Effect of Scenario-Based Simulation Training on the Obstetrics and Gynecology Nursing Clinical Practicum

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ABSTRACT

Background: Simulation practices in obstetrics and gynecology (OB-GYN) nursing are used in education, practice, assessment, and the investigation of interventional and behavioral skills related to both routine and emergency conditions.

Purpose: This study was conducted in an OB-GYN nursing course to determine the effect of simulation practices on clinical practice satisfaction, clinical stress, and self-confidence in nursing students.

Methods: A cluster randomized controlled experimental trial was conducted on 122 students (experimental group, n = 58; control group, n = 64). After theoretical training, all of the students applied six scenarios in the OB-GYN nursing simulation laboratory. The students in the experimental group began clinical practice after simulation training, whereas their peers in the control group began clinical practice without prior simulation training. Data in this study were collected using a personal information form, the Pagana Clinical Stress Questionnaire, a self-confidence scale, and a satisfaction subscale from the Clinical Learning Environment Scale on, respectively, the first day and final day of clinical practice.

Results: At the end of the clinical practice, average clinical stress in the control group was higher than that in the experimental group (p < .001). No intergroup difference was found in self-confidence levels (p > .05). For the control group, at posttest, the average satisfaction with the clinical learning environment was higher (p = .046) and the average satisfaction with the clinical learning environment was lower (p = .05). In contrast, no mean pretest–posttest differences were found in clinical stress and self-confidence levels in the experimental group (p > .05). In the control group, no mean pretest–posttest difference was found for the clinical learning environment (p > .05), whereas mean clinical stress (p < .001) and self-confidence (p = .012) levels were higher at posttest (p < .05).

Conclusions/Implications for Practice: The findings of this study indicate that simulation training interventions reduce clinical satisfaction and stress in students but do not influence self-confidence. Nursing educators may provide scenario-based simulation training to students taking OB-GYN courses to enhance their preparedness for clinical practice.

Key Words: nursing, students, simulation, self-confidence, clinical stress.

Introduction

Nursing education consists of theoretical and clinical applications. In nursing education, students are expected to acquire basic competencies in patient-centered care, teamwork, and collaboration; evidence-based practices; quality improvement; safety; and informatics (Cronenwett et al., 2007). Nevertheless, in most vocational courses, nursing students currently gain a theoretical understanding of these topics in their syllabus and begin clinical training after limited classroom practice. However, this approach does not provide adequate opportunities for practice, causing students to experience anxiety and a lack of self-confidence (Woda et al., 2017). The World Health Organization has identified technological and innovative methods as the gold standard in nursing and midwifery education (World Health Organization, 2013), which suggests that students should practice all key skills/practices in simulated laboratory settings (Maas & Flood, 2011; Skaarble & Fitzsimmons, 2014; Yuan et al., 2012). In prior studies, simulation training has been reported to increase clinical satisfaction, the benefits perceived by patients, acceptance from working nurses, self-confidence, and performance in nursing students while reducing their anxiety (Labrague et al., 2019; Oh et al., 2015; Smith et al., 2012). In addition, simulation training has been identified as an effective method for improving psychomotor and problem-solving skills and rates of accurate

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application of these skills among students (Eyikara & Baykara, 2018; Işık & Kaya, 2014; Mete et al., 2017).

