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Comparison of Video Screening and Simulation on the Extent of Learning Clinical Delivery Skills

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Abstract

Aims: The present study aimed to compare the two methods of childbirth training via video and simulation on the extent of learning clinical skills in childbirth.

Materials & Methods: This quasi-experimental study was performed by 40 midwifery students at Iranshahr University of Medical Sciences in 2020. All students took a knowledge test and were randomly classified into stimulation and video screening groups based on tossing coins (n=20, each group). Then, the educational scenario related to natural childbirth was taught using two methods. Finally, the clinical knowledge and skills test was taken using student-made questionnaires. The data were statistically analyzed using the Mann-Whitney test in SPSS 25 software.

Findings: The mean score of total clinical delivery skills in the simulation group was 37.2±2.3 and 33.3±1.9 in the video screening group. There was a significant difference between both groups regarding the total score, and the simulation group's score was significantly higher than that of the video screening group (p=0.0001). The covariance analysis showed that the clinical skills score level in both groups did not differ significantly concerning studied field variables.

Conclusion: Simulation training improves students' clinical skills in natural childbirth.

Keywords

Simulation Training [https://www.ncbi.nlm.nih.gov/mesh/2009667];
Delivery [https://www.ncbi.nlm.nih.gov/mesh/68036861];
Midwifery [https://www.ncbi.nlm.nih.gov/mesh/?term=Midwifery];
Student [https://www.ncbi.nlm.nih.gov/mesh/68013334];
Video-Audio Media [https://www.ncbi.nlm.nih.gov/mesh/68059040]

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Introduction

Clinical training is considered an integral part of midwifery training and lies at the heart of professional education due to its importance [1]. During this stage of education, pieces of training are practiced, skills are educated, and students can understand the realities. Midwifery training planners believe that students can develop their theoretical knowledge by working in a clinical environment and facing various problems and issues [2, 3].

Rapid decision-making and proper clinical performance are part of the required skills for the midwife. Accordingly, taking appropriate actions for care and treatment depends on the competence and performance of the midwife [4]. Thus, the quality of midwifery education may significantly affect the above skills, and effective training may improve the quality of midwifery services, and increase the efficiency and effectiveness of care and productivity in the healthcare medical system [5, 6]. Therefore, efforts to improve the quality of midwifery education may play a decisive role in community health and the quality of care [7]. Today training courses are taught traditionally and through lecturing by lecturers. Hence, educational techniques are used less in oral training, and the available information exceeds the learner's ability. Learners lack experience teaching in an active training environment and acquire skills by administering them to a real patient after passing theoretical courses [7, 8]. Therefore, it is necessary to use alternative training techniques so that the learner can personally acquire related knowledge and skills. Adapting training techniques based on personal learning may have the highest effect on their learning [9].

According to the above-mentioned issues, universities were encouraged to seek updated and efficient methods of teaching clinical skills to increase educational productivity [10]. Currently, simulation for training in medical sciences has become significantly popular [11]. However, there is little evidence to support the use of simulation in clinical learning compared to other methods [12]. To confirm the results of the present study, studies show that simulation is an acceptable educational method for training in different clinical situations [13]. Koukourikos *et al.* showed that most students and educators found it useful to use simulators for preparing students in the training environment. However, all participants believed that the simulator should not be used as an alternative to training time in clinical settings [14], given the importance of learning practical skills, especially in midwifery, and the contradictions about the effectiveness of training methods. To compare the effect of video screening with delivery by simulation on the learning of practical skills of midwifery students, researchers decided to conduct this study.

Materials and Methods

Design and sampling

This quasi-experimental study was performed on 40 undergraduate Iranshahr University of Medical Sciences students from October to February 2020. All 4th-semester midwifery students were selected by census sampling and were randomly divided into two educational groups; simulation and video screening. The inclusion criterion was passing the "Pregnancy and Childbirth" unit successfully, and the exclusion criterion was the absence of more than two sessions during the practical period.

