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Using in Situ Simulation to Develop Knowledge and Skills of Midwives in Postpartum Haemorrhage Management: Amasya- Şanlıurfa Example

Doğum Sonu Kanama Yönetiminde Ebelerin Bilgi ve Becerilerini Geliştirmek İçin Yerinde Simülasyon Kullanimi: Amasya- Şanlıurfa Örneği

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ABSTRACT

Postpartum hemorrhage has a primary and important place in the pre- and post-graduate education of midwives, who are primarily responsible for maternal health. This research aims to develop the knowledge and skills of midwifes in obstetrics units through simulation method in postpartum haemorrhage management.

The research is in a quasi-experimental, single-group pre-test and post-test design. A training included 28 midwives who agreed to participate in the research between June 1st and July 14th. This educational intervention lasted for 24 hours and included theoretical, skills training and skills training accompanied by scenarios, and it was designed to be given in the hospital. Gathered data were evaluated through SPSS package software.

Knowledge and skills before and after the educational intervention, and Self-Confidence/Efficiency Scale scores in Patient Intervention were found to be statistically significant. An increase in all scores before and after the educational intervention was observed. When these two hospitals were compared, some differences emerged.

Simulation improves both knowledge and skills even for a difficult subject such as postpartum hemorrhage, but there are differences between hospitals due to differences in practice. This may mean that we need to share our experiences more with each other.

Keywords: Midwifery, Postpartum Haemorrhage, Simulation Training

ÖZ

Doğum sonu kanama, öncelikle anne sağlığından sorumlu olan ebelerin mezuniyet öncesi ve sonrası eğitimlerinde birincil ve önemli bir yere sahiptir. Bu araştırma, doğum sonu kanama yönetiminde simülasyon yöntemi ile obstetri birimlerindeki ebelerin bilgi ve becerilerini geliştirmeyi amaçlamaktadır.

Araştırma yarı deneysel, tek grup ön test ve son test desenindedir. 1 Haziran-14 Temmuz tarihleri arasında araştırmaya katılmayı kabul eden 28 ebeye eğitim verilmiştir. Bu Eğitim müdahalesi, teorik, beceri eğitimi ve senaryolar eşliğinde beceri eğitimlerini içeren 24 saatlik olup, hastanede verilmek üzere tasarlanmıştır. Toplanan veriler SPSS paket programı ile değerlendirilmiştir.

Eğitim müdahalesinden önce ve sonra bilgi ve beceriler ile Hasta Müdahalesinde Kendine Güven/Yeterlilik Ölçeği puanları istatistiksel olarak anlamlı bulundu. Eğitim öncesi ve sonrası tüm puanlarda artış gözlemlendi. İki hastane karşılaştırıldığında bazı farklılıklar ortaya çıktı.

Simülasyon, doğum sonu kanama gibi zor bir konuda bile hem bilgi hem de beceriyi geliştirmektedir. Ancak uygulama farklılıkları nedeniyle hastaneler arasında farklılıklar vardır. Bu durum, deneyimlerimizi birbirimizle daha fazla paylaşmamızın gerekliliğini ortaya koymaktadır.

Anahtar Kelimeler: Ebelik, Postpartum Kanama Simülasyon Eğitimi

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INTRODUCTION

Postpartum haemorrhage is the exact cause of deaths of three hundred mothers globally each day. This fact brings this issue to a priority and important place in the pre- and post-graduate education of midwives, who are primarily responsible for maternal health. Postpartum haemorrhage (PPH) is usually defined as a blood loss of 500 ml or more within 24 hours of birth. It is associated with about a quarter of all maternal deaths worldwide and **affects nearly 5% of all women giving birth worldwide**. Most deaths from PPH occur during the first 24 hours after birth.[1] International federation of Gynecology and Obstetrics (FIGO) stated that 27.1% of maternal deaths worldwide are caused by postpartum haemorrhages.[2] In the Turkey National Maternal Mortality Report, it is seen that 15.7% of maternal deaths and more than half of postpartum deaths are caused by postpartum haemorrhage. It is reported that postpartum haemorrhage occurring within the first 12 hours results from atonic uterus and placental retention.[3]

There are several guidelines for the management and prevention of postpartum haemorrhage and various algorithms have been developed from these guidelines on its prevention and management.[4,5] In our country, definition and management of postpartum haemorrhage was clearly stated in Emergency Obstetric Care Management Guideline in 2018. [6] Although there are minor changes in all these guidelines, general interventions are given in a similar way.