One of the areas in which simulation is needed in nursing education is obstetrics and gynecology (OB-GYN). Simulation practices in OB-GYN nursing include education, practice, assessment, and the investigation of interventional and behavioral skills related to routine or emergency obstetric-gynecological conditions (Şendir, 2013). Thus, when applied before the start of clinical practice, OB-GYN nursing-related simulation programs allow students to gain hands-on skills, become familiar with situations that they may encounter in clinical settings, develop clinical decision-making skills, hone their abilities to choose appropriate interventions, and experience teamwork (Gardner & Raemer, 2008; Şendir, 2013). In the literature, it has been reported that conducting simulation training in OB-GYN nursing courses achieves certain positive results. Pınar and Doğan (2013) found simulation-based education in OB-GYN nursing to be effective in improving students’ technical skills in the area of perinatal patient management. In another study, it was found that a simulation activity held in OB-GYN nursing course improved students’ perceptions of learning (Pınar et al., 2015). Moreover, scenario-based simulation practice in OB-GYN nursing courses was found to improve students’ clinical knowledge and skill performance (Pınar et al., 2016). In addition, use of different types of simulators to improve students’ psychomotor and communication skills was found to be effective in preparing students for clinical practice and increasing their competences in clinical practice (Terzioğlu et al., 2016). Furthermore, it was found that postpartum care simulation increases the confidence of nursing students to perform patient assessments (Germain et al., 2018).

Although most nursing education departments in Turkey have a general skills laboratory, none currently operates simulation laboratories equipped with simulators for OB-GYN nursing courses. Therefore, the use of simulation in OB-GYN nursing is not very common domestically, and exclusively theory-based nursing education remains prevalent throughout Turkey. Thus, students encounter patients in real hospital environments without the opportunity to apply the information they have learned in theoretical lectures. In this study, increasing the care and communication skills of students using preclinical simulations was presumed to decrease the clinical stress of these students by increasing their self-confidence, decreasing their stress, and, subsequently, increasing their clinical satisfaction. Therefore, this study was designed to determine the effects of a pre-clinical-practice simulation practice program on satisfaction related to clinical practice, clinical stress, and self-confidence in OB-GYN nursing students.

**Hypotheses**

The following are the hypotheses used for this study:

\[ H_1 = \text{Preclinical simulation training increases students' clinical practice satisfaction}. \]

\[ H_2 = \text{Preclinical simulation training reduces students' clinical stress level}. \]

\[ H_3 = \text{Preclinical simulation training increases students' self-confidence}. \]

**Methods**

**Setting**

This cluster-randomized controlled experimental trial study was carried out in the nursing department of a state university. Simulation practices were conducted in the Application Laboratory of Obstetrics and Gynecology Nursing, which was established within the university’s Faculty of Health Sciences. The research team consisted of two faculty members (an associate professor and a lecturer doctor) and five research assistants (all were doctoral students) in the Department of Obstetrics and Gynecology Nursing.

**Participants**

The study population consisted of 136 third-year students in the Nursing-301: Obstetrics and Gynecology Nursing course in the Faculty of Health Sciences in the 2016–2017 academic year. This course was convened in both fall and spring semesters. Using lots, the researchers randomly assigned spring semester participants to the experimental group and fall semester participants to the control group. Using power analysis (GPower 3.1 program), 128 students (64 in each group) was deemed necessary to achieve a Type 1 error value of 5%, a power level of 80%, and a medium effect size of .50. One hundred thirty-six students were enrolled. However, 13 of the students in the experimental group were unable to participate in all of the scenarios and were thus excluded from the sample. One student in the control group was excluded from the sample because of unwillingness to participate. Thus, the study was conducted on 122 students, with 58 in the experimental group and 64 in the control group.

**Study Procedures**

Before the students in both groups started clinical practice in the hospital, they were given theoretical courses specific to each target skill. The theoretical courses in OB-GYN nursing were performed in the first 7 weeks (84 hours) for both groups for 6 hours a day on Monday and Tuesday of each week. Theoretical courses and clinical practice were administered to both groups by the same instructors. Theoretical lectures’ content, lecture period, services that were used for the clinical practice, and clinical practice period (7 weeks, 2 days a week for a total of 112 hours) were the same for both groups.

