, and collaboration. The goals are anticipated to be met throughout the scenario; however secondary goals might be developed and addressed upon completion of the simulated clinical experience. The objectives ought to determine choices of the simulated practice and establish the level of fidelity that is the extent to which a simulated experience resembles reality (WHO, 2018). The term fidelity refers to the difficulty of the simulation learning activity. In low fidelity the aim is to acquire basic midwifery skills and focus only on specific procedures, such as urinary catheter placement, whereas high fidelity includes advanced, realistic simulations of communication challenges, decisions in complex clinical scenarios, team interactions and leadership skills (Akselbo *et al.*, 2023). For example, a scenario may involve a pregnant woman with vaginal bleeding due to peripheral placental abruption who must undergo an emergency cesarean section. However, İldan *et al.,* (2020) reported that the varying degree of fidelity of simulations used to test midwifery students' labor management skills showed no significant influence on their performance.

The stages of a clinical scenario include briefing, action and debriefing. Before the initiation of a simulation-based experience, concise information is given to guide trainees on the scenario and the objectives, a procedure designated as briefing. Information may refer to the environment, equipment, mannequin, trainees' roles, time, allocation and clinical situation (WHO, 2018). Afterwards, midwifery students receive an outline of the clinical algorithms to be followed and objectives are defined (Coffey, 2015; Akselbo *et al.*, 2023; WHO, 2018). The exposure of the cases to simulation mannequins takes place and then the training of participants in the clinical scenarios begins under the supervision of the instructors which is referred to as action. To further enhance the realism of emergency situations and to enable training in communication with patients, instructors can follow scenario roles and act as typical patients (Monod *et al.*, 2014; Coffey, 2015). After each scenario, a debriefing takes place to provide immediate feedback on participants and their performance, which is guided by the instructor and encourages as well, reflective thinking by students which provides an increase in awareness. The scope of debriefing is learning through reflection on action and transferring learning to future situations (WHO, 2018; Coffey, 2015; Changuiti *et al.*, 2021). Reflecting and receiving feedback on an action of oneself are key components of the SBL method (Akselbo *et al.*, 2023). It is of utmost importance that instructors, who facilitate simulation activities, have the appropriate skills to prepare, engage and provide feedback to students, as this can affect the quality of the simulated learning experience for the student (Coffey, 2015). Finally, an assessment of the trainees' attitudes, skills and knowledge is provided (WHO, 2018; Coffey, 2015).

Several benefits are associated with the use of simulation in midwifery training both for the students and the patients. The specific skills developed during simulation training are knowledge of algorithms, learning clinical skills and handling emergency situations, developing ethical values and decision-making, self-confidence and competence, communication with the patient and the colleagues, teamwork and leadership, patient safety and finally the satisfaction of being part of a multidisciplinary team (WHO, 2018; Watters *et al.*, 2015).

Knowledge

Simulation-based training helps to broaden and consolidate students' knowledge, create bridges to action, add value and promote its relevance (WHO, 2018; Reynolds *et al.*, 2010; Changuiti *et al.*, 2021). Studies have shown that students gain more knowledge and develop greater skills from SBL in comparison to other teaching approaches (Catling *et al.*, 2017; Harder, 2010; Lindset *et al.*, 2020; Reynolds *et al.*, 2010).

Clinical Skills

Previous studies demonstrate that participants after SBL perceive that there is an improvement in clinical skills and handling emergency situations (Monod *et al.*, 2014; Aktas *et al.*, 2021; Changuiti *et al.*, 2021). Simulation-based training can provide healthcare personnel with hands-on experience in dealing with obstetric crises and complex scenarios, allowing them to be more prepared for real-life situations (Reynolds *et al.*, 2010; Tarrahi *et al.*, 2022; Kumar *et al.*, 2017).

Ethical Values and Decision-Making

Training through simulations aids in the development of ethical values, like empathy and respect for the individual's will and autonomy, and decision-making skills in future midwives (WHO, 2018; Coffey, 2015; Changuiti *et al.*, 2021). A randomized controlled trial conducted in Turkey found that simulation training reduced midwifery students' malpractice tendencies and increased their perceptions of caring behaviors (Durmaz *et al.*, 2022).

Self-Confidence and Competence

Repeated simulation courses improves students' self-assurance and cultivates their critical thinking (WHO, 2018; Lendahls *et al.*, 2017; Kordi *et al.*, 2015; Coffey, 2015). Other researchers report that participants after training claim to have an improvement in self-perceived competence (Monod *et al.*, 2014;

Watters *et al.*, 2015; Rahmani *et al.*, 2017). The previous statements are consistent with Cant *et al.*, (2017) who indicate that students feel more confident and are better prepared to cope with real-life emergencies following the simulation training.