Although use of simulation in trainings has a recent history in the field of health, trainings made using simulation have been widely accepted and increased day by day. Especially, increase in malpractice claims, problems of neglecting and consent regarding patient rights has made simulation more important and made it common to learn the application without touching the living patient, accurately and without errors. Evaluation of risky situations such as postpartum haemorrhage is important in identifying clinical errors, reducing risks, increasing the quality of services provided, and experiencing events that they have not experienced before.[7] Different from traditional learning methods, training with simulation, which is an innovative training technique, also provides critical evaluation.

Since it is a common and fatal condition, follow-up of postpartum haemorrhage in the postpartum period is a very important situation. Therefore, this research aims to develop knowledge and skills of workers in gynaecology and obstetrics department through simulation method in postpartum haemorrhage management.

MATERIAL AND METHOD

The study is in quasi-experimental, single-group pre-test and post-test design.

The population consisted of 64 midwives working in the Obstetrics Units of Amasya University Sabuncuoğlu Şerefeddin Training and Research Hospital (ATRH) and Şanlıurfa Training and Research Hospital (ŞTRH). No sample selection was made from the population. The training started with 31 midwives who agreed to participate in the training. 3 midwives dropped out of the training. Between 1 June and 14 July 2021, 28 midwives attended the entire training (Figure 1).

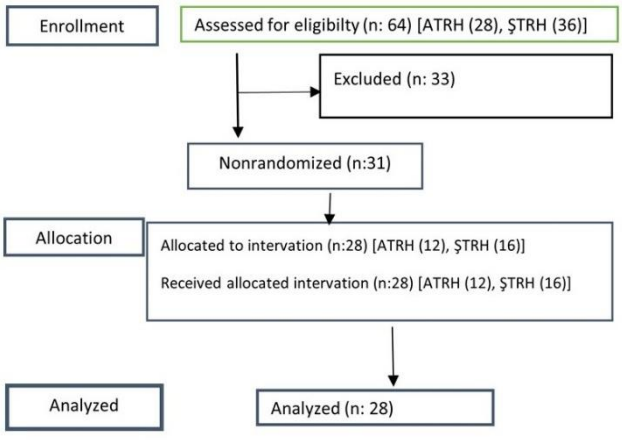

Figure 1. Trend Flow Diagram

Data Collection Tools

To collect data, a form containing personal information, a questionnaire containing information about postpartum haemorrhage before and after the training, the Postpartum Haemorrhage Skills Assessment Form to be used before and after the training, and the Self-Confidence/Efficacy Scale in Intervening the Patient were used.

Personal Data Collection Form: It consists of 11 questions including age, gender, educational status, and professional information.

Postpartum Haemorrhage Knowledge Assessment Form: It is a form consisting of 9 questions to be answered before and after the educational intervention about postpartum haemorrhage. It was assessed out of 100 points. The 3rd and 8th questions were evaluated as 15 points, the other questions 10 points, a total of 100 points.

Postpartum Haemorrhage Skills Assessment Form: To measure knowledge and skills before and after the training, they were asked to fill in the Postpartum Haemorrhage Skills Evaluation Form created by Mert, which included steps related to uterine involution and postpartum haemorrhage.[8] Participants applied pre- and post- educational intervention steps in order of priority and were observed by the trainer. It was evaluated as 0,1,2,3,4 on a 5-point Likert scale from never applied to complete activity. Absolute success score was obtained by calculating the total score of the student out of 100.

Self-Confidence/Efficiency Scale in Intervening the Patient: The scale was developed by Terzioğlu et al.[9] Cronbach's Alpha coefficient of the scale is 0.91 and it consists of three sub-dimensions of psychological support, clinical practice, and health care system knowledge, and 18 items. It has been reported that as the score of the 5-point Likert scale increases, the self-confidence of the healthcare worker increases during the intervention to the patient.

Procudure

Training Program Content: The training included skills training accompanied by theory, skills, and scenarios for a total of 24 hours. This educational intervention was given in the hospital.