**Experimental Group**

For the experimental group, after the theoretical courses, the students practiced (16 hours) on simulation scenarios in the OB-GYN nursing simulation laboratory. Simulation practices
were conducted in the simulation laboratory (using three birth simulators, three newborn simulators, and three breast models) using real-life OB-GYN scenarios that were developed by the researchers. The National League for Nursing Jeffries simulation theory was used as a framework to design and implement the simulation session (Jeffries et al., 2015). Six scenarios were created by the research team for the simulation. Each scenario was developed to provide the basic information and skills typically targeted in women’s health nursing courses (Table 1). The first scenario trained participants on pregnancy monitoring, risky situation handling skills, and family planning counseling. The second scenario trained participants on providing care during vaginal birth, providing mother-infant care during the postpartum period, and breastfeeding training skills. The third scenario trained participants on treating gestational diabetes mellitus and providing counseling and caring in situations such as polyhydramnios and Rh mismatch. The fourth scenario trained participants on conducting gynecological

Table 1
Scenarios and Skills Expected to be Developed

| Scenario                                      | Skill Expected to be Developed                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------------------|
| Pregnancy scenario                            | ✓ Pregnancy follow-up<br> ✓ Gathering information about obstetric and gynecological history<br> ✓ Routine examinations during pregnancy<br> ✓ A scenario involving risky situations during pregnancy<br> ✓ Complications during pregnancy<br> ✓ Family planning counseling |
| Childbirth scenario                           | ✓ Admission of the pregnant woman to the delivery room<br> ✓ Labor follow-up<br> ✓ Application of Leopold maneuvers<br> ✓ Evaluation of risky situations at birth<br> ✓ Emotional support for the mother at birth<br> ✓ First examination and care of the newborn<br> ✓ First breastfeeding, initiating the mother–infant relationship<br> ✓ Postpartum mother care |
| Gestational diabetes scenario                 | ✓ Physiopathology, symptoms, and findings of gestational diabetes<br> ✓ Complications of gestational diabetes<br> ✓ Insulin administration, exercise, and diet<br> ✓ Problems that may occur in the mother and the infant during postpartum period |
| Sexual violence scenario                      | ✓ Nursing approaches during gynecological examination<br> ✓ Sexual violence symptoms<br> ✓ Sexually transmitted diseases<br> ✓ Conditions needing caution and procedures to be followed when sexual violence is determined |
| Infertility scenario                          | ✓ Risk factors for female–male infertility<br> ✓ Signs and symptoms<br> ✓ Diagnostic tests<br> ✓ Treatments and nursing care<br> ✓ Psychosocial problems in infertility<br> ✓ Assisted reproduction techniques |
| Endometrial cancer scenario                   | ✓ Endometrial cancer risk factors<br> ✓ Endometrial cancer signs and symptoms<br> ✓ Endometrial cancer treatments<br> ✓ Surgical treatment of gynecologic cancers<br> ✓ Preoperative nursing care<br> ✓ Postoperative nursing care |
|                                              |                                              |

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examinations, providing care for victims of sexual violence, and recognizing and treating sexually transmitted diseases. The fifth scenario provided skills necessary to identify infertility and related factors, understand how to diagnose and treat infertility, and provide care in situations such as ovarian hyperstimulation syndrome and termination of pregnancy or loss. The sixth scenario helped participants improve skills related to endometrium cancer, total abdominal hysterectomy, bilateral salpingo-oophorectomy surgery, postoperative nursing care, and discharge training (e.g., menopause, sexuality, postoperative risk factors, dangerous situations). Each scenario consists of the scenario, objectives, actors, scenario cases, discussion questions, and evaluation form (Table 1). The students were given a week to prepare the scenarios after receipt. The scenarios were performed simultaneously in three different stations in groups of five people. Each student was present in each scenario. The scenarios were performed under the supervision of the researchers. Each scenario lasted for 1–1.5 hours. Researchers observed the scenario practice sessions, asked the discussion questions at the end of the scenario, and filled out the evaluation forms for the students. In addition, the simulation laboratory was open weekdays during normal work hours to enable students to repeat the same scenarios. The experimental group students started their clinical practice in the hospital after having practiced all of the scenarios in the laboratory. On the first day of clinical practice (pretest), the students completed the personal information form (PIF), the Pagana Clinical Stress Questionnaire (PCSQ), the Self-Confidence Scale (SS), and the satisfaction subscale of the Clinical Learning Environment Scale (CLES). On the last day of the clinical practice (posttest), students completed the latter three measures again (Figure 1).

