ORİJİNAL MAKALE / ORIGINAL ARTICLE

Balıkesir Sağlık Bilimleri Dergisi / BAUN Sağ Bil Derg
Balıkesir Health Sciences Journal / BAUN Health Sci J
ISSN: 2146-9601- e ISSN: 2147-2238
Doi: https://doi.org/10.53424/balikesirsbd.1145941

Evaluation of the Effectiveness of Episiotomy Repair Training with Calf Tongue Simulator for Midwifery Students

Hülya TÜRKMEN[1], Sibel KARACA SİVRİKAYA[2]

[1] Balıkesir University, Faculty of Health Sciences, Department of Midwifery
[2] Balıkesir University, Faculty of Health Sciences, Department of Nursing

Geliş Tarihi / Received: *20.07.2022,* ***Kabul Tarihi / Accepted:*** *07.02.2023*

ABSTRACT

Aim: To determine whether the use of calf tongue simulator in episiotomy repair increases the knowledge and skill level of the students. **Materials and Methods:** The study in the form of a single-group "pretest-posttest" pretrial was carried out in April 2019 with students of midwifery (n=66). During episiotomy repair simulation training, suture techniques (simple suturing, locking loop suturing and vertical matrix) were shown by using calf tongue simulators. The data were collected by using a personal information form, while the Episiotomy Knowledge Levels Assessment Form and Episiotomy Repair Skill Levels Assessment Form were used for the pretest and posttest. **Results:** As a result of the simulation training, increases were observed in episiotomy knowledge and repair skill levels in comparison to the pre-training period ($p<0.05$). **Conclusion:** As a result of the study, it was determined that episiotomy repair training given to students with a calf tongue simulator achieved increases in their knowledge and skill levels in comparison to pre-test result. Simulator examples that can be used for episiomy repair can be added to the midwifery education curriculum.
Keywords: Episiotomy, Calf Tongue Simulator, Simulation, Midwifery Students, Skills.

Ebelik Öğrencilerine Verilen Dana Dili Simülatörü ile Epizyotomi Onarımı Eğitiminin Etkinliğinin Değerlendirilmesi

ÖZ

Amaç: Epizyotomi tamirinde dana dili simülatörü kullanımının öğrencilerin bilgi ve beceri düzeyini arttırıp arttırmadığını belirlemektir. **Gereç ve Yöntem:** Tek grup "öntest-sontest" deneme öncesi modeli tipindeki araştırma Nisan 2019 tarihinde ebelik öğrencileri ile gerçekleştirilmiştir (n=66). Epizyotomi tamiri simülasyon eğitiminde dana dili simülatörü kullanılarak sütür teknikleri gösterilmiştir. Verilerin toplanmasında kişisel bilgi formu, ön test ve son test için Epizyotomi Bilgi Düzeyini Değerlendirme Formu ve Epizyotomi Tamiri Beceri Düzeyini Değerlendirme Formu kullanılmıştır. **Bulgular:** Simülasyon eğitimi sonrasında eğitim öncesine göre epizyotomi bilgi düzeyi ve epizyotomi tamiri beceri düzeylerinde artış olduğu saptanmıştır ($p<0.05$). **Sonuç:** Çalışma sonucunda ön-test sonucuna göre öğrencilere danadili simülatörü ile verilen epizyotomi tamiri eğitiminin öğrencilerin bilgi ve beceri düzeyinde artış sağladığı belirlenmiştir. Ebelik eğitim müfredatına epizyotomi onarımı için kullanılabilecek simülatör örnekleri eklenebilir.

Anahtar Kelimeler: Epizyotomi, Dana Dili Simülatörü, Simülasyon, Ebelik Öğrencileri, Beceri.

Sorumlu Yazar / Corresponding Author: Hülya TÜRKMEN, Balikesir University, Faculty of Health Sciences, Department of Midwifery, Balikesir, Turkey.
E-mail: hulyayurter@hotmail.com

Bu makaleye atıf yapmak için / Cite this article: Turkmen, H., & Sivrikaya, S. K. (2023). Evaluation of the effectiveness of episiotomy repair training with calf tongue simulator for midwifery students. *BAUN Health Sci J, 12*(3), 461-472. https://doi.org/10.53424/balikesirsbd.1145941

INTRODUCTION

Episiotomy is to make a controlled incision in the perineum to enlarge the opening of the vagina during childbirth to reduce the incidence of third and fourth degree perineal tears. Ideally, an episiotomy would relieve pressure on the perineum resulting in an easily repairable incision when compared to uncontrolled perineal tears. The different types of episiotomy incisions include lateral, the modified-median, the midline, the mediolateral, J-shaped, anterior, and radical. Episiotomy repair can be applied as simple suturing, locking loop suturing and vertical matrix. (Barjon & Mahdy, 2022; Woretaw et al., 2021; Besen & Rathfisch, 2020; Besen & Ratfisch, 2019). Episiotomy is one of between 12% and 86% conducted surgical operations in the world among women (Besen & Rathfisch, 2020; Friedman, Ananth, Prendergast, D'Alton, & Wright, 2015; Trinh, Roberts, & Ampt, 2015; Silf et al., 2015; Franscisco et al., 2014). In cases where episiotomy is not practiced, serious perineal lacerations including the anal sphincter are some of the significant complications of vaginal birth. The incidence of serious perineal lacerations varies between 1.2% and 6% (Knobel, Volpato, Gervasi, Viergutz, & Júnior, 2018). In order to prevent such lacerations, episiotomy may be performed in cases where the perineum is stretched at the 2nd stage of delivery. As an episiotomy incision is a more regular cut, it can be repaired more easily than advanced lacerations, and this way, the sutured area is recovered more easily. In some countries, episiotomy may be applied routinely in all deliveries. However, the World Health Organization (WHO) recommends conducting selective episiotomy to prevent perineal lacerations in necessary cases in women who are giving spontaneous vaginal birth and for avoiding routine episiotomy operations. The WHO recommends an episiotomy rate of 10% for all normal deliveries. (WHO a, 2018; Junior & Júnior, 2016). Although there are uncertainties regarding the rate of episiotomy, the rate of episiotomy is reported to be 46% in low- and middle-income countries. Episiotomy rates by country are as follows; 100% in Taiwan, 100% in Guatemala, 98% in Pakistan, 75% in Cyprus, 63.3% in South Africa, 19.9% in France, 9.7% in Sweden, 3.7% in Denmark (Woretaw et al., 2021; Blondel et al., 2016). In our country, the rate of episiotomy is reported to be between 64% and 88% (Karaahmet & Yazıcı, 2017).

