Application Effectiveness Evaluation of Core Competency-Based Teaching Model in Obstetrics Nursing Education

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Abstract: Objective: To explore the application effectiveness of a core competency-based teaching model in obstetrics nursing education. Methods: A total of 20 nursing staff members were selected from April 2023 to April 2024 and randomly assigned into an observation group and a control group, with 10 participants in each group. The control group received conventional teaching, while the observation group was taught using the core competency-based teaching model. The core competencies, teaching quality, professional identity, and satisfaction of the two groups were compared. Results: The observation group scored higher in all five core competency categories compared to the control group (P<0.05). The observation group also received higher scores in all five categories related to teaching quality (P<0.05). The observation group's professional identity scores were higher than those of the control group (P<0.05). The satisfaction rate in the observation group was 100.00%, significantly higher than the control group's 60.00% (P<0.05). Conclusion: The teaching model used in the observation group significantly improved the core competencies of nursing staff, enhanced overall teaching quality, and increased professional identity and satisfaction, making it worth promoting and applying.

***Keywords*:** Core Competency; Obstetrics; Teaching Quality; Professional Identity; Satisfaction

1. Introduction

Obstetrics nursing requires a solid theoretical foundation and the ability to handle a variety of clinical situations, with comprehensive professional skills and clinical judgment capabilities [1]. Therefore, training nursing staff with comprehensive capabilities has become the core goal of obstetrics teaching. However, traditional teaching models often focus on the dissemination of basic knowledge and the single training of skills, which usually result in overly generalized teaching content and one-dimensional teaching methods. This approach fails to comprehensively improve the nursing staff's overall quality, especially when dealing with complex or emergent clinical conditions. Nursing staff's adaptability and problem-solving abilities are often insufficient [2].The core competency-based teaching emphasizes problem-based learning, where nursing students autonomously learn and explore clinical scenarios with guided questions. Under the teacher's guidance, they engage in problem discussions and knowledge reviews. This method not only cultivates clinical thinking skills but also enhances the ability to solve practical problems, enabling nursing students to quickly make correct judgments in a rapidly changing clinical environment [3]. However, there is limited research on this approach. Therefore, this paper conducts a specific study, which is reported as follows:

2. Materials and Methods

2.1 Clinical Data

A total of 20 nursing staff members were selected from April 2023 to April 2024, and randomly assigned into an observation group and a control group, with 10 participants in each group. In the control group, 4 had a college degree or above, and 6 had below a college degree; the age ranged from 19 to 22 years, with an average age of 20.04±0.54 years. Their internship duration ranged from 1 to 3 months, with an average of 2.11±0.12 months. In the observation group, 5 had a college degree or above, and 5 had below a college degree; their age also ranged from 19 to 22 years, with an average age of 26.20±0.60 years. Their internship and employment duration ranged from 1 to 3 months, with an average of 2.03±0.11 months. The data were comparable (P>0.05). The study was approved by the medical ethics committee.

2.2 Inclusion and Exclusion Criteria

Inclusion Criteria:(1) Nursing interns agreed to participate in the study;(2) Internship duration of at least 1 month;(3) Female patients.

Exclusion Criteria:(1) Withdrawal from the study midway;(2) Age below 23 years;(3) Failure to complete the study 3

times or more.

2.3 Methods

The control group received conventional teaching, relying on standardized teaching procedures. This approach focused on imparting basic knowledge and skills through theoretical lectures and operational demonstrations, complemented by basic skills practice using simulated cases.

The observation group was taught using a core competency-based teaching model, which included the following elements:

(1) Orientation.The teaching mentor provided nursing students with a detailed introduction to the department, including the layout, staff composition, daily workflows, and operational standards within the obstetrics department. This orientation helped students adapt to the obstetric environment and laid a solid foundation for their subsequent learning.

(2) Content and Schedule.

Week 1: Case-based learning introduced students to common conditions encountered in obstetric patients. Students were encouraged to identify questions and independently search for information to understand the fundamental theories and basic operational processes, with a focus on basic care measures for obstetric patients.

