Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi
Ordu University Journal of Nursing Studies

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

Araştırma Makalesi/ Research Article

The Effect of Birth Education Given to Midwifery Students Using Fully Equipped Birth Simulation on Satisfaction

Ebelik Öğrencilerine Tam Donanımlı Doğum Simülasyonu Kullanılarak Verilen Doğum Eğitiminin Memnuniyete Etkisi

Reyhan Aydın Doğan [1] Sebahat Hüseyinoğlu [1]

[1] Karabuk University Faculty of Health Sciences, Departments of Midwifery, Karabük, TÜRKİYE

Geliş tarihi/ Date of receipt: 18/03/2023 **Kabul tarihi/ Date of acceptance:** 28/10/2023
 Published online: 04/06/2024

ABSTRACT

Objective: This study aims to determine the effectiveness of birth education given to midwifery students by fully equipped birth simulation.

Methods: The study was implemented in two stages using mixed method. In the first stage, a simulation program was implemented with quantitative and standard patients using a high-quality model. In the second stage, simulation effectiveness was evaluated by conducting an analysis session using qualitative and semi-structured interview methods. SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis was conducted. The population of the research consisted of third-year students of the midwifery undergraduate program. No sample selection was made in the research; it was planned to reach the entire population (n=112), was conducted with 97 students. Personal information form, Student Satisfaction, Self-Confidence in Learning Scale, Simulation Design Scale and Educational Applications Survey were applied. Data were analyzed using descriptive statistics, linear regression, Pearson correlation.

Results: The total score of the Student Satisfaction and Self-Confidence Scale is 4.60, the Simulation Design Scale is 4.66, and the Educational Practices Scale is 4.70. In the linear regression analysis, the active learning sub-dimension was found to be significant (p=0.03). As the scores on both scales increase, the student's learning success also increases.

Conclusion: Findings showed that students' self-confidence and learning satisfaction were high. Students were satisfied with the simulation-based education and experienced that it contributed to their education. Simulations gave them the opportunity to make mistakes and learn from mistakes in a safe learning environment. Simulation in birth teaching can be used as a good teaching method.

Keywords: Birth simulation, midwifery, student satisfaction

ÖZ

Amaç: Bu çalışmanın amacı, ebelik öğrencilerine tam donanımlı doğum simülasyonu ile verilen doğum eğitimin etkinliğini belirlemektir.

Yöntem: Çalışma karma yöntem kullanılarak iki aşamada uygulanmıştır. Birinci aşamada, yüksek kaliteli bir model kullanılarak kantitatif ve standart hastalarla simülasyon programı uygulandı. İkinci aşamada nitel ve yarı yapılandırılmış görüşme yöntemleri ile bir analiz oturumu gerçekleştirilerek simülasyon etkililiği değerlendirilmiştir. SWOT (Güçlü Yönler, Zayıf Yönler, Fırsatlar ve Tehditler) analizi yapılmıştır. Araştırmanın evrenini ebelik lisans programı üçüncü sınıf öğrencileri oluşturmuştur. Araştırmada örneklem seçimi yapılmamış, evrenin tamamına (n=112) ulaşılması planlanmış ve 97 öğrenci ile yürütülmüştür. Araştırmada kişisel bilgi formu, Öğrenci Memnuniyeti, Öğrenmede Özgüven Ölçeği, Simülasyon Tasarım Ölçeği ve Eğitim Uygulamaları Anketi uygulanmıştır. Veriler, tanımlayıcı istatistikler, doğrusal regresyon ve Pearson korelasyonu kullanılarak analiz edilmiştir.

Bulgular: Öğrenci Memnuniyeti ve Özgüven Ölçeği toplam puanı 4.60, Simülasyon Tasarımı Ölçeği 4.66 ve Eğitim Uygulamaları Ölçeği 4.70'tir. n doğrusal regresyon analizinde aktif öğrenme alt boyutu anlamlı bulunmuştur (p=0,03). Her iki ölçekte de alınan puanlar yükseldikçe öğrencinin öğrenme başarısının da yükselmektedir.

Sonuç: Bulgularımız öğrencilerin özgüvenlerinin ve öğrenme doyumlarının yüksek olduğunu gösterdi. Öğrenciler simülasyona dayalı eğitimden memnun kaldılar ve eğitimlerine katkı sağladığını deneyimlediler. Simülasyonlar onlara güvenli bir öğrenme ortamında hata yapma ve hatalardan öğrenme fırsatı verdi. Doğum öğretiminde simülasyon, iyi bir öğretim yöntemi olarak kullanılabilir.