In episiotomy or laceration repairs, midwives need to have suturing skills. Effective teaching of obstetric surgery skills is vital for the training of midwives (Şen Aytekin et al., 2022; Besen & Rathfisch, 2020). Due to increased numbers of students in the field of midwifery, relatively lower numbers of educators and increased prevalence of malpractice lawsuits in the field of obstetrics, student practices cannot be sufficiently included in internship programs, and the skills of students are prevented from developing adequately (Koçak et al., 2017). Simulation is defined as "an interactive and occasionally immersive training technique that provides learning without subjecting someone to risks related to all or a part of clinical experiences" (Çalım & Öztürk, 2018; Terzioğlu et al., 2012). WHO recommends usage of simulation methods in midwifery training to increase students' knowledge, technical skills, motivation, satisfaction, self-esteem, patient safety, leadership, efficiency and productivity (WHO, 2009; WHO b, 2018). A previous study reported that nursing students are not able to sufficiently apply their theoretical knowledge and do not consider themselves adequate in terms of their clinical skills (Kapucu & Bulut, 2011). Therefore, training that is provided with simulators or inanimate models may improve obstetric surgery skills and performance of students by providing them with an interactive learning environment in the laboratory (Banks et al., 2006). Moreover, simulation-based training may direct students towards active participation in clinical practices by increasing their self-esteem (Lathrop, Winningham, & VandeVusse, 2007; Kordi et al., 2015; Nghitanwa, Endjala, & Hatupopi, 2019).

The model that is to be used in episiotomy repair training should ideally closely resemble human skin. The life-like nature of a simulation model allows better adaptation of the participants of the training, increasing their skills, achievement of a learning environment with less stress and more control and development of suturing skills before physical contact with patients (Çalım & Öztürk, 2018). Some training programs that achieved high levels of reality have developed virtual reality suturing simulators with advanced technology. However, most programs do not have the resources to provide these detailed instruments. To our knowledge, there are very few studies in the literature on episiotomy repair training with a calf tongue simulator. In these two studies, the students were not trained on different suture techniques in the repair of episiotomy on the calf tongue (Eston et al., 2020; Guler et al., 2018). However, in this study, students were given training on different suture techniques and the knowledge and skill levels of the midwifery students after the training were evaluated. The purpose of this study is to determine whether or not using a calf tongue simulator in episiotomy repair training increases the knowledge and skill levels of students.

MATERIALS AND METHODS

Design and location

The study was carried out as a single-group pretrial with "pretest and posttest" in April 2019 in the midwifery department of a state university in Turkey.

Sample

Second year students of the Department of Midwifery at the aforementioned university were included in the sample of the study. Two students who were absent on the day of data collection were not included in the

study. Sixty six students who agreed to participate in the study and filled out voluntary consent forms were included.

Data collection method and process

The data were collected by using a personal information form about the sociodemographic characteristics of the participants, as well as the Episiotomy Knowledge Levels Assessment Form and Episiotomy Repair Skill Levels Assessment Form. Students are included in the training program.

Assessment tools

Personal Information Form: The personal information which was developed by the researchers consisted of a total of 6 questions.

Episiotomy Knowledge Levels Assessment Form: The form that was developed by the researchers for the purpose of assessing the knowledge levels of students on episiotomy consisted of a total of 10 questions. The questionnaire form contained questions on what episiotomy is, on which muscle it is applied, whether or not it should be practiced routinely, types of episiotomy, recovery time and suturing materials (Guler et al., 2018; Karaahmet & Yazıcı, 2017; Illston, Ballard, Ellington, & Richter, 2017). The answers given by the participants to these questions were analyzed by the researchers as "adequate" or "inadequate". Adequate answers to the episiotomy knowledge questions were scored "1" and inadequate or unanswered questions were scored "0".

Episiotomy Repair Skill Levels Assessment Form: The form that was developed by the researchers in line with the literature for the purpose of assessing the skill levels of students on episiotomy consisted of a total of 10 statements (Guler et al., 2018; Illston, Ballard, Ellington, & Richter, 2017; Karaahmet & Yazıcı, 2017; Tokuhara, Boldt, & Yamamoto, 2004). The skill list on performing the episiotomy steps was developed-(Table 2). The form includes skills such as using a needle holder, simple suturing, locking loop suturing and vertical matrix suturing techniques. The levels of the participants in applying these techniques were analyzed by the researchers as "adequate" or "inadequate". Adequate application to the Episiotomy Repair Skill questions were scored "1" and inadequate or unanswered questions were scored "0".

Episiotomy and Episiotomy Repair Training Program: Three weeks before the training by author/authors, the participants were given theoretical information (face-to-face didactic lectures) about episiotomy and repairing episiotomy for 2 hours. The theoretical information was provided in the form of a slide show. Before starting the training program, the participants were given the Personal Information Form, Episiotomy Knowledge Levels Assessment Form and Episiotomy Repair Skill Levels Assessment Form. A calf tongue simulator was used for the program as it was the closes to human tissue (Eston et al., 2020; Guler et al., 2018). The materials were provided by the researchers. A calf tongue was fixed on a tray to prevent it from slipping, and a biconvex incision of 5 cm was applied on the model (Figure 1). After the incision, the model in the form of the vaginal wall, facia tissue and skin resembled an episiotomy (Guler et al., 2018; Illston, Ballard, Ellington, & Richter, 2017; Tokuhara, Boldt, & Yamamoto, 2004). Each student had one calf tongue simulator to work on. Since the calf tongue is too big, it was not given to the students as a whole. One calf tongue was divided into three equal parts. Information on episiotomy was provided in the training, and episiotomy suturing techniques were taught by demonstration. The students were shown the simple suturing, locking loop suturing and vertical matrix suturing techniques and given training about suturing materials, by following the skill list. The students were included in the training program one by one. The training was provided by the researchers who are midwives. The training process lasted for a total of 15 minutes per student. After the training, in line with the observations of the researchers, the students were ensured to practice on the calf tongue simulator for 2 hours. Since the researchers made observations, the students were not affected by each other. Later on, the students were tested with the Episiotomy Knowledge Levels Assessment Form and Episiotomy Repair Skill Levels Assessment Form again. The questions in these forms were asked to the students by the researchers. The skills in the forms were asked to be applied by the students and observed by the researchers. Filling out the forms took 15 minutes per student.