Data collection

A two-part questionnaire was used for data collection. The first part of the questionnaire included the demographic characteristics of students. The second part included a review of the stages and manner of delivery by checklist, which was prepared according to the study's objectives, and a review of the latest sources and related papers. The student's skill performance in both groups was assessed at the end of the semester by a direct observation checklist, and the procedures performed by the students were given 0 to 2 (failed, incomplete, complete). The questionnaire contained 22 options in two sections related to the essential skills required before and during delivery to perform a normal delivery. Pre- and postnatal skills include performing a vaginal examination, identifying the location of the cervix, diagnosing the extent of the dilatation of the cervix, determining the extent of cervical effusion, determining the stages of delivery, giving the correct position for the delivery, performing Ritgen maneuvers, dealing with the nuchal cord, withdrawing the fetal head and shoulders, draining nasal and oral secretions, controlling the signs of placental abruption, and performing the Brandt-Andrews method. In total, there were ten prenatal skills and 12 specific skills during the delivery, which according to the maximum score of each item (i.e., 2), 44 is the highest overall score.

The Lawshe method was used to determine the validity of the content quantitatively. The relative content validity coefficient (CVR) and content validity index (CVI) were used to do this. Thus, the skills checklist was provided to ten midwifery instructors of the School of Nursing and Midwifery. To determine the CVR, they were asked to review each item based on a three-part range of "necessary", "useful but not necessary", and "not necessary". After determining the CVRs of each question, the CVI was determined by calculating the mean of validity coefficients of all questions. A total of ten specialist trainers were selected as "necessary" for all checklist items. The CVR was 1 for each item. CVI, equal to the mean of all values of validity coefficients, was considered 1. For its reliability, the agreement between the evaluators was used.

For this purpose, the clinical skills of 10 students in the Clinical Skills Center were evaluated. The Pearson correlation coefficient was 0.91 for the skills of the prenatal stage and 0.91 for the skills during delivery.

Implementation

After the approval of the University Research Council, the researchers started the intervention. At first, the researcher obtained the students' consent to participate in the study after explaining the study's objectives. Then a personal information questionnaire was provided to all students to complete. Students were randomly divided into two equal groups based on tossing the coin, simulation, and video screening (Figure 1).

Students in both groups had previously learned delivery and the skills needed in class. The relevant instructor prepared a scenario to perform the simulation training. The steps included explaining the simulation, preparing the training scene, and accurately performing the delivery training by the simulation method; Using simulation dummies, this group trained the delivery process in one session for 5 hours, and each performed a delivery alone at the end of the internship at the Skills Center under the supervision of an instructor. In the other group, in a 5-hour session, students watched the video of the birth process and wrote down the full description of what they had seen; Then, they practiced on the model under the supervision of the instructor, and in this group, each of the students performed a delivery alone under the supervision of the instructor.

At the end of the session, a checklist of performing delivery skills was provided to the research units of both groups; One week later, both groups practiced the skill again separately at the Clinical Skills Center. Then, the skill performance of the students in both groups at the end of the semester (the pregnancy and delivery training 2 unit) at the delivery ward of Iran Hospital in Iranshahr was measured by the same instructor.

Data analysis

Statistical analysis was performed using SPSS 25 software. Mean and standard deviations were calculated for quantitative data, and a Mann-Whitney test was used to compare the scores of both groups in clinical skills after the intervention. The confidence interval and significance levels were 95% and 0.05, respectively.

