

# The Effect of Situational Simulation Education Teaching Mode on Clinical Obstetrics and Gynecology Specialty Teaching: A Comparative Study

Feifei Liu<sup>1</sup>, Lili Zhang<sup>2\*</sup>

<sup>1</sup>Department of Obstetrics, Shaanxi Provincial People's Hospital, Xi'an 710000, China

<sup>2</sup>Health Checkup Center, Shaanxi Provincial People's Hospital, Xi'an 710000, China

\*Corresponding author: Lili Zhang, 782377048@qq.com

**Copyright:** © 2024 Author (s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

**Abstract:** *Objective:* To explore the effectiveness of applying the situational simulation education teaching mode in clinical gynecology and obstetrics specialty education. *Methods:* Seventy personnel specializing in clinical gynecology and obstetrics at Shaanxi Provincial People's Hospital between June and October 2023 were selected and randomly divided into a control group and a research group, with 35 personnel in each. The control group underwent traditional teaching methods, while the research group received instruction through the situational simulation education teaching mode. The study then compared the satisfaction levels of the two groups regarding the teaching methods, as well as their scores on theoretical and practical examinations. *Results:* Following the teaching sessions, the research group exhibited a teaching satisfaction rate of 94.29%, significantly higher than that of the control group ( $P < 0.05$ ). Moreover, when comparing the scores of theoretical and practical examinations, the research group outperformed the control group, with statistical significance ( $P < 0.05$ ). *Conclusion:* The implementation of situational simulation education teaching mode in clinical gynecology and obstetrics significantly enhances the satisfaction levels of professional personnel and improves their theoretical knowledge and clinical operational skills.

**Keywords:** Situational simulation teaching mode; Clinical obstetrics and gynecology specialty teaching; Effect

**Online publication:** February 28, 2024

## 1. Introduction

Situational simulation education is an emerging teaching method, distinct from traditional teaching modes, with the unique advantage of allowing students to learn and practice in a near-real medical environment by simulating actual clinical scenarios. Due to this characteristic, it has garnered significant attention from the educational community. This teaching approach not only enhances students' clinical thinking abilities and operation skills but also effectively mitigates the risks associated with novices directly intervening in real

clinical operations <sup>[1-3]</sup>.

In light of these advantages, this study selected 70 clinical gynecology and obstetrics professionals to investigate the application effects of situational simulation education in clinical obstetrics and gynecology teaching.

## **2. General information and methods**

### **2.1. General information**

A total of 70 clinical obstetrics and gynecology professionals, all of whom were female, were selected from Shaanxi Provincial People's Hospital during the period from June to October 2023. These personnel were divided into a control group and a research group using the randomized numerical table method, with 35 individuals in each group. The age range of the control group was 22–35 years, with a mean age of  $28.12 \pm 4.21$  years, while the age range of the research group was 21–34 years, with a mean age of  $27.65 \pm 4.09$  years. Statistical analysis revealed no significant differences between the two groups in terms of age, gender, or other general information ( $P > 0.05$ ).

### **2.2. Methods**

#### **2.2.1. Control group**

In the control group, the traditional teaching mode was implemented, consisting of classroom lectures, textbook learning, and standard clinical internships. The focus of this mode was on imparting theoretical knowledge and basic operational skills. Members of the control group practiced basic clinical operations by listening to lectures, reading textbooks, and under the guidance of teachers. They completed designated course content and clinical skill operations under the direct supervision of clinical teachers.

#### **2.2.2. Research group**

The members of the research group adopted a situational simulation education teaching mode for clinical obstetrics and gynecology.

- (1) Scenarios are created to stimulate the interest of study group members in learning. Clinical obstetrics and gynecology involve considerable theoretical knowledge, some of which can be abstract. Using scenarios helps research group members to learn and remember deeply. For instance, simulating an emergency delivery of a pregnant woman requires students to apply theoretical knowledge to assess the woman's condition and decide the best delivery method. This process reinforces theoretical knowledge of prenatal examination and the application of delivery techniques in emergencies <sup>[4,5]</sup>.
- (2) Role-playing allows students to practice real-world knowledge. During role-playing sessions, students take on specific roles, such as practicing physicians, and engage in scenarios based on actual cases under mentor guidance. This exercise requires research group members to apply theoretical knowledge of obstetrics and gynecology diseases, such as diagnostic criteria and treatment principles of pre-eclampsia, to communicate and collaborate effectively with patients or other healthcare professionals, deepening their understanding and application of theoretical knowledge <sup>[6-8]</sup>.
- (3) Group discussions are conducted to address challenging problems in clinical obstetrics and gynecology specialties. Students are divided into small groups to discuss specific obstetrics and gynecology issues, such as management strategies for hypertensive disorders of pregnancy. Each group deliberates and proposes solutions using the latest clinical guidelines and research literature.
- (4) Relevant scenarios are simulated to assess personnel and enhance their resilience. Specific simulated

assessments, such as scenarios involving obstetric hemorrhage management or emergency cesarean section, test students' theoretical knowledge and practical operation abilities. In these simulations, students must comprehensively apply their learned theoretical knowledge and skills to make rapid and accurate clinical judgments and operations, thereby improving their resilience in real clinical environments<sup>[9-12]</sup>.