Data analysis

The data were analyzed using the SPSS 20.0 program. The analysis utilized means, standard deviations, minimum, maximum, frequencies and percentages. The Kolmogorov–Smirnov test was used to assess the normal distribution of data. Paired Sample T Test was used to determine the difference between the pretest and posttest scores of the participants' knowledge and skill levels.

Ethical considerations

For the study to be carried out, approval was received from the Clinical Research Ethics Committee of the Faculty of University (Date: 2019, Number: 2019/79) and the Faculty of Health Sciences (Number:04/04/2019-E17021). The students who agreed to participate in the study were informed about the objective of the study, explained that their personal information would be kept confidential, ensured that they were free to leave the study whenever they wanted, and their written consent was obtained by a Voluntary Information Form.

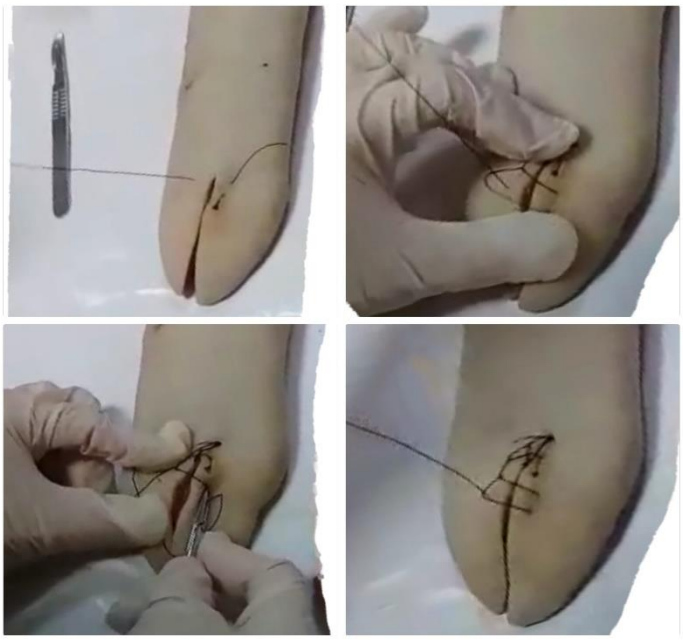

Figure 1. Calf Tongue Simulators
(Figure 1 was taken during the application. The suture in Figure 1 was performed by the researcher. Tweezers were not used to hold the tissue due to the hand habit of the researcher.)

RESULTS

The mean age of the participants was 20.30±2.23. In the study, 33.3% of the participants had degrees from vocational high schools of health, and 80.3% preferred the department willingly. In this study, 21.2% had previous experience in suturing, and among those who had this experience, 31.2% experienced episiotomy suturing (Table 1).

Table 2 shows the episiotomy knowledge and skill levels of the participants before and after the training program. After the training, the knowledge and skill levels of the students increased in comparison to their pre-training levels ($p<0.05$) (Figure 2, Figure 3).

Table 1. Distribution of the participants based on their descriptive characteristics (n=66).

Variables	**Mean±SD**	**Min-Max**
Age (Mean±SD)	20.30±2.23 (Min.18, Max.36)	
	n	**%**
Graduates of vocational high schools of health		
Yes	22	33.3
No	44	66.7
Selected the department willingly		
Yes	53	80.3
No	13	19.7
Reason for selecting the department (those unwilling)		
No responsive	1	7.7
Wishes of family	8	61.5
Abundant job opportunities	1	7.7
Placement test score was sufficient for the department	3	23.1
Previous experience in suturing		
Yes	14	21.2
No	52	78.8
Nature of previous suturing experience*		
Episiotomy suture	5	31.2
Suture on real tissue	8	50
Suture on model	3	18.8

* Multiple answers given (Fourteen students with previous experience in suturing).

Table 2. Episiotomy knowledge and skill levels of the participants before and after the training (n=66).

Episiotomy knowledge levels	**Before training Mean±SD**	**After training Mean±SD**	**t**	**p***
What is episiotomy?	0.98±0.12	1.00±0.00	1.000	0.321
On which muscle is episiotomy applied?	0.91±0.28	0.96±0.17	2.048	**0.045**
Should episiotomy be practiced routinely?	0.68±0.46	0.93±0.24	4.138	**<0.001**
Lateral episiotomy	0.75±0.43	1.00±0.00	4.561	**<0.001**
Mediolateral episiotomy	0.86±0.34	1.00±0.00	3.204	**0.002**
Median episiotomy	0.84±0.36	1.00±0.00	3.407	**0.001**
Type of episiotomy with the easiest wound recovery	0.43±0.50	0.91±0.28	6.805	**<0.001**
Type of episiotomy with the most complications	0.72±0.44	0.98±0.12	4.749	**<0.001**
Average recovery time for episiotomy	0.57±0.49	0.98±0.12	6.708	**<0.001**
Sutures most frequently used for episiotomy	0.71±0.45	0.93±0.24	3.549	**0.001**
Episiotomy repair skill levels				
Using a needle holder (portegue)	0.68±0.46	1.00±0.00	5.508	**<0.001**
Holding the suturing needle with a holder (portegue) from the right location	0.42±0.49	1.00±0.00	9.392	**<0.001**
Making the first loop suture correctly	0.01±0.12	0.96±0.17	36.946	**<0.001**
Making locking loop sutures	0.03±0.17	0.92±0.26	23.406	**<0.001**
Making the last loop suture correctly	0.04±0.20	0.80±0.40	14.252	**<0.001**
Simple suturing	0.22±0.42	0.96±0.21	13.166	**<0.001**
Vertical matrix suturing	0.00±0.00	0.84±0.36	19.079	**<0.001**
Cutting the suture to the correct length	0.30±0.46	0.91±0.28	10.000	**<0.001**
Applying the correct distance between two sutures	0.10±0.31	0.92±0.26	15.588	**<0.001**
Uniform connection of the ends of the wound after suturing	0.53±0.50	1.00±0.00	7.588	**<0.001**

*Paired samples t test.