Anahtar Kelimeler: Doğum simülasyonu, ebelik, öğrenci memnuniyeti

ORCID IDs of the authors: RAD: 0000-0003-4950-3699; SH: 0000-0003-0146-5152
Sorumlu yazar/Corresponding author: Reyhan Aydin Dogan
Karabuk University Faculty of Health Sciences, Departments of Midwifery, Karabuk, TÜRKİYE
** This article is for ABANT held between 1 - 4 December 2022 Presented as an oral presentation at the 1st International Symposium on Contemporary Academic Studies.*
e-posta/e-mail: reyhanaydin@karabuk.edu.tr
Atıf/Citation: Doğan RA, Hüseyinoğlu S. (2024). The effect of birth education given to midwifery students using fully equipped birth simulation on satisfaction. Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi. 7(2), 503-513. DOI:10.38108/ouhcd.1267497

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

Introduction

Simulation-based education teaches a situation or phenomenon by imitating it in a safe learning environment. The purpose of simulation-based training is to simulate real-world situations using a customized model, computer software, or patients played by real people (Hegland et al., 2017). It contains specific scenarios, mimics certain diseases, is reproducible and, most importantly, provides a safe environment without the fear of harming anyone, making simulation-based education advantageous (Roberts et al., 2019). Today, simulation techniques have become a bridge between theory and practice and a teaching strategy for educators due to these advantages.

Simulation techniques in midwifery education are not a newly used practice. Basic skills have been used for centuries in obstetrics, gynecology, and newborns. The birth simulation model created by Madame du Coudrey in the 18th century with various bone and pelvis bones using straw, fabric, skin, filling, sponge, and real skeleton, which she called an obstetric machine, is the first known simulation model used in midwifery education (Gelbart, 1999). In simulated midwifery training, there are various approaches, such as using low, medium, and high-quality models that are fixed or interactive, including virtual or simulated patients (Stoodley et al., 2020). Applied simulations created using these approaches are one of the most common teaching methods integrated into traditional learning environments and are preferred. It is preferred in midwifery education, where at least 50% of its curriculum is clinical practice, because it enables students to practice many events and situations before going into practice, as well as the advantages of the simulation we mentioned earlier (ICM, 2021). In addition, the simulation offers the opportunity to experience many obstetrics, gynecology, and neonatal practices that students do not have the opportunity to experience in the clinic (Kumar et al., 2021). Although students graduating from the midwifery program are theoretically highly equipped, they are worried about being inadequate in gaining practice skills (Changuiti et al., 2022). Keeping student experiences at the forefront, allowing students to learn by doing, and supporting them with feedback, especially in simulation applications related to the management of labor before going to the clinic, increases students' self-confidence and contributes to the quality of education (Cooper et al., 2012; Dayal et al., 2009; Murray Davis et al., 2009; Ruyak et al., 2018; Stoodley et al., 2020).

Simulation-based education can significantly contribute to training confident midwives with high professional motivation and working in their own fields. In light of this information, our study aims to determine the effectiveness of obstetrics education given to midwifery students by fully equipped birth simulation.

Methods

Study design and participants

The research consists of two stages. In the first phase, which was designed as a descriptive, we implemented a simulation training program using a high-quality model. In the second phase, we evaluated the effectiveness of the simulation by obtaining feedback on the simulation training within the framework of SWOT analysis and conducting an analysis session. The study universe consisted of the 2020-2021 academic year, the midwifery undergraduate program at Karabük University, and all eligible participants (n = 112) who were third-year students. The study data were completed by applying for a simulation program between November and December 2021. Sample selection was not made in the study and it was planned to reach the whole universe. Fifteen students were excluded from the study because they were COVID-positive, had health status and did not want to participate, although they participated in the education. The study concluded with 97 students.

Implementation Phase of Birth Simulation

The primary purpose of the simulation program is to improve students' knowledge and skills, to enable them to gain experience without going to the clinic in special situations such as birth or postpartum and to gain practical health communication skills. Before the start of the simulation program, the students were divided into 16 groups of 6 (the last group was made up of seven people). The session of each group is configured as 2 hours. The first half hour of the application created the trainer's standard birth scenario with the high-validity simulation model. This scenario was made by the trainer and planned as 30 minutes. Then, each student was allowed to give birth, and deliver the placenta with a 6-minute application. Other students participated as an audience in each application. After all students' experiences were completed, a 30- to 60-minute analysis session was held. A single healthy and trouble-free delivery scenario was applied in training. Only one trainer participated in

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

the training and received simulation usage certificate training.

Data Collection Tools

The study's first stage data were collected using the personal information form created by the researchers, the Student Satisfaction and Self-Confidence Scale in Learning, the Simulation Design Scale, and the Education Practices Questionnaire. The data from the second stage of the research were collected with the following four open-ended questions.

1. What are the strengths of this simulation?
2. What are the weaknesses of this simulation?
3. What are the opportunities/possibilities of this simulation?
4. What are the threats/dangers of this simulation?

Personal Information Form: It was planned to apply a form consisting of 6 questions created by the researchers and including the characteristics of the participant's age, educational status and previous participation in childbirth.

Student Satisfaction and Self-Confidence Scale in Learning: The original scale was created by Jeffries and Rizzolo (2006) with 13 components; however, when translated into Turkish, only 12 things remained. The sub-titles "Satisfaction with Present Learning" and "Self-confidence in Learning" make up the 5-point Likert-type scale. There are no negative things under the subheadings of "self-confidence in learning," which has seven items and "satisfaction with current learning," which has five items. Self-confidence in Learning has a Cronbach alpha rating of 0.85 on the scale for "Satisfaction Connected to Present Learning." 0.89 compared to 0.77 for the entire scale. The overall score is not determined by adding the sub-dimensions of the scale. The sum of the sub-dimensions is divided by the total number of items to get scale scores. Student happiness and self-confidence in learning rise as the final score on the scale rises (Karaçay and Kaya, 2017). In our study, the Cronbach alpha value of the scale was found to be 0.93 for "Satisfaction with Current Learning," 0.89 for "Self-Confidence in Learning," and 0.94 for the total scale.