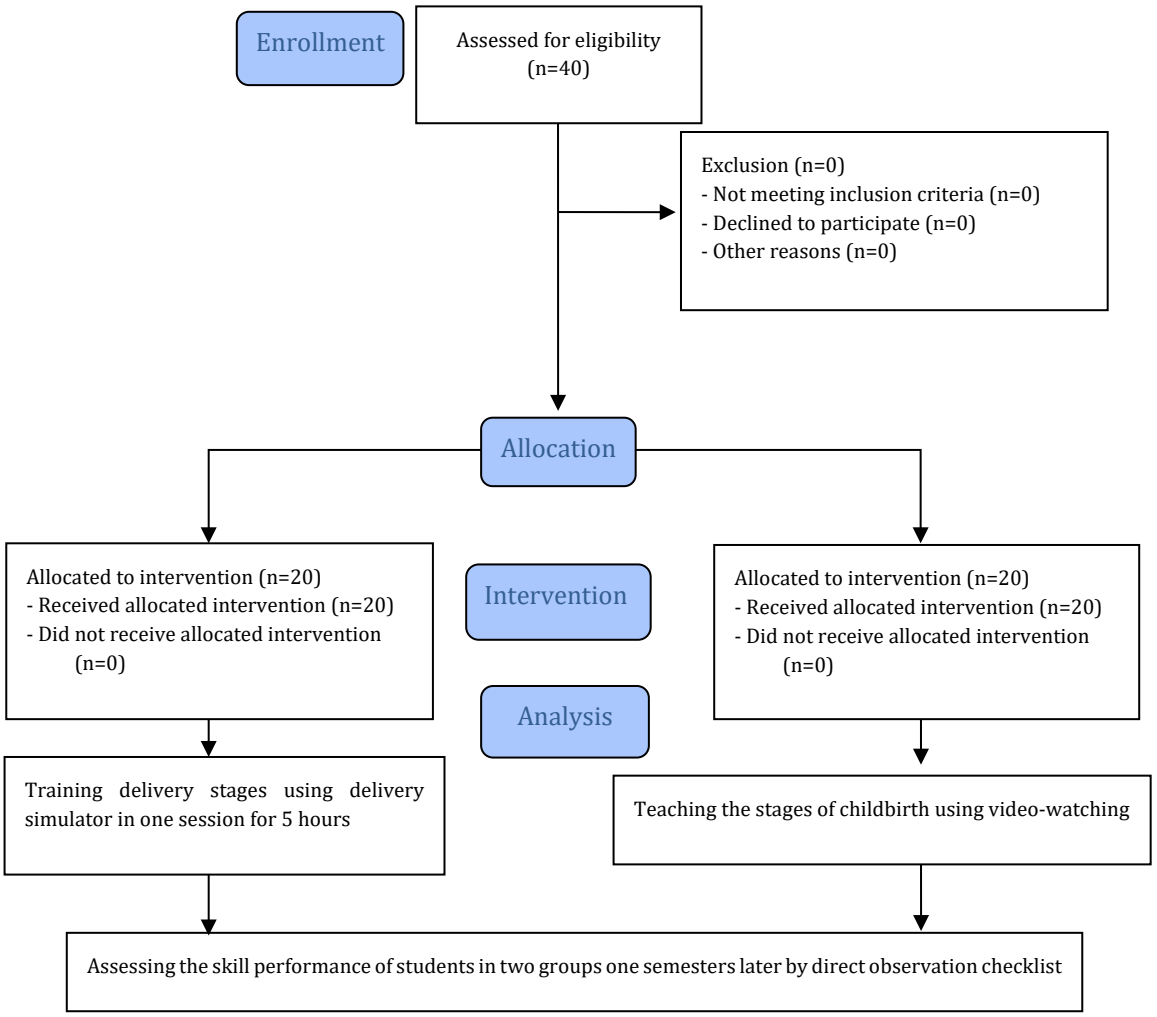

Figure 1. CONSORT Flow Diagram

Findings

The mean age of the research units was 21.1±1.3 (19 to 22) years. Most research units were dormitories. 95% of the simulation and 90% of the video screening groups were single. The student's GPA (grade point average) was 16.3±2.2 (14 to 18) points. Both groups had no significant difference regarding all demographics (Table 1).

Table 1. Comparison of contextual parameters between the two simulation and video screening groups

Parameter		Video screening	Simulation	p-Value
Age (Year)		21.2±1.1	21.0±1.8	0.521*
GPA (Point)		16.2±2.1	16.5±2.3	0.631*
Marital status	Single	18 (90.0)	19 (95.0)	0.553**
	Married	2 (10.0)	1 (5.0)	
Accommodation	Dormitory	16 (80)	15 (75.0)	0.556**
	Native	4 (20.0)	5 (25.0)	

*Independent T-test; **Fisher's exact test

The mean score of total clinical delivery skills in the simulation group was 37.2±2.3 and 33.3±1.9 in the video screening group. There was a significant difference between both groups regarding the total score, and the simulation group's score was significantly higher than that of the video screening group (p=0.0001; Table 2).