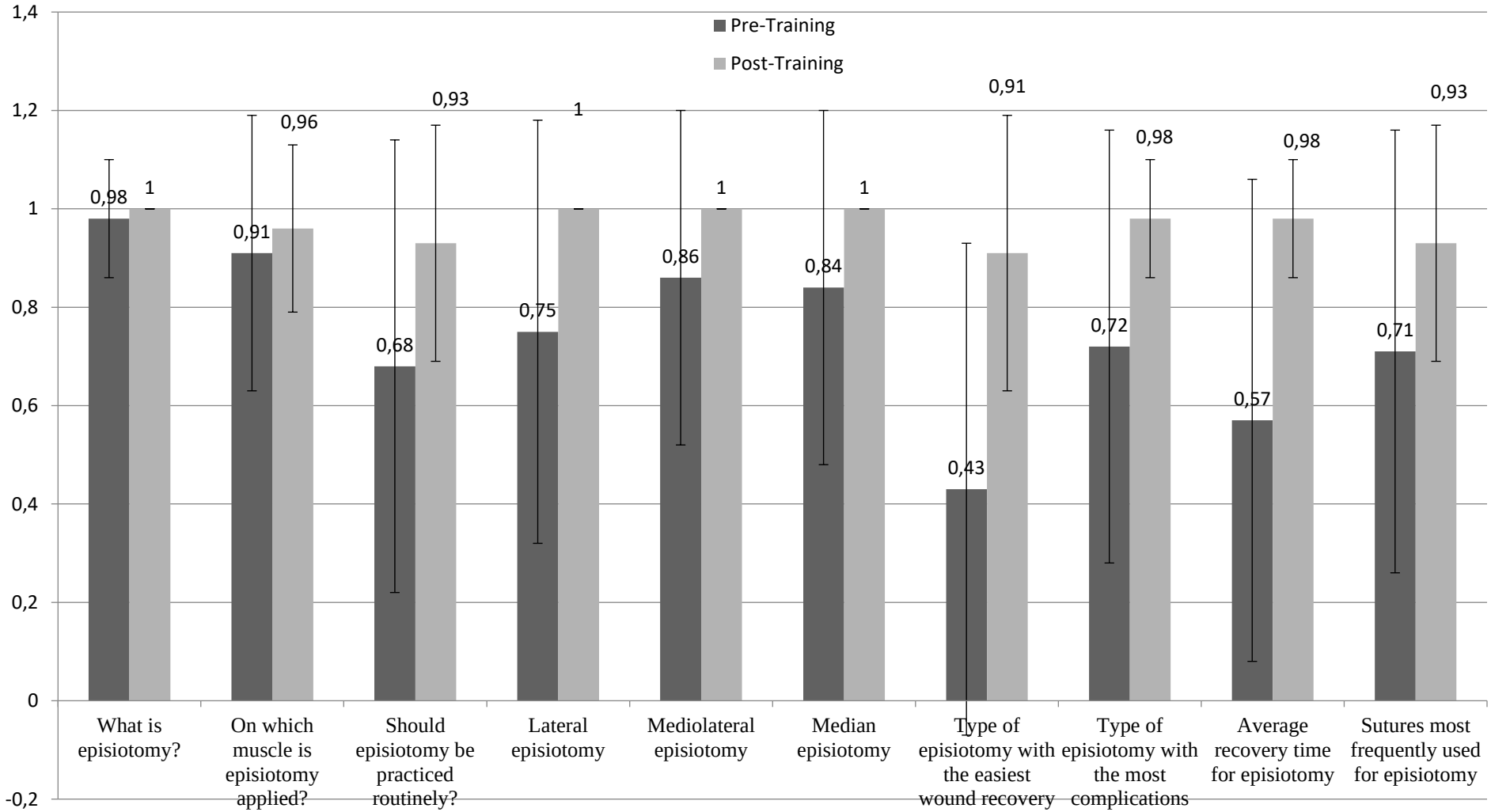

Figure 2. Knowledge levels of the participants in episiotomy repair.