Simulation Design Scale: The scale was developed by Jeffries and Rizzolo (2006) to measure structures in simulation design. The adaptation, validity and reliability study of the scale into Turkish was conducted by Ünver et al. (Jeffries and Rizzolo, 2006; Unver et al., 2017). The scale has 20 elements and five subheadings, including "Objectives and Information," "Support," "Problem Solving," "Feedback/Guided Reflection," and "Originality Degree (Realism"). The subtitles "Goals and Knowledge," "Support," "Problem Solving," "Feedback/Guided Reflection," and "Authenticity Degree (Realism")" each have five elements, four for "Support," five for "Problem Solving," four for "Feedback/Guided Reflection," and two for "Authenticity Degree (Realism). The scale's subheadings' Cronbach Alpha values were discovered to be 0.77, 0.73, 0.76, 0.75 and 0.86. The scale's overall Cronbach Alpha score is 0.90. The scale is evaluated in 2 parts. The first part estimates whether the best simulation design elements can be applied in the simulation application. The second part considers the significance of simulation design elements for students. Responses are scored on a 5-point Likert scale. First part; The second part is "I strongly disagree with the statement 1" to "I strongly agree with the statement 5". It is evaluated between "1-not important and 5-very important". Scale scores are obtained by dividing the total and subscale scores by the number of items. Accordingly, the scores that can be obtained from the scale vary between 1-5. Higher scores indicate greater application of simulation design elements and greater importance of simulation design elements to students (Jeffries and Rizzolo, 2006; Unver et al., 2017). In our study, the Cronbach Alpha values of the subheadings of the scale are 0.88, 0.65, 0.75, 0.83, 0.65, respectively. The total Cronbach Alpha value of the scale was found to be 0.89.

Education Practices Questionnaire: The scale was developed by Jeffries and Rizzolo (2006) to measure structures in simulation design. The adaptation, validity and reliability study of the scale into Turkish was conducted by Ünver et al. (Jeffries and Rizzolo, 2006; Unver et al., 2017). The questionnaire consists of 16 items and four sub-dimensions: "Active learning," "Cooperation," "Different ways of learning," and "Upper expectations." "Active learning" consists of 10 items, "cooperation" consists of 2 items, "different ways of learning" consists of 2 items and "higher expectations" consists of 2 items. The questionnaire is applied in two parts. The Cronbach Alpha values of the sub-headings of the scale are 0.86, 0.61, 0.86 and 0.85, respectively. The total Cronbach Alpha value of the scale is 0.91. The scale is evaluated in 2

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

sections. The first part evaluates whether the best simulation design elements can be applied in the simulation application. The first part is evaluated as "strongly disagree with the statement," "disagree with the statement," "undecided," "agree with the statement," "strongly agree with the statement," and "inappropriate." The second part is evaluated as "not important," "partially important," "undecided," "important," or "very important." Scale scores are obtained by dividing the sum of total and sub-dimension scores by the number of items (Unver et al., 2017). In our study, the Cronbach Alpha values of the subheadings of the scale are 0.91, 0.65, 0.76, and 0.69, respectively. The total Cronbach Alpha value of the scale was found to be 0.93.

Data Collection

In the first stage, questionnaires were applied to the students through face-to-face interviews before proceeding to the analysis session after the birth simulation application. Then, the analysis session started. The data from the second stage were collected with the analysis session and the students were asked to answer four questions in which a SWOT analysis of the birth simulation was performed. The forms were collected by face-to-face interview method. Data were collected in the simulation laboratory, immediately after the simulation application was completed. A 30-to 60 minute solution session was held during the collection of surveys and SWOT analysis.

Data Analysis

SPSS software (version 20) was used for all statistical analyses (SPSS, Chicago, United States).

A descriptive analysis of the response frequency for each categorical element, mean and standard deviation (Mean± SD) were calculated for scale scores and continuous variables. Since the Skewness and Kurtosis values of the data remained within the +2.0/-2.0 limit range, it was seen that the data showed normal distribution (George, 2011). The independent variables affecting the Student Satisfaction and Self-Confidence Scale in Learning, a dependent variable, are explained by linear regression. The relationship between the dependent variable and independent variables was examined by Pearson correlation. Cronbach Alpha value was used for the scale reliability coefficient. The data obtained were evaluated at a 95% confidence interval and a significance level of $p<0.05$.

Ethics Considerations

This study's approval was obtained from the Karabuk University Non-Interventional Ethics Committee (Decision No: 2020/804). It was carried out following the criteria determined by the Helsinki Declaration and the European Union's Good Clinical Practice Standards. Participation in the study was voluntary; therefore, students were informed that they could withdraw from the study at any time. However, they had to complete the simulation program as part of the required midwifery degree assignments for the relevant courses they were enrolled in. Institutional permission was obtained for our study. In addition, an informed voluntary consent form and verbal consent were obtained from the students participating in the study.