Control Group
The parameters examined in our research may also be affected by the content of theoretical coursework. The control group was used to control for this potential effect. For the control group, clinical practice started in the hospital without simulation practice after they had completed their theoretical courses. On the first day of clinical practice (pretest), students completed the PIF, PCSQ, SS, and the satisfaction subscale of the CLES. On the last day of the clinical practice (posttest), students completed the latter three measures again (Figure 1).

Instruments
The data for this study were collected using a PIF, the satisfaction subscale of the CLES, PCSQ, and SS.

Personal information form
This form consisted of two items: age and grade point average (GPA).

Clinical learning environment scale
This scale was developed by Dunn and Burnett (1995) to identify factors that characterize the clinical learning environment. The CLES is a 5-point Likert-type scale (Dunn & Burnett, 1995). A Turkish validity and reliability study of this scale was done by Sarı (2001). The Turkish version of the CLES consists of 22 items and five subscales, including staff–student relationships (six items), responsibilities of the instructor (four items), patient relationships (four items), student satisfaction (four items), and hierarchy and routines (four items). The Cronbach’s alpha value of the Turkish version of the CLES was determined to be .81, with item–total correlations ranging from .21 to .55. On the basis of the results of content validity analysis, the Kendall coefficient of concordance of this scale is 0.20 ($\chi^2 = 33.61, p = .03$). As this study was designed to evaluate the satisfaction of the participants, only the student satisfaction subscale of this scale was used. The Cronbach’s alpha value of the student satisfaction subscale in the Turkish version was determined to be .81. In this study, the Cronbach’s alpha value of this subscale was found to be .67 at pretest and .79 at posttest. The highest possible score for the subscale is 20, and the lowest is 4. Lower scores correlate with a lower level of satisfaction, whereas higher scores correlate with higher levels of satisfaction (Sarı, 2001).

Pagana clinical stress questionnaire
This questionnaire was developed by Pagana (1989) to evaluate the stress experienced by nursing students during clinical practice. On the basis of Kaiser’s criterion (eigenvalues of 1 or greater), four factors were extracted, accounting for 58% of the variance. Factor loadings ranged from .31 to .81 in the original scale, and Cronbach’s alpha values ranged between .85 and .84 for the factors (Pagana, 1989). In a validity and reliability study of the PCSQ conducted by Şendir and Acaroğlu (2008) in Turkey, the Cronbach’s alpha was value determined as .70 (Pagana, 1989; Şendir & Acaroğlu, 2008). The PCSQ consists of four factors that explain 58.6% of the variance. Factor loadings were found to range between .52 and .83 in the Turkish version (Şendir & Acaroğlu, 2008). The PCSQ is a 5-point Likert-type scale, with 20 items classified into four subscales of emotional expression, including threat, challenge, harm, and benefit. The “threat” scale includes six statements, the “challenge” scale includes seven statements, the “harm” scale includes five statements, and the “benefit” scale includes two statements. Total possible PCSQ scores range between 0 and 80, with low scores correlated with lower levels of stress and higher scores correlated with higher levels of stress (Pagana, 1989). In this study, the Cronbach’s alpha value of the PCSQ was found to be .81 for pretest and .84 for posttest.