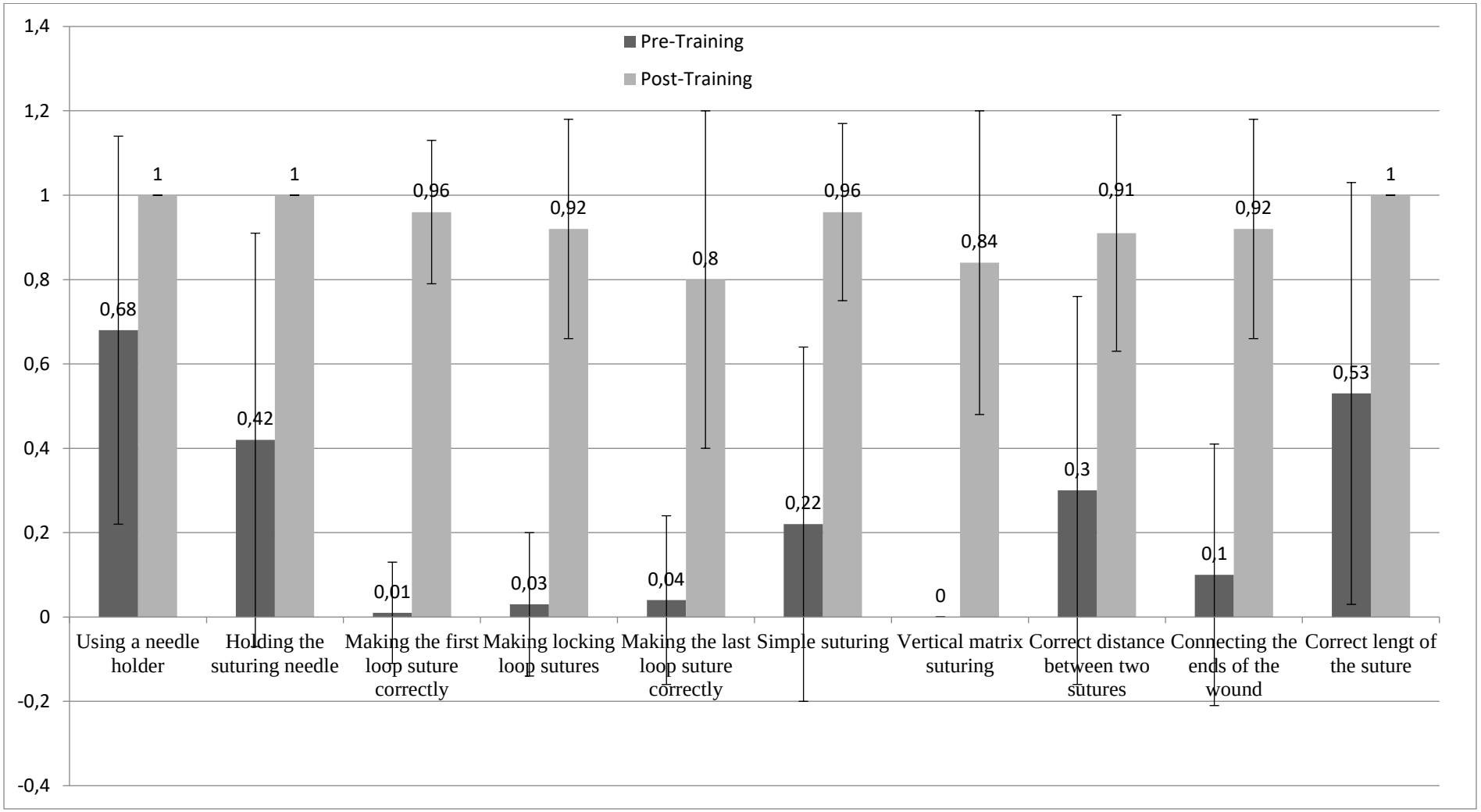

Figure 3. Skill levels of the participants in episiotomy repair (locking loop sutures).

Table 3. Episiotomy knowledge and skill levels of midwifery students with and without health vocational schools graduates before and after education.

Episiotomy knowledge levels	Graduates of Vocational High Schools of Health	Before Training Mean±SD	After Training Mean±SD	t	p**
What is episiotomy?	Yes (22)	1.04±0.21	1.00±0.00	1.000	0.329
	No (44)***	1.00±0.00	1.00±0.00		
On which muscle is episiotomy applied?	Yes (22)	1.04±0.21	1.00±0.00	1.000	0.329
	No (44)	1.11±0.32	1.04±0.21	1.774	0.033
Should episiotomy be practiced routinely?	Yes (22)	1.50±0.51*	1.04±0.21	4.183	**<0.001**
	No (44)	1.22±0.42*	1.06±0.25	2.201	**<0.001**
Lateral episiotomy	Yes (22)	1.13±0.35	1.00±0.00	1.821	0.083
	No (44)	1.29±0.46	1.00±0.00	4.246	**<0.001**
Mediolateral episiotomy	Yes (22)***	1.00±0.00*	1.00±0.00		
	No (44)	1.20±0.40*	1.00±0.00	3.325	**0.002**
Median episiotomy	Yes (22)	1.09±0.29	1.00±0.00	1.449	0.162
	No (44)	1.18±0.39	1.00±0.00	3.091	**0.003**
Type of episiotomy with the easiest wound recovery	Yes (22)	1.54±0.51	1.04±0.21	4.583	**<0.001**
	No (44)	1.56±0.51	1.11±0.32	5.120	**<0.001**
Type of episiotomy with the most complications	Yes (22)	1.36±0.49	1.00±0.00	3.464	**0.002**
	No (44)	1.22±0.42	1.02±0.15	3.325	**0.002**
Average recovery time for episiotomy	Yes (22)	1.36±0.49	1.00±0.00	3.464	**0.002**
	No (44)	1.45±0.51	1.02±0.15	5.717	**<0.001**
Sutures most frequently used for episiotomy	Yes (22)	1.31±0.47	1.00±0.00	3.130	**0.005**
	No (44)	1.27±0.45	1.09±0.29	2.233	**0.031**
Episiotomy repair skill levels					
Using a needle holder (portegue)	Yes (22)	1.13±0.35*	1.00±0.00	1.821	0.083
	No (44)	1.41±0.49*	1.00±0.00	5.456	**<0.001**
Holding the suturing needle with a holder (portegue) from the right location	Yes (22)	1.59±0.51	1.00±0.00	5.508	**<0.001**
	No (44)	1.56±0.50	1.00±0.00	7.522	**<0.001**
Making the first loop suture correctly	Yes (22)	1.95±0.21	1.00±0.00	21.000	**<0.001**
	No (44)	2.00±0.00	1.04±0.21	30.050	**<0.001**
Making locking loop sutures	Yes (22)	1.95±0.21	1.09±0.29	11.533	**<0.001**
	No (44)	1.97±0.15	1.06±0.25	20.736	**<0.001**
Making the last loop suture correctly	Yes (22)	1.86±0.35*	1.18±0.39	6.708	**<0.001**
	No (44)	2.00±0.00*	1.20±0.41	12.931	**<0.001**
Simple suturing	Yes (22)	1.68±0.47	1.00±0.00	6.708	**<0.001**
	No (44)	1.81±0.39	1.06±0.25	11.358	**<0.001**
Vertical matrix suturing	Yes (22)	2.00±0.00	1.04±0.21	21.000	**<0.001**
	No (44)	2.00±0.00	1.20±0.41	12.931	**<0.001**
Cutting the suture to the correct length	Yes (22)	1.68±0.47	1.09±0.29	5.508	**<0.001**
	No (44)	1.70±0.46	1.09±0.29	8.264	**<0.001**
Applying the correct distance between two sutures	Yes (22)	1.81±0.39*	1.09±0.29	6.197	**<0.001**
	No (44)	1.93±0.25*	1.06±0.25	16.503	**<0.001**
Uniform connection of the ends of the wound after suturing	Yes (22)	1.31±0.47	1.00±0.00	3.130	**0.005**
	No (44)	1.54±0.51	1.00±0.00	7.183	**<0.001**

*p<0.05 (Independent sample t test) **Paired samples t test
***The correlation and t cannot be because the standard error of the difference is 0.

In Table 3, episiotomy knowledge levels of students with and without health vocational high school are given before and after education. Significant differences were found between students with and without a health vocational high school before education in terms of should episiotomy be practiced routinely? (p=0.025), mediolateral episiotomy (p=0.022), using a needle holder (portegue) (p=0.025), making the last loop suture correctly (p=0.012), and applying the correct distance between two sutures (p=0.009). There is no difference between the two groups after the training (p>0.05).