Table 1. Personal and professional characteristics of students

Characteristic		Mean ±SD	Min-Max (Median)
Age		21.31±1.20	20-25 (21)
AGNO Score (Weighted Overall Average Score		3.01±0.44	1.70- 3.82 (3.10)
		n	**%**
High school	Anatolian High School	49	50.5
	Plain High School	31	32.0
	Science High School	17	17.5
Attending a birth before	Yes	6	6.2
	No	91	93.8
Status of previous birth monitoring	Yes	83	85.6
	No	14	14.4
Willingness to choose the midwifery profession	Yes	80	82.5
	No	17	17.5
Total		**97**	**100**

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

Results

It was observed that the mean age of 97 students participating in the study was 21.31±1.20 years, the mean Agno Score (Weighted General Average Score) was 3.01±0.44 points, and 50.5% of the students were Anatolian high school graduates. When the birth information of the students was examined, it was found that 6.2% gave birth, 85.6% followed the birth moment, and 82.5% voluntarily chose the midwifery profession (Table 1).

Students' Student Satisfaction and Self-Confidence on Learning Scale (SSSLS) score is 4.60, and the internal consistency of the scale is 0.94 for the total score, 0.93 for the satisfaction with the current learning sub-dimension; 0.89 for the self-confidence in learning sub-dimension (Cronbach's alpha). Simulation Design Scale and Education Practices Questionnaire scores were 4.66 and 4.70, respectively.

The mean significance scores of both items were above 4.60 (Table 2). Cronbach's alpha values for all independent variables were above 0.80 (simulation design features: 0.89 for the presence of items and 0.92 for their significance; training applications: 0.89 for the presence of items and 0.93 for their significance).

Table 2. Average score of students' responses to SDC and TPS (n= 97)

	Presence of Items		**Importance of Items**	
	Medium (N)	SD	Medium (N)	SD
Simulation Design Scale Total Score	4.66 (97)	0.32	4.72 (97)	0.33
Objectives and Knowledge	4.70 (97)	0.40	4.73(97)	0.45
Supporter	4.72 (97)	0.33	4.72 (97)	0.33
Problem Solving	4.60 (97)	0.45	4.60 (97)	0.45
Feedback /Guided Reflection	4.72 (97)	0.41	4.72 (97)	0.41
Degree of authenticity (Realism)	4.50 (97)	0.61	4.50 (97)	0.61
Training Practices Survey Total Score	4.70 (97)	0.33	4.72 (97)	0.36
Active Learning	4.73 (97)	0.35	4.74(97)	0.35
Collaboration	4.47 (97)	0.59	4.56 (97)	0.59
Different Ways to Learn	4.67 (97)	0.46	4.70 (97)	0.45
Parent Expectations	4.80 (97)	0.37	4.75 (97)	0.39

Independent variables (age, AGNO score, goal and knowledge, support, problem-solving, feedback /guided reflection, degree of fitness for the original (realism), active learning, cooperation, different ways of learning, upper expectations), which are the factors affecting the total score of the Students' Student Satisfaction and Self-Confidence Scale (SSSLS) in Learning, are explained by linear regression. The established model was found to be significant (F=2.62 p=0.00) and the independent variables affecting the total score of SSSLS explained 25.3% of the variance. The active learning sub-dimension with the model was found to be significant. It was observed that the one-unit change in the active learning sub-dimension had a 0.37-fold effect on the total score of the Student Satisfaction and Self-Confidence Scale in Learning (Table 3). No significant relationship was observed in other variables in the model.

Although there was no significant relationship in the total model with other independent variables, the relationship between dependent and independent variables was examined with Pearson correlation. As a result of the analysis, a significant relationship was observed between some variables at 0.05 and between some at 0.01 level (Table 4).

Second stage

In the second stage of the study, a SWOT analysis was performed on all students regarding the birth simulation they experienced. The study's strengths, weaknesses, opportunities and threats were asked, and the results were analyzed. SWOT analysis of the study was performed on 97 students with all participants. The themes that emerged from the analysis are given in Table 5.

Strengths of birth simulation

As a result of the analysis, the strengths of the birth simulation experience; motivating, learning aid, encouraging, knowledge strengthening, realistic, performing the vaginal examination and seeing the baby's external rotation.

The students gave answers to seven themes. In general, realism and learning aids were emphasized, especially for students who had not given birth. "I

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

experienced it as if I were seeing a real birth. It helped me learn .” (P5)

“It enabled me to gain experience. I experienced a real birth simulation. ” (P10).