Self-confidence scale
This scale was designed by Akin (2007) to assess self-confidence in university students in Turkey. This 5-point Likert-type scale consists of 33 items, with a possible score range of 33–165. Higher scores correlate with higher levels of self-confidence. Dividing the total score by the number of items (33) gives an estimate of self-confidence, with scores of < 2.5 indicating low self-confidence, 2.5–3.5 indicating
moderate self-confidence, and > 3.5 indicating higher self-confidence. The internal consistency coefficient for the SS is .83, and the test–retest reliability coefficient is .94 (Akın, 2007). Factor loadings ranged from .31 to .74, and according to confirmatory factor analysis, fit index values are as follows: root mean square error of approximation = .044, normed fit index = .90, comparative fit index = .96, incremental fit index = .96, relative fit index = .89, goodness of fit index = .94, adjusted goodness of fit index = .91, and standardized root mean square residual = .058 ($\chi^2 = 700.41$, $df = 488$, $p < .001$; Akın, 2007). In this study, the Cronbach’s alpha was found to be .94 for both pretest and posttest.

**Ethical Considerations**

Written permission from the university and approval from the university’s ethics committee were obtained before launching the program (date: March 31, 2015; No. 77082166-604. 01.02-39505).

At the outset, all of the students were informed of the purpose and procedures of the study. Students were ensured that their participation would not affect their formal education scores. The 14 students who were excluded from this study took the normal, theoretical courses before starting clinical practice in the hospital and did not complete any of the scales or the questionnaire during clinical practice. All students were anonymized using codes during and after distribution of the measures. Thus, the researchers did not know which students chose not to participate in the study. All of the simulation training after the clinical practice and the application of the study was implemented in the laboratory setting with the same instructors in the control group.

**Data Analysis**

The data obtained from this study were analyzed using SPSS Version 20.0 (IBM, Inc., Armonk, NY, USA). Mean and standard deviation were used to evaluate the quantitative variables, and frequency and percentage values were used to evaluate the qualitative variables. Mann–Whitney $U$ and independent sample $t$ test statistics were used to analyze the difference between the experimental and control groups. Paired-sample $t$ test and
The main goals of nursing education is to produce nurses who are able to incorporate theory into practice and think critically in the process of learning and who have gained effective problem-solving skills (Akyuz, 2011). Simulation training is one application that may help achieve these goals. In this study, it was found that posttest scores for the satisfaction subscale of CLES in the experimental group were statistically significantly lower than pretest scores (p < .05), whereas no pretest–posttest difference was identified in the control group (p > .05). Concurrently, the posttest scores on the satisfaction subscale of CLES in the experimental group were statistically significantly lower than the posttest scores in the control group.

Table 2
Participant Sociodemographic Characteristics (N = 112)

| Characteristic  | Experimental Group (n = 58) | Control Group (n = 64) | Statistical Value | p   |
|----------------|-----------------------------|------------------------|-------------------|-----|
| Age            | 20.50 ± 0.68                | 20.39 ± 0.93           | U = 1613.50       | .21a|
| GPA            | 2.88 ± 0.32                 | 2.87 ± 0.34            | t = 0.125         | .90b|

Note. GPA = grade point average (indicator of academic achievement).

* Mann–Whitney U test. ** Independent sample t test.

Wilcoxon signed-rank test statistics were used to analyze the difference between pretest and posttest scores. Level of significance was defined as p ≤ .05 in this study.

### Results

The mean age of the participants in the experimental and control groups was 20.50 ± 0.68 and 20.39 ± 0.93 years, respectively (p = .21). Mean GPA was 2.88 ± 0.32 in the experimental group and 2.87 ± 0.34 in the control group (p = .90; Table 2). To confirm that the groups were homogeneous, it was shown that there was no difference between groups in terms of age or GPA (p > .05; Table 2).

No differences were found in terms of pretest mean/median scores (p > .05) between the groups. However, intergroup differences were significant at posttest in terms of mean PCSQ score (p < .001) and median score for the satisfaction subscale of CLES (p = .046), with the posttest scores for the control group found to be higher (Table 2). PCSQ threat (p = .019), challenge (p = .048), and harm (p = .005) subscale posttest scores in the control group were found to be significantly higher than those in the experimental group.