DISCUSSION

By using simulation in healthcare training, technical skills, problem-solving and decision-making skills and communication skills may be developed (Sezer &Elcin, 2017; Scholes et al., 2012). In this study, it was determined that the hand skills of the students were insufficient before the training in terms of episiotomy repair techniques that they would use in clinical practice. Previous studies have shown the importance of simulation trainings in development of skills in training nurses and midwives (Şen Aytekin et al., 2022; Terzioğlu et al., 2012; Kempster,

McKellar, Steen, & Fleet, 2018; Smith, Gray, Raymond, Catling-Paull, & Homer, 2012; Fergusson & Shahtahmasebi, 2014). In the study, it was found that the episiotomy knowledge levels and episiotomy repair skill levels of the participants increased after the training. In the studies in the literature, similar to this study, it is reported that applied education provides an increase in the skill level. Banks et al. (2006) determined that the episiotomy repair skills of students increased significantly after the training they provided on episiotomy repair in the surgery laboratory. Similarly Knobel et al. (2018) reported an increase in the knowledge and skill levels of participants after providing a suturing techniques training with episiotomy simulation. Additionally, the participants in their study stated in 3-6 months following the training that they encountered severe lacerations in their practice, and the simulation training was useful for surgical repairs. The importance of simulation in applications requiring different skills apart from episiotomy repair is reported in studies in the literature. Kumar et al. (2018) stated that there was a significant improvement in the gynecologic bimanual examination skills of students of medicine and nursing after they were given simulation training. Lathrop et al. (2007) determined that there was an increase in the skills and self-esteem levels of midwifery and nursing students as a result of a simulation-based training program given with a shoulder dystocia learning module. The authors also stated that learning by simulation should be included in midwifery curricula. The importance of the learning technique used in applied education is inevitable in the improvement of student satisfaction, decrease in anxiety level and development of self-efficacy as well as skill increase. Terzioğlu et al. (2012) found that students found the skill development practices given to the in the laboratory and classroom environments before clinical practice useful. Lendahls and Oscarsson (2017) reported that most students thought simulation training is necessary, and it is safer and more encouraging to develop skills without fears about achieving patient safety. Demirel et al. (2020) determined that calf tongue episiotomy repair simulation training and application decreased students' anxiety levels and increased their self-efficacy levels. The results of other studies in the literature were similar to those in our study (Knobel, Volpato, Gervasi, Viergutz, & Júnior, 2018; Banks et al., 2006; Terzioğlu et al., 2012; Lathrop, Winningham, & VandeVusse, 2007; Kumar et al., 2018; Lendahls & Oscarsson, 2017). As simulation training requires one-to-one active participation, it is believed to be effective in development of students' cognitive, psychomotor and attitudinal skills in terms of episiotomy repairing. In the literature, there are studies on episiotomy skills in the form of comparison in simulators or pre-test and post-test. However, there is no detailed explanation about the suture techniques used. Only the change in skill level was evaluated in the studies. In this study, the skill level was determined in detail in the suture techniques used before and after the training. For this reason, the detailed findings of the research could not be discussed, but the general skill level was discussed.

A good learning involves meta-cognition, which means the skills of seeing oneself in the learning process and observing what is happening and which learning requirements exist in the process (Burke & Mancuso, 2012). In clinical practices, students may have low self-esteem due to their fears of making mistakes and be hesitant to ask questions to their mentors next to the patient during practice. This is why simulation training is indispensable in obstetrics in terms of pausing different events, discussion, multidisciplinary care models and quality care development (Lathrop, Winningham, & VandeVusse, 2007; Lendahls & Oscarsson, 2017). In this study, the pretest allowed determination of the objective of instruction activities, while the posttest allowed recognition of the achieved learning by students and its increase. Similarly Ruyak et al. (2018) argued that simulation will provide opportunity to practice the significance of focusing on skills of communication with other team members and clear transfer of responsibilities in high-stress situations. Simulation training also provides opportunities in terms of assessment of adequacy (Kumar et al., 2018). In the study, it was found that there was an increase in the students' ability to using a needle holder correctly and holding the suturing needle with a holder from the right location after the training compared to the pre-training. In Güler et al. (2018) study, it was determined that the students who practiced on the calf tongue had a significantly higher ability to use the needle holder correctly and holding the suturing needle with a holder from the right location than the students who practiced on the sponge. Yılar Erkek and Öztürk Altınayak (2021) found that midwifery students in the episiotomy repair model had higher Episiotomy Skill Assessment Form scores than students in the sponge group. It is thought that practicing with a simulator close to real tissue increases the skill level.

Studies have reported that simulation trainings provided with life-like materials allow students to develop their skills, make decisions and self-assessments (Brady, Bogossian, & Gibbons, 2015; Mckenna et al., 2011; Stitely, Cerbone, Nixon, & Bringman, 2011). In this study, the practice of learning episiotomy repair with a calf tongue simulator provided promising results in comparison to providing theoretical information. However, no comparison to another simulation model was made. In the literature, the skill levels of the students were compared using different simulators. Guler et al. (2018) compared episiotomy repair training programs with a sponge simulator and beef tongue simulator in

terms of the increases in students' skills, and they found that beef tongue model was found to be more successful regarding their self-confidence. Patel et al. (2010) investigated the feasibility of beef tongue model versus an instructional video increase their skills of fourth-degree laceration repair. The authors found that, instead of watching the instructional video, the beef tongue model was more advantageous. In the same, Dancz et al. (2014) compared episiotomy repair training programs with a sponge simulator and calf tongue simulator in terms of the increases in students' skills, and they found that all students preferred the calf tongue simulator although there was no statistically significant difference between the two models. Although both methods increase the student's confidence, working with the calf tongue simulator after the sponge simulator provided an additional increase in confidence. Similarly Cooper et al. (2012) found in their systematic review that learning midwifery skills by simulation improves practice, it is useful in rare practices, and it may reduce the time that is spent to reach adequacy. As simulation is becoming increasingly more important in midwifery training especially for repairing episiotomy and lacerations, calf tongues may be used as a learning instrument with perfect tactile accuracy and economical price. However, there is a need for further studies to confirm the advantages of its usage in midwifery training.