Table 3. Linear regression: The relationship between independent variables and student satisfaction and self-confidence scale total score in learning

	B_0 (%95CI)	**B1**	**SD**	**Test Sta.**	**p**	**r^1**	**r^2**	**F**	**p**	**R^2**	**SD**
(Constant)	-0.68 (-4.05- 2.68)		1.69	-0.40	0.69						
Age	0.05 (-0.05- 0.15)	0.11	0.05	1.02	0.31	-0.07	0.11				
AGNO Score	0.11 (-0.19- 0.41)	0.09	0.15	0.75	0.45	0.21	0.08				
Objective and Information	0.25 (-0.13- 0.63)	0.18	0.19	1.33	0.19	0.39	0.14				
Supporter	-0.04 (-0.45- 0.38)	-0.02	0.21	-0.18	0.85	0.23	-0.02				
Problem Solving	-0.06 (-0.37- 0.26)	-0.05	0.16	-0.36	0.72	0.24	-0.04				
Feedback /Guided Reflection	-0.04 (-0.44- 0.36)	-0.03	0.20	-0.20	0.84	0.32	-0.02	2.62	0.00	25.3	0.51
Degree of authenticity (Realism)	0.1 (-0.12- 0.32)	0.11	0.11	0.87	0.39	0.26	0.09				
Active Learning	0.59 (0.05- 1.14)	0.37	0.27	2.16	**0.03**	0.45	0.23				
Collaboration	-0.03 (-0.23- 0.16)	-0.04	0.10	-0.33	0.74	0.13	-0.04				
Different Ways to Learn	-0.14 (-0.47- 0.2)	-0.11	0.17	-0.80	0.43	0.29	-0.09				
Parent Expectations	0.18 (-0.22- 0.57)	0.12	0.20	0.88	0.38	0.33	0.09				

B0: Non-standardized coefficient, B1: Standardized coefficient, r1: Simple correlation, r2: Partial correlation

“It enabled us to practice one-on-one and gain self-confidence. Since we are more students in the hospital, not all of us have the chance, but we have applied and learned one by one with this application. " (P16).

"Seeing it on the model encouraged us to give birth." (P29)

“We were able to watch every stage of birth. Our theoretical knowledge has become stronger. " (P41)

Weaknesses of birth simulation

As the weaknesses of the application, ten themes such as low realism, needing help during the application, technical disruption, repetition of the application, slow delivery, thickness of the Perineum region, not adjusting the baby's head rotation, not performing follow-ups such as Non Stress Test (NST) or not hearing its voice, having a single pregnancy birth, little pelvic bone and lack of amniotic fluid and uterus were created. The fact that most of the students watched birth revealed the realism of the model and the themes of technical problems.

"Since it is a model rather than a real patient, emotion transitions do not exactly occur." (P16).

“Sometimes, it was difficult for the baby to get out of the model. This caused technical disruption. " (P53)

“The placenta was too large for the baby.” (P22)

“Birth progressed slower than normal.” (P48)

"The baby's heartbeat was his weakness not to be heard." (P83)

“There was no uterus, no dice. It could have been amniotic fluid. ” (P93).

Opportunities for birth simulation

Students' answers in the opportunities of simulation; were very instructive in learning about birth, effective in learning midwifery diagnostics, better analyzing every stage of birth and providing an understanding of areas that are not seen in a normal pregnancy or that cannot be felt during the examination (such as cervix opening, vagina), comfortable learning opportunity and feeling the birth one-to-one collected on six themes.

“I was able to observe effacement and dilatation. I observed all fetal movements from the baby's engagement to the moment of birth and exit. ” (P95)

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

Table 4. Relationship between dependent and independent variables

	Variables (n=97))	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	AGNO Score	1														
2	Satisfaction and self-confidence in learning Total	.211*	1													
3	Satisfaction with current learning	0.171	.941**	1												
4	Self-Confidence in Learning	.224*	.970**	.831**	1											
5	Simulation Design Scale Total Score	.360**	.381**	.255*	.444**	1										
6	Goal and Information	.442**	.389**	.277**	.441**	.789**	1									
7	Supporter	.240*	.232*	0.145	.277**	.732**	.532**	1								
8	Problem Solving	0.156	.238*	0.132	.296**	.804**	.477**	.448**	1							
9	Feedback /Guided Reflection	.417**	.323**	.230*	.366**	.768**	.508**	.528**	.461**	1						
10	Degree of authenticity (Realism)	0.072	.259*	0.189	.290**	.697**	.399**	.391**	.528**	.477**	1					
11	Training Practices Survey Total Score	.337**	.423**	.323**	.463**	.678**	.557**	.444**	.503**	.657**	.391**	1				
12	Active Learning	.339**	.449**	.348**	.489**	.695**	.592**	.477**	.499**	.675**	.373**	.956**	1			
13	Collaboration	0.116	0.133	0.095	0.150	.250*	0.127	0.171	.262**	.234*	0.136	.596**	.415**	1		
14	Different Ways to Learn	.349**	.290**	.219*	.320**	.596**	.524**	.366**	.448**	.524**	.372**	.769**	.669**	.311**	1	
15	Parent Expectations	0.189	.327**	.245*	.361**	.423**	.332**	0.191	.263**	.484**	.355**	.720**	.617**	.301**	.599**	1

*Pearson was analyzed with cholera. * Significant at p<0.05 level, * * Significant at p<0.01 level.*

"Since I never gave birth, she allowed me to learn." (P78)

"It helped me to be more knowledgeable in the hospital." (P68)

"It increased my learning opportunity." (P74)

“We are studying in a province with a low number of births. This is why all of us cannot see birth during the internship. The birth simulation gave us this opportunity. " (P81)

It allowed me to learn and apply. We gave birth comfortably, which I had not done before. " (P84)

Threats or dangers of birth simulation

For the threats and dangers of the simulation, the student's answers were gathered on five themes: damage to the perineum, demanding the removal of the placenta, feeling of damaging the model, not seeing postpartum bleeding and not seeing any threat. Students generally responded that they did not see any threat or danger.