Table 2. Comparison (Mann-Whitney test) of the clinical skills mean scores between the two groups of simulation and video screening (all were significant at 0.0001; df=38)

Parameter	Video screening	Simulation	Total
Before childbirth	17.1±1.6	17.9±1.5	16.2±1.1
During childbirth	18.2±1.8	19.3±1.8	17.1±1.0
Total score	35.2±3.2	37.2±2.3	33.3±1.9

The covariance analysis showed that the clinical skills score level in both groups did not differ significantly concerning studied field variables.

Discussion

The results of the present study showed that simulation-based training increased the performance of midwifery students in managing postpartum delivery after training compared to watching videos. As a result, the final score in the simulation group was significantly higher than that of the video screening group. Students experienced childbirth through simulation, during which they achieved a learning goal providing an opportunity to stabilize skills. Simulation is widely used at undergraduate and graduate midwifery levels [15].

Consistent with the present study, the results of Lendahls showed that simulation training works better than lecturing on vital skills for managing eclampsia and magnesium sulfate poisoning, which are two life-threatening pregnancy emergencies [16]. Bello *et al.* showed that simulation training is more effective than lecture training in improving student performance. The results of these studies are consistent with the results of the present study. Traditional education preserves content rather than emphasizing understanding concepts and their application. In this method, only the recipient of the information is silent and inactive, while better, more effective, and sustainable learning is achieved through activation and more inclusive participation in learning [17].

Simulation is one of the active learning techniques, so the possibility of using different levels of simulation in learning, providing various learning opportunities, and simulating in the real world in clinical settings leads to deep and satisfying learning [18, 19]. On the other hand, the learning environment is very important in the simulation method, as the environments are usually silent and safe [20]. The study of Landals and Scarson, investigating midwifery students 'experiences in simulation and skills training, reported that training through simulation improves midwifery skills and facilitates students' learning ability [16]. Further, Svellingen *et al.* reported that the knowledge and skills of students trained in the simulation setting are higher [21]. In another study, students recommended that the study of skills performed in the laboratory and classroom before clinical practice be generally applicable to them, and models should be replaced with advanced and up-to-date models to have more skills [22, 23].

This study reflects only one group of students, and the results cannot be generalized. To confirm this, it is necessary to conduct multiple and comparative studies with different methods and between different disciplines. Another limitation of the study was the lack of control over the exchange of information between the intervention and control groups, which may have been partially out of control. The literature review shows that administering the simulation method in midwifery education benefits students and patients and can be used for professional training medical students on safer and timeous interventions under international recommendations. Thus, students' responsibility for clinical practice increases, and the overall quality of care improves.

Conclusion

Simulation is a valuable strategy for teaching, learning, and evaluating clinical skills at different levels of midwifery education.

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Ethical Permissions: This research has been registered at the university ethics committee (Code number: IR.IRSHUMS.1394.14). The data supporting this study's findings are available from the corresponding author upon reasonable request.

Conflicts of Interests: Nothing to declare.

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Researcher/Discussion Writer (15%); Safarzai E (Fourth Author), Introduction Writer/Discussion Writer (10%); Darban F (Fifth Author), Introduction Writer/Methodologist/Discussion Writer/Statistical Analyst (30%)

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References

1- Azimi N, Bagheri R, Mousavi P, Bakhshandeh BM, Honarjoo M. The study of clinical education problems and presenting solutions for improvement its quality in midwifery. Res Med Educ. 2017;8(4):43-51.

2- Eliason C. Assessing challenges of clinical education in a baccalaureate nursing program in Ghana. J Nurs Educ Pract. 2017;7(10):109.

3- Jokar F, Haghani F. Nursing clinical education, the challenges facing: A Review Article. Iran J Med Educ. 2011;10(5):1153-60.