Limitations of Study

A limitation of this study was that the students were assessed right after the training program with calf tongue simulators. The results may be affected by "short-term memory" or "recalling." Not having assessed the clinical performances of the students was another limitation of the study. The inclusion of people with previous episiotomy experience and health vocational high school graduates is an important limitation. Another limitation is that it is conducted in a single university and there is no control group. Another limitation of the study is that tweezers are not used during the suture application. It is recommended to use tweezers in future studies. We recommend for future studies on assessment of simulation programs to also consider the factor of forgetting after a time following training while assessing skills and focus on the change in clinical performance.

CONCLUSION

Training midwifery students effectively and by protecting patient safety in terms of obstetric surgical skills is one of the greatest difficulties experienced by educators of midwifery. Simulation-based learning is a promising education methodology that has a large potential in overcoming these difficulties. As a result of the study, it was determined that the episiotomy repair training given to the participants with calf tongue simulators provided increases in the knowledge and skill levels of the students in comparison to theoretical training. Therefore, it is recommended to include learning by simulation in midwifery curricula in terms of developing skills.

Acknowledgement

The authors would like to thank the students in this study for sharing their experiences.

Conflict of Interest

The author declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Author Contributions

Plan, design: HT; **Material, methods and data collection:**HT, SKS; **Data analysis and comments:** HT; **Writing and corrections:** HT, SKS.

REFERENCES

Barjon, K., Mahdy, H. (2022). *Episiotomy.* StatPearls Publishing. PMID: 31536281. Bookshelf ID: NBK546675

Banks, E., Pardanani, S., King, M., Chudnoff, S., Damus, K., & Freda, M. C. (2006). A surgical skills laboratory improves residents' knowledge and performance of episiotomy repair. *American Journal of Obstetrics and Gynecology*, *195*, 1463-1467. https://doi.org/10.1016/j.ajog.2006.05.041

Besen, M. A., Rathfisch, G. (2020). The effect of suture techniques used in repair of episiotomy and perineal tear on perineal pain and dyspareunia. *Health Care For Women International*, 41(1), 22-37.

Besen, M. A., Rathfisch, G. (2019). Perinal Trauma And Repair During Childbirth: Evidence-Based Approaches. *Gazi Journal of Health Sciences*, 4(3), 1-11

Blondel, B., Alexalder, S., Bjarnadottir, R. I., Gissler, M., Langhoff-Rose, J., Novak-Antolic, Z., et al. (2016). Variations in rates of severe perineal tears and episiotomies in 20 European countries: A study based on routine national data in Euro-Peristat Project. Acta Obstetricia et Gynecologica Scandinavica, 95, 746–754.

Brady, S., Bogossian, F., & Gibbons, K. (2015). The effectiveness of varied levels of simulation fidelity on integrated performance of technical skills in midwifery students-a randomized intervention trial. *Nurse Education Today*, *35*, 524-529. https://doi.org/10.1016/j.nedt.2014.11.005

Burke, H., & Mancuso, L. (2012). Social cognitive theory, metacognition, and simulation learning in nursing education. *Journal of Nursing Education, 51(10)*, 543-548.https://doi.org/10.3928/01484834-20120820-02

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

Çalım, S. I., & Öztürk, E. (2018). Using of simulation in midwifery skils education: a systematic review. *International Refereed Journal of Gynaecological Diseases and Maternal Child Health*, *12*, 143-168. https://doi.org/10.17367/JACSD.2018.1.3

Dancz, C. E., Sun, V., Moon, H. B., Chen, J. H., & Özel, B. (2014). Comparison of 2 simulation models for teaching obstetric anal sphincter repair. *Simulation in Healthcare, 9,* 325–30. https://doi.org/10.1097/SIH.0000000000000043

Demirel, G., Evcili, F., Kaya, N., & Doganer, A. (2020). The effect of episiotomy repair simulation on the anxiety and self-efficacy levels of midwifery students. *Journal of Midwifery and Reproductive Health*, 8(1), 2050-2057.

Eston, M., Stephenson-Famy, A., McKenna, H., Fialkow, M. (2020). Perineal Laceration and Episiotomy Repair Using a Beef Tongue Model. *MedEdPORTAL*, 16. https://doi.org/10.15766/mep_2374-8265.10881

Fergusson, L., & Shahtahmasebi, S. (2014). Enabling new graduate midwives to manage emergencies confidently: a pilot study. *Dynamics of Human Health, 1(2)*. ISSN 2382-1019.

Franscisco, A. A., Kinjo, M. H., Bosco, C. S., Silva, R. L., Mendes, E. P. B., & Oliveira, S. M. J. V. (2014). Association between perineal trauma and pain in primiparous women. Revista da Escola de Enfermagem da Usp, 48, 39–44. https://doi.org/10.1590/S0080-623420140000600006

Friedman, A. M., Ananth, C. V., Prendergast, E., D'Alton, M. E., & Wright, J. D. (2015). Variation in and factors associated with use of episiotomy. JAMA, 313(2), 197–199. https://doi.org/10.1001/jama.2014.14774

Guler, H., Cetin, P., Yurtsal, Z. B., Cesur, B., Bekar, M., Uçar, T., et al. (2018). Effect of episiotomy training with beef tongue and sponge simulators on the self-confidence building of midwifery students. *Nurse Education Practice, 30,* 1–6. https://doi.org/10.1016/j.nepr.2018.02.004

Illston, J. D., Ballard, A. C., Ellington, D. R., & Richter, H. E. (2017). Modified beef tongue model for fourth-degree laceration repair simulation. *Obstetrics & Gynecology, 129(3),* 491-496. https://doi.org/10.1097/AOG.0000000000001908

Junior, M. D. C., & Júnior, R. P. (2016). Selective episiotomy: indications, techinique, and association with severe perineal lacerations. *Revista Brasileira Ginecologia e Obstetetricia, 38,* 301-307. https://doi.org/10.1055/s-0036-1584942. ISSN 0100-7203

Kapucu, S., & Bulut, H. (2011). Turkish nursing students' views of their clinical learning environment: A focus group study. *Pakistan Journal of Medical Sciences, 27(5),* 1149-1153.

Karaahmet, A. Y., Yazıcı, S. (2017). The Current Stage of Episiotomy. Journal of Helath Sciences and Professions, 4(1), 57-63.