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

"I have not seen any threat or danger of simulation training." (P33)

Other responses are given in equal numbers and are usually gathered around the anxiety of damaging the simulation model.

"Since it is a simulation model, we may not notice it when we do a burn or harsh application and damage the model." (P91)

"There are deficiencies in the model about how we can respond to possible complications. In this case, it poses a danger for us to intervene in the complication. " (P95)

"Trying not to do anything wrong to the model posed a danger to me." (P17)

"I had a hard time removing the placenta because it was a model and I was afraid of damaging it." (P18)

Tablo 5: Summary of SWOT analysis statements

Main category		
	Strengths	**Weaknesses**
Teaching birth with high validity simulation	Motivator Helping to learn Encouraging Knowledge booster Realistic Performing the vaginal examination and seeing the external rotation of the baby Experience	Since it is a model, its realism is low. Needing help during the application Technical glitch Repetition of few applications Slow progression of labor Thickness of the perineum Lack of clear adjustment of the baby's head rotation Failure to monitor such as NST or to hear its voice. Having a single pregnancy birth Slight prominence of the pelvic bone Amniotic fluid, lack of items such as absence of uterus at maturity
	Opportunities	**Threats**
	Very instructive to learn about birth. Effective in learning midwifery diagnostics To ensure to analyze every stage of birth. Seeing aspects that I do not see or feel comfortable during the examination in a normal pregnant woman (such as cervical opening, vagina) Opportunity to learn comfortably. It made me feel the birth one-on-one.	Damage to the perineum Hard to remove the placenta. Feeling of damaging the model Failure to see postpartum bleeding. Opportunity to learn comfortably

Discussion

In our study conducted to determine the effectiveness of obstetrics education given to midwifery students with fully equipped birth simulation, it was determined that the students were confident and delighted with the activity. It was determined that the student's learning experience by actively participating in the activity was positively related to self-confidence and satisfaction in learning. It was concluded that active learning was meaningful in this respect (B0=0.59, p=0.03). Our findings on student satisfaction and self-confidence are consistent with the literature (Blanié et al., 2020; Gebreheat et al., 2022; Guerrero et al., 2022; Olaussen et al., 2020; Padilha et al., 2019; Powers, 2020; Ryan et al., 2022).

In simulation practice, student satisfaction is essential in increasing student participation. Increasing participation can enable students to learn and gain competence and ensure that the service and care they provide are high quality. However, it is accepted that only student satisfaction is insufficient to evaluate simulation experiences' overall impact (Levett-Jones et al., 2011). A practical simulation experience is possible with a well-designed simulation application. In our study, when the suitability of the simulation design features was evaluated, it was seen that a total of 4.50 ± 0.61

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

points were obtained from the "authenticity" sub-dimension of the scale. However, it was concluded that scores were relatively high from all other sub-dimensions of the scale. It shows that the simulation design elements are applied at a high rate and the students find the simulation design features quite suitable. Ayhan et al. (2019), in their study examining students' opinions and satisfaction/self-confidence levels in learning about simulation applications, reported that the highest score in the "Originality Degree" sub-dimension of the simulation design scale was 4.66 ± 0.56 (Ayhan et al., 2019).

Similarly, Ryan et al. (2022), in their study investigating the effectiveness of the virtual reality simulation they developed for use in midwifery education, stated that higher scores were obtained from the "Authenticity" sub-dimension, the highest score was obtained from the "Goals and Information" sub-dimension and the scores obtained from other sub-dimensions were relatively high (Ryan et al., 2022). In our study, the importance of simulation design was evaluated according to the student and it was determined that the highest scores were obtained from the sub-dimensions of "Goals and Information (4.73±0.45)", "Support (4.72± 0.33)", "Feedback/Guided Reflection (4.72±0.41)". All these findings show that theoretical knowledge can be transferred mainly to simulation practice and instructors can realistically simulate practices.

Yoo and Kim (2018), in their study where nursing students examined the factors affecting active learning and immersive experience during the simulation experience, reported that the authenticity of the simulation was an important factor affecting the student experience and that the level of difficulty of the support, feedback and simulation given during the application and the suitability of the participants to solve the problems on their own were essential factors for active learning and immersive experience (Yoo and Kim, 2018). Similar to the study of Yoo and Kim (2018), it was concluded that all dimensions of the simulation design scale were related to the "satisfaction and self-confidence in learning" and "educational practices questionnaire" and its sub-dimensions.

As confirmed in our study, it was found that students' judgments about simulation design elements significantly affected how they perceived learning outcomes. Therefore, simulation trainers should create a purposeful simulation to achieve the desired learning outcomes at the highest level.