No significant difference was found between the two groups in terms of the benefit subscale only (p > .05; Table 3). The intragroup comparison indicated that the posttest scores in the experimental group related to the satisfaction subscale of CLES (14.0) were lower than the pretest scores (15.0; p = .05), whereas the difference was insignificant in the control group (p = .775). Although no difference between pretest and posttest scores was identified in the experimental group relating to PCSQ (p = .368), a difference between pretest and posttest scores was found in the control group in terms of mean PCSQ scores, with mean posttest scores higher than pretest scores (p < .001). PCSQ-harm subscale posttest scores in the experimental group were higher than pretest scores (p = .006). In the control group, PCSQ threat (p < .001) and harm (p < .001) subscale posttest scores were found to be higher than pretest scores. Although no difference was found between mean SS pretest and posttest scores in the experimental group (p = .621), a difference was found between the pretest and posttest scores in terms of mean SS scores, with the mean posttest scores higher in the control group than in the experimental group (p = .012; Table 4).

### Discussion

The main goals of nursing education is to produce nurses who are able to incorporate theory into practice and think critically in the process of learning and who have gained effective problem-solving skills (Akyuz, 2011). Simulation training is one application that may help achieve these goals. In this study, it was found that posttest scores for the satisfaction subscale of CLES in the experimental group were statistically significantly lower than pretest scores (p < .05), whereas no pretest–posttest difference was identified in the control group (p > .05). Concurrently, the posttest scores on the satisfaction subscale of CLES in the experimental group were statistically significantly lower than the posttest scores in the control group (p > .05; Table 4).
scores in the control group ($p < .05$). Thus, the hypothesis that preclinical simulation training affects clinical satisfaction in students was confirmed. However, contrary to expectation, the simulation training was found to negatively affect clinical satisfaction. Studies with similar objectives have determined that simulation-based learning methods facilitate students' learning and increased satisfaction (Kim-Godwin et al., 2013; Luctkar-Flude et al., 2012; Tosterud et al., 2013). In Turkey, nursing is a profession performed by individuals with various levels of education (from high school diploma to PhD degree) who work in clinics at similar pay grades and positions (Korkmaz, 2011). In undergraduate and higher levels of nursing education, students are given a modern and systematic education that incorporates evidence-based practices and current research results (Kuçük et al., 2017). However, the education provided at the high school level in Turkey does not provide this content. Moreover, nurses trained to follow research and current evidence are currently in the minority in the clinical field (Demir et al., 2012). On the other hand, high school graduate nurses, who are numerous in the clinical field, practice nursing in line with the skills acquired during their high school education and typically do not adequately update their knowledge/skills after graduation. Therefore, students often do not observe what they have learned in theoretical courses during their practice in the clinic (Karadağ et al., 2013). The results of this study may reflect the fact that clinical settings in Turkey fall short of “ideal” laboratory conditions. Students in Turkey may not be able to find opportunities to practice what they have learned in the classroom in clinical settings, which represents a gap in expectation. On the other hand, the experimental group gained more preclinical practice, which may have increased their expectations and led to a larger gap in expectation in their clinical practice.

Lack of experience may increase the fear and anxiety of students in clinical settings (Öner Altı et al., 2013; Rhodes & Curran, 2005). In this study, simulation training was found to reduce stress in terms of both PCSQ total score and the threat, challenge, and harm subscale scores ($p < .05$). Simulation training has not made any difference only in terms of PCSQ benefit subscale scores ($p > .05$). In another, similar study, preclinical simulation-based education was found to reduce stress and anxiety by increasing student performance and self-confidence (Khalaila, 2014; Terzioglu et al., 2012). The lack of difference in PCSQ benefit subscale scores may be because of the fact that students feel useful in any case during clinical practice (regardless of the skill level).