1st Step

Theoretical Information (6 Hours)

- Definition of postpartum haemorrhage
- Causes of postpartum haemorrhage
- Signs and symptoms of postpartum haemorrhage
- Types
- Treatment
- Roles of midwife and nurse

2nd Step

Skills Training (8 hours)

Interventions including uterine involution and postpartum haemorrhage procedure steps

3rd Step (10 hours)

Skill Practices with Simulation Scenarios

A scenario of a person who had atonia and placental retention was practiced. Midwives were called to the scenarios in pairs. Each scenario took approximately 10 minutes, and 10 minutes were reserved for de-briefing. Half-size model was used while performing the scenario. Figure 2 shows the picture of the model in the scenario.

Figure 2. Model

Scenario development/design and briefing

The simulation scenario was developed by the researchers. Two researchers took part in the scenarios. The scenario started with the person stating that she felt bad. First, such vocalization and vital signs, etc. information was conveyed by a researcher. The briefing process was managed in accordance with INACSL standards.[10] National Obstetric emergencies guide was used while giving feedback.[6] In addition, one of the researchers involved in the study has a simulation trainer certificate in health sciences.

Data Collection

Before starting the application, Personal Data Collection Form, Postpartum Haemorrhage Knowledge Assessment Form, and Self-Confidence/Efficiency Scale in Intervening the Patient scales were applied. Postpartum Haemorrhage Skills Assessment Form was filled by applying on the model.

Postpartum Haemorrhage Knowledge Assessment Form, and Self-Confidence/Efficiency Scale in Intervening the Patient scales were administered again within 7-10 days after the training. Postpartum Haemorrhage Skills Assessment Form was applied by re-application on the model.

Statistical Analysis

The data were analyzed with the SPSS software. Percentages, frequencies and means of descriptive information were evaluated. The distribution normality of the data was examined with the Shapiro Wilk test. The Mann-Whitney U test was used to determine whether there was a difference between the participants working in two different hospitals in terms of scores before and after the training. The scores of all participants before and after the training were compared with the Paired Samples t-Test. In addition, midwives were divided into three groups according to their working years and the average scores of the midwives were compared with Kruskal Wallis.

Ethical Aspect of Research

Institutional consent from both (Amasya University Sabuncuoğlu Şerefeddin Training and Research Hospital and Şanlıurfa Training and Research Hospital) institutions and ethics committee consent (11/04/2019-E.9997) was obtained from Amasya University Science Ethics Committee to carry out the study. Verbal and written consent was obtained from the participants.

Limitations of the Research

The work has been postponed for a while due to the pandemic process. The number of midwives who agreed to participate in the study was limited. The absence of a control group in the study is one of the limitations of the study.

Acknowledgment

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RESULTS AND DISCUSSION

The mean age was 30.75±7.72 and the mean working year was 7.89±8.42. Working years were 1 year minimum and 27 years maximum. Midwives were divided into three groups according to their working years. 28.6% (8) of midwives worked for 1-2.5 years, 35.7% (10) for 3-5 years, and 35.7% (10) for 7 years or more. Knowledge, skills and Self-Confidence/Efficiency Scale scores of these three groups were compared. The scores were not statistically significant among the midwives who worked for 1-2.5 years and 3-5 years. When those who worked between 1-2.5 years and those who worked for 7 years or more were compared, post-test skill scores were found to be statistically significant (p=0.026). Statistical significance was found between the pre-test and post-test skill scores

of midwives working for 3-5 years and 7 years or more (p=0.06 and p=0.03). In all significant results, it was seen that mean skills score of the midwives with shorter working years was higher.

All the midwives were university graduates. 42.9% (12) worked in Amasya Training and Research Hospital (ATRH), and 57.1% (16) in Şanlıurfa Training and Research Hospital (ŞTRH). While 14.3% (4) of them worked in the obstetrics department, 85.7% (24) worked in the delivery room. The majority (97.2%) stated that they had heard the Emergency Obstetric Care Management Guideline of the Ministry of Health before.

When Amasya and Şanlıurfa Training and Research Hospitals were compared, no statistically significant difference was found in the Knowledge score. A statistically significant difference was found both in the pre-test and skills scores of the Self-Confidence / Efficacy Scale in Patient Intervention scores both before and after the educational intervention (Table 1).