In the SWOT analysis we conducted in the second stage of our study, a significant number of students stated that the themes of simulation to help learning, to be experienced close to reality and to reinforce knowledge were their strengths. " These answers given by the students emphasize the importance of creating the simulation design close to reality. Nevertheless, a significant number of the students stated that the realism of the birth simulation model was low, which was a weakness of the simulation. As stated in many studies, in our study, technical problems and the inability to perform some applications were perceived as weaknesses and threats (Karadag et al., 2015; Roh et al., 2021; Yoo and Kim, 2018).

Conclusion and Recommendations

In line with the results of our study conducted to determine the effectiveness of birth education given to midwifery students with fully equipped birth simulation, it was seen that students' self-confidence and learning satisfaction were relatively high, and they thought the design of the birth simulation applications was appropriate. In addition, our findings show that opportunities for transferring active learning and learning goals should be emphasized in developing and implementing simulation activities.

Active learning can increase student satisfaction from learning activities and self-confidence in managing simulated patient status. Educators should be particularly interested in providing opportunities for active participation in the learning process. While educators need to pay attention to all elements of simulation to develop a successful simulation experience, we believe that emphasizing active learning and goals can also significantly impact other elements of educational practices and simulation design. Prior to clinical practice, prioritizing student experiences in simulation applications related to the management of labor, allowing students to learn by doing and supporting them with feedback will increase students' self-confidence and contribute to the quality of education. In this context, it is recommended to conduct randomized controlled studies to determine the effect of simulation training on students' clinical competencies, knowledge, and abilities.

Limitations of the Research

The limitations of the study can be listed as the fact that the study was conducted from a single center, that all students were included in the study

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

without randomization, and that blinding could not be done.

Acknowledgments

Thank you for contributing to midwifery students who agreed to participate in our study.

Ethics Committee Approval: This study's approval was obtained from the Karabuk University Non-Interventional Ethics Committee (Decision No: 2020/804).

Peer-review: External referee evaluation.

Author Contributions: Consept: RAD, SH; Design: RAD, SH; Supervision: RAD, SH; Data Collection: RAD, SH; Data Processing: RAD, SH; Analysis and Interpretation: RAD; Literature Search: SH; Preparation of the manuscript RAD, SH; Critical Reviews: RAD, SH.

Conflict of interest: The authors declare that they have no conflict of interest.

Financial Disclosure: No financial support has been received for this research.

What did the study add to the literature?

- Birth teaching is of great importance in midwifery education.
- It is an innovative mixed method study in the field of midwifery and nursing.
- Learning about birth with fully equipped simulation strengthens midwifery education and minimizes professional mistakes.
- These data will likely contribute to the design of experimental studies.

References

Ayhan H, Çınar Fİ, Şahin SY, Demirtaş A, Özkan Y, Bakçek Ö, ve ark. (2019). Cerrahi ve iç hastalıkları hemşireliği eğitimi kapsamında yürütülen simülasyon uygulamalarına yönelik öğrenci görüşlerinin değerlendirilmesi. Sağlik Bilimleri Üniversitesi Hemşirelik Dergisi, 1(2), 66-75.

Blanié A, Amorim MA, Benhamou D. (2020). Comparative value of a simulation by gaming and a traditional teaching method to improve clinical reasoning skills necessary to detect patient deterioration: A randomized study in nursing students. BMC Medical Education, 20(1), 53. https://doi.org/10.1186/s12909-020-1939-6

Changuiti O, Ouassim A, Marfak A, Saad E, Hilali A, Youlyouz-Marfak I. (2022). Simulation pedagogical program design for midwifery education using logic model. The Journal for Nurse Practitioners, 18(6), 640–644. https://doi.org/10.1016/j.nurpra.2022.02.011

Cooper S, Cant R, Porter J, Bogossian F, McKenna L, Brady S, et al. (2012). Simulation based learning in midwifery education: A systematic review. Women and Birth, 25(2), 64–78. https://doi.org/10.1016/j.wombi.2011.03.004

Dayal AK, Fisher N, Magrane D, Goffman D, Bernstein PS, Katz NT. (2009). Simulation training improves medical students' learning experiences when performing real vaginal deliveries. Simulation in Healthcare, 4(3), 155. https://doi.org/10.1097/SIH.0b013e3181b3e4ab

Gebreheat G, Whitehorn LJ, Paterson RE. (2022). Effectiveness of digital simulation on student nurses' knowledge and confidence:an integrative literature review. Advances in Medical Education and Practice, 13, 765–775. https://doi.org/10.2147/AMEP.S366495

Gelbart NR. (1999). The king's midwife: A history and mystery of Madame du Coudray. Berkeley, Calif.: Univ. of California Press E-Books Collection. p. 4-10. Data of access: 31.12.2022 https://publishing.cdlib.org/cpressebooks/view?docId=ft1g5004dk&chunk.id=d0e33&toc.depth=1&toc.id=d0e33&brand=ucpress

George D, Mallery P. (2011). SPSS for windows step by step: A simple study guide and reference, 17.0 update, 10th edition, United States, Pearson Education Company. p. 100-112.