The use of simulation in nursing education provides experience-based learning, increases students' self-confidence, and develops clinical decision-making skills. Simulation training helps students provide full care in a safe setting without fear of failing or misunderstanding the current condition of a patient and gain various strengths (Kuznar, 2007; Robertson et al., 2010). Other publications have reported that simulation education increases students' self-confidence and helps them feel more confident in clinical settings (Gardner & Raemer, 2008; Schoening et al., 2006; Terzioglu et al., 2012). In this study, SS posttest scores in the control group were statistically significantly higher than pretest scores ($p < .05$). However, the pretest-posttest difference on the SS was not significant for this group ($p > .05$). This result does not support the hypothesis in this study that preclinical simulation training affects self-confidence. Although not statistically significant, the experimental group had a higher mean self-confidence score at pretest than the control group (experimental group: $126.53 \pm 13.28$, control group: $124.58 \pm 18.27$). Besides, although the experimental group maintained their self-confidence level through posttest (pretest: $126.53 \pm 13.28$, posttest: $127.09 \pm 14.36$; $p = .621$), the control group increased their mean self-confidence score between pretest and posttest (pretest: $124.58 \pm 18.27$, posttest: $128.83 \pm 17.11$; $p = .012$). Therefore, scenario-based simulation education may have an indirect effect on self-confidence in nursing students.

**Limitations**

In this study, the simulation practice and clinical practice periods for students were limited by the scope of the existing

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**Table 4**

*Pretest and Posttest Scores of CLES, PCSQ, and SS Scales (N = 112)*

| Scale                      | Experimental Group ($n = 58$) | Control Group ($n = 64$) |
|----------------------------|-------------------------------|--------------------------|
|                            | Median | Posttest | $p$   | Median | Posttest | $p$   |
| ---------------------------|--------|---------|------|--------|---------|------|
| CLES-satisfaction subscale  | 15.0   | 14.0    | .050 | 15.5   | 15.0    | .775 |
| PCSQ (M and SD)             | 26.68  | 10.53   | 27.79| 8.47   | .368    | 27.23| 10.80    | 33.33| 10.12 | < .001 |
| Threat                     | 7.0    | 8.0     | .170 | 7.0    | 9.5     | < .001 |
| Challenge                  | 12.5   | 12.5    | .175 | 13.5   | 14.5    | .481 |
| Harm                       | 2.0    | 4.5     | .006 | 2.0    | 6.0     | < .001 |
| Benefit                    | 3.05   | 2.00    | 3.00 | 1.19   | .840    | 3.0  | 3.0     | .784  |
| SS (M and SD)              | 126.53 | 13.28   | 127.09| 14.36 | .621    | 124.58| 18.27    | 128.83| 17.11 | .012  |

Note: Bold values indicate that statistical significance was $p \leq .05$. CLES = Clinical Learning Environment Scale; PCSQ = Pagana Clinical Stress Questionnaire; SS = Self-Confidence Scale.

* Wilcoxon signed-rank test. ** Paired-sample $t$ test.
curriculum. Moreover, only the effects of the scenario-based simulation on satisfaction, clinical stress, and self-confidence were examined. Furthermore, the participants completed the three measures (CLES satisfaction subscale, SS, and PCSQ) on the first and last day of clinical practice only.

Conclusions
Simulation-based education programs foster positive educational environments that allow students to learn by doing and experiencing as well as provide opportunities for repetitive practice. In this study, simulation training was found to reduce the clinical satisfaction and clinical stress of the participants but not to influence self-confidence. In light of these findings, it is recommended that simulation training accompanied by scenarios (pregnancy, childbirth, gestational diabetes, sexual violence, infertility, and endometrial cancer) be utilized in OB-GYN nursing education. Moreover, clinically appropriate simulation scenarios should be diversified, clinical settings should be rearranged to promote satisfaction and allow students to practice what they learned during simulation training, and the current study should be replicated with different sample groups. In addition, in future studies on this subject, the effects of scenario-based simulation training on staff–student relationships and on the structuring of responsibilities within instructor–patient relationships (both of which are known indicators of student satisfaction) should be evaluated. Finally, applying the instruments before and after administering the theoretical course is recommended.

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Study conception and design: All authors
Data collection: All authors
Data analysis and interpretation: All authors
Drafting of the article: MUA, SYS, SPA

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