In Karaçam's study, it was reported that midwifery students found themselves sufficient in theory but inadequate in practice.[11] We can use a similar expression in the result here. Considering the training received by the midwives in both hospitals in terms of knowledge, there is a similar situation. However, there were differences in skill levels, self-confidence, and efficacy scale scores because it is a denser hospital compared to ŞTRH (Şanlıurfa fertility rate 3.21) and ATRH (Amasya fertility rate ≥1.59).[12] Considering the experience, the skill scores and self-confidence/efficacy scale scores of the midwives in STHR were also higher before the training. After the educational intervention, there is an increase in the scores of both hospitals. When the two hospitals were compared, only skill scores were found to be statistically significant. It can be thought that the knowledge and self-confidence of both hospitals increased, but there was such a difference because it would take longer to acquire skills.

Table 1. Comparisons of Mean Scores According to the Hospitals They Work in

Hospital	Measurements		Mean+Sd	Z	p*
ATRH	Knowledge Score	Pre-test	28.25±10.70	-1.62	0.11
ŞTRH		Pre-test	34.31±11.45		
ATRH	Skills Score	Pre-test	73.75±21.34	-4.48	**0.00**
ŞTRH		Pre-test	195.87±10.33		
ATRH	Self-Confidence/ Efficacy	Pre-test	79.5±7.29	-2.44	**0.01**
ŞTRH	Scale Score	Pre-test	85.25±6.95		
ATRH	Knowledge Score	Post-test	66.91±12.16	-1.39	0.16
ŞTRH		Post-test	60.37±13.47		
ATRH	Skills Score	Post-test	114.91±20.44	-4.64	**0.00**
ŞTRH		Post-test	202.31±3.64		
ATRH	Self-Confidence/Efficacy	Post-test	86.41±3.87	-0.62	0.56
ŞTRH	Scale Score	Post-test	87.00±4.58		

*Mann whitney U test

Before and after educational intervention evaluations are shown in Table 2. After the educational intervention, a statistically significant increase was found in the knowledge, skills and Self-Confidence / Competency in Patient Intervention scores compared to before. It was observed that there was an increase in all scores before and after the educational intervention. The contribution of simulation training to creating realistic classrooms and the effectiveness of education is unquestionable. In this direction, this research is aimed to make knowledge and skills more permanent with a model-based simulation practice, while improving both knowledge and skills, even for a subject that may be difficult to simulate, such as postpartum haemorrhage. As seen in Table 2, it was concluded that the training performed with simulation created a significant difference in the scores of knowledges, skills and Self-Confidence and Efficiency in

Intervening the Patient, and the scores increased. Research of Kata and Kataoka in 2017 also shows similarities. They reported that an intervention group that received simulation program had higher performance and knowledge scores than control group.[13] Another research reported that after educational intervention, nurses, midwives, and medical staff felt empowered and motivated to take responsibility in an emergency for postpartum haemorrhage that they had previously avoided.[14] Although motivation was not measured in this research, it is evident that people's self-confidence increased.

Table 2. Comparison of Pre-Training and Post-Training Mean Scores

Measurements		Mean+Sd	T	Df	P*
Knowledge Score	Pre-test	31.71±11.35	-11.62	27	0.00*
	Post-test	63.17±13.11			
Skills Score	Pre-test	143.53±63.50	-4.56	27	0.00*
	Post-test	164.85±46.01			
Self-Confidence/Efficacy Scale Score	Pre-test	82.78±7.55	-2.58	27	0.01*
	Post-test	86.75±4.23			

*t test, $p \leq 0.05$

CONCLUSION AND RECOMMENDATIONS

Simulation is a safe and effective way to implement and improve patient safety and other processes in a high-risk environment. It has been concluded that the training made using the simulation method accompanied by necessary information and a model is effective. The educational results we have done are positive, unfortunately, it is also seen that we are still not at the desired level in a current and vital issue such as maternal death. This educational intervention has shown that there is a need for comparative studies with more advanced simulation practices and including team management.

Although the same training was received, it was observed that there were differences in practice and that the midwives working in the institutions did not have the same knowledge, skills, and self-confidence. This may mean that we need to share our experiences more with each other. It is recommended to evaluate the knowledge and skill deficiencies through in-service training and to create training plans accordingly.

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