### 2.3. Observation indicators

The observation indexes of this study include teaching satisfaction and scores on theoretical and operational examinations. Teaching satisfaction is categorized into three levels: "very satisfied," "satisfied," and "dissatisfied." "Very satisfied" indicates full recognition of the teaching content, method, and effectiveness; "satisfied" denotes basic approval of the teaching arrangement, with some suggestions for improvement; "dissatisfied" suggests varying degrees of dissatisfaction with the teaching process or outcome. "Satisfactory rate" includes those who are "very satisfied" and "satisfied." The scores on theoretical and operational examinations are assessed based on students' actual examination results, providing a tangible reflection of their mastery of course knowledge and skills.

### 2.4. Statistical methods

Statistical analysis of the research data was conducted using SPSS 21.0 software. For continuous data, the *t*-test was employed to compare differences between the two groups. For categorical data, such as teaching satisfaction, the chi-squared test was utilized to analyze differences between the groups, with significance determined when the *P*-value was less than 0.05.

## 3. Results

### 3.1. Comparison of the teaching satisfaction

Comparing the teaching satisfaction of the two groups, the total satisfaction of the research group was 94.29%, which was significantly higher than the 71.43% of the control group ( $P < 0.05$ ), as shown in **Table 1**.

**Table 1.** Comparison of teaching satisfaction between the two groups [*n* (%)]

Group ( <i>n</i> )	Very satisfied	Satisfied	Dissatisfied	Satisfactory rate
Control group (35)	7	18	10	25 (71.43)
Research group (35)	10	23	2	33 (94.29)
$\chi^2$				6.437
<i>P</i>				0.011

### 3.2. Comparison of theory and operational examination scores

In terms of theory and operational examination scores, there was no significant difference between the scores of the two groups before teaching. However, after teaching, the scores of the research group were higher than those of the control group ( $P < 0.05$ ; **Table 2**).

**Table 2.** Comparison of theoretical and operational examination scores between the two groups (mean  $\pm$  standard deviation, points)

Group (n)	Theoretical examination score		Operational examination score	
	Before teaching	After teaching	Before teaching	After teaching
Control group (35)	74.28 $\pm$ 3.54	78.65 $\pm$ 4.17	74.18 $\pm$ 2.87	83.23 $\pm$ 2.91
Research group (35)	73.67 $\pm$ 3.92	89.54 $\pm$ 4.21	74.21 $\pm$ 2.71	94.12 $\pm$ 3.43
<i>t</i>	0.683	10.872	0.045	14.323
<i>P</i>	0.497	0.000	0.964	0.000

## 4. Discussion

Clinical obstetrics and gynecology is a crucial branch of the medical field, focusing on women's reproductive health and providing medical services during pregnancy, childbirth, and the postpartum period. This specialty demands personnel with solid theoretical knowledge and superb clinical skills to ensure the health and safety of both mothers and infants [13-15].

Situational simulation education teaching mode is an innovative teaching method primarily involving the simulation of real clinical environments and medical scenarios. This approach enables related professionals to learn and train in settings closely resembling actual clinical practice. Compared to traditional single-type narration, situational simulation turns abstract theoretical knowledge into tangible scenarios, thereby stimulating personnel's interest in learning. Particularly, when students realize they can apply theoretical knowledge to solve problems in simulated clinical environments, their motivation to learn significantly increases [16]. Additionally, by simulating real medical scenarios, this method offers numerous practice opportunities for professionals to hone basic clinical operation skills in real-life situations. It also equips them to make decisions and respond to complexity or emergencies, deepening their understanding and application of obstetrics and gynecology professional knowledge in practice [17-19]. Moreover, this teaching mode enhances the teamwork abilities of clinical obstetrics and gynecology professionals. During scenario simulation, relevant professionals collaborate with team members to solve problems, fostering communication and coordination skills crucial for future teamwork in real clinical environments [20].

In line with the research presented in this paper, the teaching satisfaction of the research group using situational simulation education was 94.29%, significantly higher than that of the control group employing traditional teaching methods, which was 71.43% ( $P < 0.05$ ). Before the teaching intervention, there was no significant difference in the theoretical and operative examination scores between the two groups ( $P > 0.05$ ). However, after the teaching, a noticeable disparity emerged in the theory and operation test scores between the two groups, with the research group outperforming the control group ( $P < 0.05$ ).

In conclusion, the situational simulation education teaching mode significantly enhanced the teaching satisfaction and practical operation ability of clinical obstetrics and gynecology professionals, underscoring its important value and potential application in medical education.

## Disclosure statement

The authors declare no conflict of interest.