Guerrero JG, Ali SAA, Attallah DM. (2022). The acquired critical thinking skills, satisfaction, and self confidence of nursing students and staff nurses through high-fidelity simulation experience. Clinical Simulation in Nursing, 64, 24–30. https://doi.org/10.1016/j.ecns.2021.11.008

Hegland PA, Aarlie H, Strømme H, Jamtvedt G. (2017). Simulation-based training for nurses: Systematic review and meta-analysis. Nurse Education Today, 54, 6–20. https://doi.org/10.1016/j.nedt.2017.04.004

International Confederation of Midwives (ICM). (2021). ICM Global Standards for Midwifery Education (revised 2021). Date of access: 31.12.2022. https://internationalmidwives.org/assets/files/general-files/2021/09/global-standards-for-midwifery-education_2021_en.pdf.

Jeffries PR, Rizzolo MA. (2006). Designing and implementing models for the innovative use of simulation to teach nursing care of ill adults and children: A national, multi-site, multi-method study. New York, NY: National League for Nursing.

Karaçay P, Kaya H. (2017). Simülasyonla eğitimde kullanılan Öğrenci Memnuniyet ve Öğrenmede Kendine Güven Ölçeğinin Türkçe'ye uyarlanması. Florence Nightingale Hemşirelik Dergisi, 25(2), 95–103. https://doi.org/10.17672/fnhd.53359

Karadag M, Çalışkan N, Iseri O. (2015). Simüle hasta kullanımına ilişkin öğrenci görüşleri. Çağdaş Tıp Dergisi, 5(1), 36-44. https://doi.org/10.16899/ctd.83205

Ordu University J Nurs Stud
2024, 7(2), 503-513
DOI:10.38108/ouhcd.1267497

Kumar A, Khot N, Bansal U, Singh JV, Malhotra A. (2021). Lessons learnt from an obstetric and neonatal emergency simulation program in India. Journal of Neonatal Nursing, 27(2), 135–140. https://doi.org/10.1016/j.jnn.2020.07.004

Levett-Jones T, Mc Coy M, Lapkin S, Noble D, Hoffman K, Dempsey J, et al. (2011). The development and psychometric testing of the Satisfaction with Simulation Experience Scale. Nurse Education Today, 31(7), 705–710. https://doi.org/10.1016/j.nedt.2011.01.004

Murray Davis B, Soltani H, Wilkins H. (2009). Using a childbirth simulator in midwifery education. British Journal of Midwifery, 17(4), 234–237. https://doi.org/10.12968/bjom.2009.17.4.41673

Olaussen C, Heggdal K, Tvedt, CR. (2020). Elements in scenario-based simulation associated with nursing students' self-confidence and satisfaction: A cross-sectional study. Nursing Open, 7(1), 170–179. https://doi.org/10.1002/nop2.375

Padilha JM, Machado PP, Ribeiro A, Ramos J, Costa, P. (2019). Clinical virtual simulation in nursing education: randomized controlled trial. Journal of Medical Internet Research, 21(3), e11529. https://doi.org/10.2196/11529

Powers K. (2020). Bringing simulation to the classroom using an unfolding video patient scenario: A quasi-experimental study to examine student satisfaction, self-confidence, and perceptions of simulation design. Nurse Education Today, 86, 104324. https://doi.org/10.1016/j.nedt.2019.104324

Roberts E, Kaak V, Rolley J. (2019). Simulation to replace clinical hours in nursing: a meta-narrative review. Clinical Simulation in Nursing, 37, 5–13. https://doi.org/10.1016/j.ecns.2019.07.003

Roh YS, Jang KI, Issenberg SB. (2021). Nursing students' perceptions of simulation design features and learning outcomes: The mediating effect of psychological safety. Collegian, 28(2), 184–189. https://doi.org/10.1016/j.colegn.2020.06.007

Ruyak SL, Migliaccio L, Levi A, Patel S. (2018). Role development in midwifery education: A place for simulation. Midwifery, 59, 141–143. https://doi.org/10.1016/j.midw.2018.01.021

Ryan G, Callaghan S, Rafferty A, Murphy J, Higgins M, Barry T, et al. (2022). Virtual reality in midwifery education: A mixed methods study to assess learning and understanding. Nurse Education Today, 119, 105573. https://doi.org/10.1016/j.nedt.2022.105573

Stoodley C, McKellar L, Steen M, Fleet J. (2020). Simulation in midwifery education: A descriptive explorative study exploring students' knowledge, confidence and skills in the care of the preterm neonate. Nurse Education in Practice, 42, 102635. https://doi.org/10.1016/j.nepr.2019.102635

Unver V, Basak T, Watts P, Gaioso V, Moss J, Tastan, S, et al. (2017). The reliability and validity of three questionnaires: The student satisfaction and self-confidence in learning scale, simulation design scale, and educational practices questionnaire. Contemporary Nurse, 53(1), 60-74. https://doi.org/10.1080/10376178.2017.1282319

Yoo JH, Kim YJ. (2018). Factors Influencing Nursing Students' Flow Experience during Simulation-Based Learning. Clinical Simulation in Nursing, 24, 1-8. https://doi.org/10.1016/j.ecns.2018.09.001