Team Communication and Leadership

In the last few years, it has been shown that participants after training state a self-improvement in communication within the team (Aktas *et al.*, 2021; Coffey, 2015; Kumar *et al.*, 2017). The study by Kumar *et al.*, (2017) revealed that collaborative learning between midwifery and medical students could be beneficial in building greater trust between the two disciplinary groups and that this would support both their learning and more effective teamwork in patient management. Previous evidence suggests that leadership skills are acquired through team communication, harmonious collaboration, confidence in leadership and ethical judgment (WHO, 2018; Akselbo *et al.*, 2023; Coffey, 2015).

Patient Safety

Simulation methods in teaching aim to enhance the quality of care and ensure patient safety (WHO, 2018; Coffey, 2015). It is well known that learning professional skills in a controlled environment is helpful for providing safe clinical practice (WHO, 2018; Coffey, 2015; Kumar *et al.*, 2017; Changuiti *et al.*, 2021). According to ethical standards, interventional procedures should not be taught or practiced on real people; instead, trainees should have the opportunity to be trained in simulated, controlled and safe environments, where they can make mistakes and learn from them without causing harm to anyone (Akselbo *et al.*, 2023). Trial-and-error learning is acceptable and even favored because it has been shown to improve student performance (WHO, 2018; Akselbo *et al.*, 2023; Kumar *et al.*, 2017; Changuiti *et al.*, 2021). It is very important for instructors to ensure a psychologically safe learning environment, because only then trust will be encouraged and students will not feel uncomfortable and fear negative consequences (Akselbo *et al.*, 2023; Coffey, 2015).

Throughout the course of providing care, maintaining patient safety must be the primary objective, and simulations significantly aid in this effort (WHO, 2018; Coffey, 2015; Kumar *et al.*, 2017). Faculty members, by way of effective interaction with students and among themselves, should foster a safe and supportive learning environment throughout the teaching process. This should encourage trust and allow for failures to occur.

Satisfaction

Simulation supports students' eagerness to learn and their satisfaction of working in an interdisciplinary team which increases the achievement of desired learning outcomes (WHO, 2018; Coffey, 2015; Kumar *et al.*, 2017). According to Vermeulen *et al.*, (2021), midwifery students expressed their satisfaction with the simulation-based training, considering that it provided added value to their training.

CONCLUSION

Overall, SBL as a teaching approach assists students in assessing information and establishing knowledge, developing clinical and interpersonal skills, rules and habits of thought and reflection, all of which contribute to the training of competent professionals (WHO, 2018; Coffey, 2015). In Coffey's (2015) review, simulated activities were beneficial for midwifery education, but there were also barriers to learning due to the lack of expectation setting, benchmarking, communication and reflection opportunities. Although simulation clearly enhances confidence, it has less impact on performance or clinical care. Consequently, more evidence is required to demonstrate that SBL is an effective, valid, and reliable substitute for clinical practice hours in midwifery (Coffey, 2015).

Midwifery is one of the professions that aim to safeguard the maternal and infant health and to promote the maintenance of community health. Midwives should develop clinical skills and professional competencies in the course of their studies to enable them to serve the midwifery profession (Tarrahi *et al.*, 2022). Students and professionals need to learn more than just a specific range of scientific actions in order to develop interventional skills. They also need to learn how to apply the evidence-based knowledge currently available, gather and handle data, make effective decisions in various situations, and adopt behaviors that encourage a supportive relationship and respect human integrity (WHO, 2018). It is highly recommended that SBL is incorporated into midwifery curricula because it combines theory with practice and the development of specialized clinical skills to handle complex situations and get ready for future midwifery care (WHO, 2018; Tarrahi *et al.*, 2022).

REFERENCES

- Akselbo, I., & Aune, I. (2023). How to Use Simulation as a Learning Method in Bachelor and Postgraduate/Master Education of Nurses and Teachers in Healthcare. In: Akselbo, I., Aune, I. (eds) How Can we Use Simulation to Improve Competencies in Nursing?. Springer, Cham. https://doi.org/10.1007/978-3-031-10399-5_2
- Aktas, S., Aydın, R., Osmanagaoglu, M. A., Burma, E., Biryesil, B. N., Basaran, O. E., Aran, T., & Gunduz, A. (2021). The effect of simulation-based vaginal birth and obstetric emergency training for health professionals working in emergency department: A quasi experimental study. *Journal of Basic and Clinical Health*