Kempster, C., McKellar, L., Steen, M., & Fleet, J. (2018). Simulation in midwifery education: A descriptive explorative study exploring students' knowledge, confidence and skills in the care of the preterm neonate. *Women and Birth, 30(S1),* 1–47. https://doi.org/10.1016/j.wombi.2017.08.034

Knobel, R., Volpato, L. K., Gervasi, L. C., Viergutz, R. A., & Júnior, A. T. (2018). A simple, reproducible and low-cost simulator for teaching surgical techniques to repair obstetric anal sphincter injuries. *Revista Brasileira Ginecologia e Obstetetricia, 40,* 465–470. https://doi.org/10.1055/s-0038-1668527

Koçak, Y. Ç., Can, H. Ö., Yücel, U., Akyüz, M. D., Turfan, E. Ç. (2017). Academic and Physical Profile of Midwifery Department in Turkey. *Journal of Health Science and Profession*, 4(2), 88-97.

Kordi, M., Rashidi Fakari, 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.

Kumar, A., Nestel, D., East, C., Hay, M., Lichtwark, I., McLelland, G., …, & Fernando, S. (2018). Embedding assessment in a simulation skills training program for medical and midwifery students: A pre-and post-intervention evaluation. *Australian and New Zealand Journal of Obstetrics and Gynaecology, 58,* 40-46. https://doi.org/10.1111/ajo.12659

Lathrop, A., Winningham, B., & VandeVusse, L. (2007). Simulation-based learning for midwives: background and pilot implementation. *Journal of Midwifery & Women's Health, 52(5),* 492-498. https://doi.org/10.1016/j.jmwh.2007.03.018

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

Mckenna, L., Bogossian, F., Hall, H., Brady, S., Fox-Young, S., & Cooper, S. (2011). Is simulation a substitute for real life clinical experience in midwifery? a qualitative examination of perceptions of educational leaders. *Nurse Education Today, 31,* 682-686. https://doi.org/10.1016/j.nedt.2011.02.014

Nghitanwa, E. M., Endjala, T., & Hatupopi, S. K. (2019). Simulation-based training in nursing and midwifery: a literature review. *International Journal of Medical Science and Health Research, 3(2),* 37-46.

Patel, M., LaSala, C., Tulikangas, P., O'Sullivan, D. M., & Steinberg, A. C. (2010). Use of a beef tongue model and instructional video for teaching residents fourth-degree laceration repair. *International Urogynecology Journal, 21(3),* 353–358. https://doi.org/10.1007/s00192-009-1042-3

Ruyak, S. L., Migliaccio, L., Levi, A., Albers, L. L., & 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

Scholes, J., Endacott, R., Biro, M. S., Bulle, B., Cooper, S., & Miles, M. (2012). Clinical decision-making: midwifery students' recognition of, and response to, post partum haemorrhage in the simulation environment. *BMC Pregnancy and Childbirth, 12(19),* 2-12 https://doi.org/10.1186/1471-2393-12-19

Sezer, B., & Elcin, M. (2017). Simulation in medical education. educational technology readings. Chapter 39. Sakarya University.

Silf, K., Woodhead, N., Kelly, J., Fryer, A., Kettle, C., & Ismail, K. (2015). Evaluation of accuracy of mediolateral episiotomy incisions using a training model. *Midwifery, 31(1),* 197-200. https://doi.org/10.1016/j.midw.2014.08.009

Smith, R., Gray, J., Raymond, J., Catling-Paull, C., & Homer, C. S. E. (2012, November). Simulated learning activities: Improving midwifery students' understanding of reflective practice. *Clinical Simulation in Nursing, 8(9),* 451-457. https://doi.org/10.1016/j.ecns.2011.04.007

Stitely, M. L., Cerbone, L., Nixon, A., & Bringman, J.J. (2011). Assessment of a simulation training exercise to teach intrauterine tamponade for the treatment of postpartum hemorrhage. *Journal of Midwifery & Women's Health, 5,* 503-506. https://doi.org/10.1111/j.1542-2011.2011.00046.x

Şen Aytekin, M., Kahraman, A., & Alparslan, Ö. (2022). Effect of simulation methods used for teaching epsiotomy to midwifery students: a systematic review. *Journal of of TOGU Health Sciences*, 2(2), 212-224.

Terzioğlu, F., Kapucu, S., Özdemir, L., Boztepe, H., Duygulu, S., Tuna, Z., …, & Akdemir, N. (2012). Nursing students' opinions about simulation method. *Hacettepe University Faculty of Health Sciences Nursing Journal*, 16-23.

Tokuhara, K. G., Boldt, D. W., & Yamamoto, L. G. (2004). Teaching Suturing in a workshop setting: a comparison of several models. *Hawaii Medical Journal, 63,* 258-259.

Trinh, A. T., Roberts, C. L., & Ampt, A. J. (2015). Knowledge, attitude and experience of episiotomy use among obstetricians and midwives in Viet Nam. BMC Pregnancy and Childbirth, 15, 101–106. https://doi.org/10.1186/s12884-015-0531-2

World Health Organization (WHO). (2009). Nursing & Midwifery human resources for health, Global standards for the initial education of professional nurses and midwives. World Health Organization, Department of human resources for health, Switzerland. http:// www.who.int/hrh/nursing_midwifery/en/. (Date of access 02.05.2019).

WHO a. (2018). WHO recommendation on episiotomy policy. https://extranet.who.int/rhl/topics/preconception-pregnancy-childbirth-and-postpartum-care/care-during-childbirth/care-during-labour-2nd-stage/who-recommendation-episiotomy-policy-0. Date of Access: 16.04.2019

WHO b. (2018). Regional Office for Europe. Simulation in nursing and midwifery education. http://www.euro.who.int/pubrequest (Date of access: 09.05.2019)

Woretaw, E., Teshome, M., & Alene, M. (2021). Episiotomy practice and associated factors among mothers who gave birth at public health facilities in Metema district, northwest Ethiopia. *Reproductive Health*, 18, 142.

Yılar Erkek, Z., & Öztürk Altınayak, S. (2021). The effect of simulation teaching technique on the improvement of episiotomy performance skills and state anxiety of midwifery students in Turkey: RCT. *Clinical Simulation in Nursing*, 54, 62–69.