## References

- [1] Zhang C, Yang C, Li L, et al., 2021, Construction of Obstetrics and Gynecology Scenario Simulation Teaching and Evaluation System Oriented by Job Competency. *China Continuing Medical Education*, 13(5): 76–80.
- [2] Zhao X-X, 2023, Application of Simulation Scenario Teaching Combined with Action Learning Method in Obstetrics and Gynecology Clinical Teaching Based on Direct Observation and Assessment of Operating Skills. *Health Career Education*, 41(1): 74–77.
- [3] Gui D, Su Z, Zhang L, et al., 2023, Analysis of the Practical Effect of Situational Simulation Teaching Mode in the Standardized Training of Obstetrics and Gynecology. *Practical Gynecological Endocrinology Electronic Journal*, 10(6): 106–108.
- [4] Li Z, Yu D, Ma L, et al., 2023, Application of PBL Combined with Situational Simulation in the Teaching of Obstetrics and Gynecology with Integrated Chinese and Western Medicine. *Bright Chinese Medicine*, 38(6): 1183–1186.
- [5] Wang Y, Yan Y, Huo H, et al., 2023, Application Effect of Scenario Simulation Teaching Method in Clinical Internship Teaching of Obstetrics and Gynecology. *Zhongguo Nankang Med*, 35(7): 133–135.
- [6] Wang N, Li L, Cheng C, 2023, Application of Scenario Simulation Exercise in Clinical Practice Teaching of Obstetrics and Gynecology. *Education and Teaching Forum*, 2023(5): 127–130.
- [7] Sun C, Li L, 2023, The Application of Standardized Patient Combined with Situational Simulation Teaching Method in Obstetrics and Gynecology Teaching. *China Continuing Medical Education*, 15(10): 60–63.
- [8] Wang L, Huang Q, 2022, Analysis of the Effect of PBL Method Combined with Scenario Simulation in Teaching Clinical Obstetrics and Gynecology. *China Health Industry*, 19(1): 194–196 + 200.
- [9] Liu H, 2023, Application of Scenario Simulation Micro-Video Teaching Method in Practical Teaching of Obstetrics and Gynecology. *China Education Technology Equipment*, 2023(13): 131–133.
- [10] He L, Wu J, Xie X, et al., 2022, Application of Scenario Simulation Teaching in Standardized Training of Obstetrics and Gynecology Residents. *Chinese Journal of Medical Education*, 42(10): 907–911.
- [11] Fu Z, Xian E, Nie L, et al., 2023, Analysis of the Application of Virtual Reality Technology and Simulation Training in Obstetrics and Gynecology Internship Teaching. *Chinese Journal of Medical Education Exploration*, 22(11): 1694–1697.
- [12] Ding J, Ding C, Ni G, 2022, Exploration of the Application of SP Combined with Situational Simulation Teaching in Clinical Teaching of Obstetrics and Gynecology. *China Continuing Medical Education*, 14(4): 24–28.
- [13] Zhao L, Cao Y, Zhang X, et al., 2021, Application of Integrated Teaching in Obstetrics and Gynecology Clinical Apprenticeship. *Chinese Journal of Medical Education and Exploration*, 20(6): 677–680.
- [14] Yan L, Yuan M, Zhou T, et al., 2022, Analysis of the Application Effect of Scenario Simulation in CBL Teaching in Obstetrics and Gynecology. *China Continuing Medical Education*, 14(20): 41–44.
- [15] Wang H, 2022, Discussion on the Application of Scenario Simulation and Case Teaching Mode in the Clinical Practice Teaching of Standardized Obstetricians and Gynecologists. *China Maternal and Child Health Care*, 37(13): 2488–2492.
- [16] Tang F, Liu Y, Chen H, 2021, The Effect of Multimedia Combined with Case Scenario Simulation on the Teaching Quality of Obstetricians and Gynecologists. *Journal of Shanxi College of Health and Wellness*, 31(1): 132–133.
- [17] Ding M, Hou M, Fang T, et al., 2021, Application of Scenario Simulation Teaching Method in Teaching Obstetrics and Gynecology. *China Continuing Medical Education*, 13(7): 7–10.
- [18] Hu R, Yu Y, Ban D, 2021, Application of Situational Simulation Teaching Method in Teaching Clinical Skills of Obstetrics and Gynecology Residents. *China Continuing Medical Education*, 13(15): 9–13.
- [19] Liu N, Liu Q, Zhang Y, 2021, Application of Obstetrics and Gynecology Case Scenario Simulation Teaching

Competition in Standardized Training Teaching. *Jiangsu Science and Technology Information*, 38(33): 51–54.

- [20] Li R, Feng Q, Wang N, et al., 2023, Application of Scenario Simulation Exercise Teaching Method Combined with Workshop in Teaching Obstetrics and Gynecology. *Continuing Medical Education*, 37(11): 57–60.

**Publisher's note**

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.