Sciences, 3, 137- 148. https://doi.org/10.30621/jbachs.949842

- Cant, R. P., & Cooper, S. J. (2017). Use of simulation-based learning in undergraduate nurse education: An umbrella systematic review. *Nurse education today*, *49*, 63–71. https://doi.org/10.1016/j.nedt.2016.11.015
- Catling, C., Hogan, R., Fox, D., Cummins, A., Kelly, M., & Sheehan, A. (2016). Simulation workshops with first year midwifery students. *Nurse education in practice*, *17*, 109–115. https://doi.org/10.1016/j.nepr.2015.12.003
- Changuiti, O., Moustarhfir, N., Marfak, A., Saad, E., Hilali, A., & Youlyouz-Marfak, I. (2021). Simulation Based-Learning from Simple to Complicated Clinical Situations for Midwifery Students. *Advances in medical education and practice*, *12*, 881–886. https://doi.org/10.2147/AMEP.S318560
- Coffey, F. (2015). Learning by simulation - is it a useful tool for midwifery education? *New Zealand College of Midwifery Journal, 51*, 30-36. http://dx.doi.org/10.12784/nzcomjnl51.2015.5.30-36
- Durmaz, A., & Gün Kakaşçı, Ç. (2022). The Effects of Simulation-Based Training on Midwifery Student Malpractice Trends and Student Perceptions of Care Behaviors: A Randomized Controlled Trial. *Adnan Menderes Üniversitesi Sağlık Bilimleri Fakültesi Dergisi, 6* (3), 405-418. doi: 10.46237/amusbfd.940905
- Harder, B. N. (2010). Use of simulation in teaching and learning in health sciences: a systematic review. *The Journal of nursing education*, *49*(1), 23–28. https://doi.org/10.3928/01484834-20090828-08
- İldan Çalım, S., Cambaz Ulaş, S., Demirci, H., & Tayhan, E. (2020). Effect of simulation training on students' childbirth skills and satisfaction in Turkey. *Nurse education in practice*, *46*, 102808. https://doi.org/10.1016/j.nepr.2020.102808
- Kordi, M., Rashidi, F. F., Khadivzadeh, T., Mazloum S. R., Akhlaghi, F., & Tara, M. (2015). Effects of Web-based Training and Educational Simulation on Midwifery Students' Self-Confidence in Postpartum Hemorrhage Management. *Journal of Midwifery and Reproductive Health, 3*(1), 262-268. doi: 10.22038/jmrh.2015.3247
- Kumar, A., Wallace, E. M., East, C., McClelland, G., Hall, H., Leech, M., & Nestel, D. (2017). Interprofessional simulation-based education for medical and midwifery students: A qualitative study. *Clinical Simulation in Nursing*, *13*(5), 217-227. http://dx.doi.org/10.1016/j.ecns.2017.01.010
- Lendahls, L., & Oscarsson, M. G. (2017). Midwifery students' experiences of simulation- and skills training. *Nurse education today*, *50*, 12–16. https://doi.org/10.1016/j.nedt.2016.12.005
- Lindset, M., & Aune, I. (2020). Simulering som pedagogisk metode i lærerutdanning (Simulation as a pedagogical method in teacher training). *Scandinavian Journal of Vocations in Development, 5*(1), 46–70. https://doi.org/10.7577/sjvd.3452.
- Lippke, S., Wienert, J., Keller, F. M., Derksen, C., Welp, A., Kötting, L., Hofreuter-Gätgens, K., Müller, H., Louwen, F., Weigand, M., Ernst, K., Kraft, K., Reister, F., Polasik, A., Huener Nee Seemann, B., Jennewein, L., Scholz, C., & Hannawa, A. (2019). Communication and patient safety in gynecology and obstetrics - study protocol of an intervention study. *BMC health services research*, *19*(1), 908. https://doi.org/10.1186/s12913-019-4579-y
- Monod, C., Voekt, C. A., Gisin, M., Gisin, S., & Hoesli, I. M. (2014). Optimization of competency in obstetrical emergencies: a role for simulation training. *Archives of gynecology and obstetrics*, *289*(4), 733–738. https://doi.org/10.1007/s00404-013-3111-6
- Rahmani, B. R., & Rahmani, M. (2017). The evaluation of effectiveness for Training Simulation method in the frank breech presentation on knowledge and clinical skills of midwifery students. *Education Strategies in Medical Sciences*, *9*(5), 351-356
- Reynolds, A., Ayres-de-Campos, D., Pereira-Cavaleiro, A., & Ferreira-Bastos, L. (2010). Simulation for teaching normal delivery and shoulder dystocia to midwives in training. *Education for health (Abingdon, England)*, *23*(3), 405.
- Tarrahi, M. J., Kianpour, M., Ghasemi, M., & Mohamadirizi, S. (2022). The effectiveness of simulation training in obstetric emergencies: A meta-analysis. *Journal of education and health promotion*, *11*, 82. https://doi.org/10.4103/jehp.jehp_1360_20
- Vermeulen, J., Buyl, R., D'haenens, F., Swinnen, E., Stas, L., Gucciardo, L., & Fobelets, M. (2021). Midwifery students' satisfaction with perinatal simulation-based training. *Women and birth : journal of the Australian College of Midwives*, *34*(6), 554–562. https://doi.org/10.1016/j.wombi.2020.12.006
- Watters, C., Reedy, G., Ross, A., Morgan, N. J., Handslip, R., & Jaye, P. (2015). Does interprofessional simulation increase self-efficacy: a comparative study. *British Medical Journal open*, *5*(1), e005472. https://doi.org/10.1136/bmjopen-2014-005472
- World Health Organization. (2018). Simulation in nursing and midwifery education. Retrieved from: https://apps.who.int/iris/bitstream/handle/10665/345156/WHO-EURO-2018-3296-43055-60253-eng.pdf

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