4- Deane WH, Fain JA. Incorporating Peplau's theory of interpersonal relations to promote holistic communication between older adults and nursing students. J Holist Nurs. 2016;34(1):35-41.

5- Calik KY, Komurcu N. Effects of SP6 acupuncture point stimulation on labor pain and duration of labor. Iran Red Crescent Med J. 2014;16(10).

6- Bolbol-Haghighi N, Masoumi SZ, Kazemi F. Effect of continued support of midwifery students in labour on the childbirth and labour consequences: A randomized controlled clinical trial. J Clin Diagn Res. 2016;10(9):QC14-7.

7- Crofts JF, Bartlett C, Ellis D, Hunt LP, Fox R, Draycott TJ. Training for shoulder dystocia: a trial of simulation using low-fidelity and high-fidelity mannequins. Obstet Gynecol. 2006;108(6):1477-85.

8- Darban F, Nouhi E, Safarzai E, Sabzevari S. Effects of video assisted versus supervised group training on nursing, anaesthesiology, and operating room student's clinical skills: A pilot study. J Clin Diagn Res. 2019;13(5).

9- Goffman D, Heo H, Chazotte C, Merkatz IR, Bernstein PS. Using simulation training to improve shoulder dystocia documentation. Obstet Gynecol. 2008;112(6):1284-7.

10- Pakniat H, Movahed F, Dabagh T, Ghasemi Z. The effects of clinical skills training on medical trainees performances in gynecology ward of Qazvin university of medical sciences. Res Med Educ. 2012;4(1):9-16. [Persian]

11- Kim J, Park JH, Shin S. Effectiveness of simulation-based nursing education depending on fidelity: A meta-analysis. BMC Med Educ. 2016;16(1):152.

12- Dow A. Clinical simulation: a new approach to midwifery education. Br J Midwifery. 2008;16(2):94-8.

13- Waxman K, Bowler F, Forneris SG, Kardong-Edgren S, Rizzolo MA. Simulation as a nursing education disrupter. Nurs Adm Q. 2019;43(4):300-5.

14- Koukourikos K, Tsaloglidou A, Kourkouta L, Papathanasiou IV, Iliadis C, Fratzana A, et al. Simulation in clinical nursing education. Acta Inform Med. 2021;29(1):15-20.

15- Doolen J, Mariani B, Atz T, Horsley TL, O'Rourke J, McAfee K, et al. High-fidelity simulation in undergraduate nursing education: A review of simulation reviews. Clin Simul Nurs. 2016;12(7):290-302.

16- Lendahls L, Oscarsson MG. Midwifery students' experiences of simulation-and skills training. Nurse Educ Today. 2017;50:12-6.

17- Bello S, Ibi MB, Bukar IB. Effect of simulation techniques and lecture method on students' academic performance in mafoni day secondary school Maiduguri, Borno State, Nigeria. J Educ Pract. 2016;7(23):113-7.

18- Javaid A. The future of medical education: Meeting the global standards. Khyber Med Uni J. 2017;9(3):115-6.

19- Plackett R, Kassianos AP, Kambouri M, Kay N, Mylan S, Hopwood J, et al. Online patient simulation training to improve clinical reasoning: A feasibility randomised controlled trial. BMC Med Educ. 2020;20(1):1-10.

20- McCave EL, Aptaker D, Hartmann KD, Zucconi R. Promoting affirmative transgender health care practice within hospitals: An IPE standardized patient simulation for graduate health care learners. MedEdPORTAL. 2019;15:10861.

21- Svellingen AH, Forstrønen A, Assmus J, Røykenes K, Brattebø G. Simulation-based education and the effect of multiple simulation sessions-A randomised controlled study. Nurse Educ Today. 2021;106:105059.

22- Khattak AH. Solution-based learning: educating for solutions. Khyber Med Univ J. 2017;9(4):179-80.

23- Onder HE, Sari D. Simulation-based teaching is effective in developing peripheral intravenous catheterization skills. Int J Caring Sci. 2021;14(1):309.