Week 2: Teaching centered on perinatal care. Students studied key aspects of care for pregnant women and newborns, including prenatal, intrapartum, and postpartum care, as well as neonatal nursing.

Week 3: Focused on the care of pregnancy complications and critical cases. Case-based teaching helped students understand key care practices for complications such as gestational hypertension and gestational diabetes. They also learned breastfeeding techniques and methods for addressing common issues.

Week 4: Emphasized the management of critical obstetric cases. Through case analysis, students gained insight into preventing and managing obstetric emergencies. Group discussions were conducted to reinforce their understanding and application of emergency knowledge and skills.

(3) Core Competency Development.Beyond mastering basic nursing skills, the teaching model prioritized the development of students' clinical thinking, problem-solving abilities, and teamwork. Teaching mentors provided individualized guidance to address specific challenges faced by students, enhancing their ability to manage complex clinical situations.

(4) Problem-Based Learning (PBL) Application.Teaching mentors tailored personalized teaching plans based on each student’s level of knowledge. During clinical practice, students were required not only to complete fundamental nursing tasks but also to analyze patients’ specific situations comprehensively, identify nursing issues, and propose solutions. When students encountered challenges, mentors encouraged them to consult reference materials and engage in self-directed learning. Afterward, students were required to summarize their knowledge and resolve complex problems through discussion and reflection, further strengthening their practical abilities.

2.4 Observation Indicators

(1) Core Competency.A self-designed nurse core competency self-assessment scale (Cronbach's α coefficient = 0.86) was used to evaluate five items. Each item was scored out of 100 points, with higher scores indicating better core competencies. (2) Teaching Quality.A self-designed teaching quality evaluation scale was used to assess five items, each scored from 0 to 100 points, with higher scores indicating higher teaching quality. (3) Professional Identity.The Professional Identity Evaluation Form [4] was used to assess five aspects of professional identity. Each aspect was scored on a 5-point scale, with higher scores indicating stronger professional identity. (4) Satisfaction.A self-designed satisfaction evaluation scale, scored out of 100 points, was used with four satisfaction levels. Satisfaction was calculated as:

Satisfaction Rate=Total Cases−Dissatisfied Cases/Total Cases

2.5 Statistical Analysis

Statistical analysis was performed using SPSS 25.0 software. Measurement data were expressed as mean ± standard deviation (false±s) and rates. Comparisons were conducted using the t-test and χ^2 test, with $P < 0.05$ indicating statistically significant differences.

3. Results

3.1 Comparison of Core Competencies

The scores for the five core competencies in the observation group were significantly higher than those in the control group ($P < 0.05$). See Table 1.

Table 1. Comparison of Core Competencies ($\bar{x}$±s)

Group	Cases	Obstetric Knowledge (points)	Team Collaboration (points)	Nurse-Patient Communication (points)	Learning Ability (points)	Psychological Guidance (points)
Observation	10	89.25±2.01	88.05±2.06	89.06±1.01	89.06±2.09	88.06±2.02
Control	10	83.38±3.10	84.38±2.11	84.14±1.27	84.12±3.01	83.16±2.11
t	/	5.024	3.936	9.588	4.263	5.305
P	/	<0.001	<0.001	<0.001	0.001	<0.001

3.2 Comparison of Teaching Quality

The scores for the five teaching quality indicators in the observation group were significantly higher than those in the control group ($P < 0.05$). See Table 2.

Table 2. Comparison of Teaching Quality ($\bar{x}$±s)

Group	Cases	Classroom Interaction (points)	Teaching Content (points)	Teaching Design (points)	Teaching Method (points)	Question and Answer (points)
Observation	10	90.06±1.14	88.17±2.01	89.17±2.03	88.14±1.71	89.03±1.25
Control	10	84.03±2.01	83.27±2.13	83.02±2.09	84.40±2.13	83.18±2.06
t	/	8.252	5.291	6.675	4.330	7.677
P	/	<0.001	<0.001	<0.001	<0.001	<0.001

3.3 Comparison of Professional Identity

The scores for the five aspects of professional identity in the observation group were significantly higher than those in the control group ($P < 0.05$). See Table 3.

Table 3. Comparison of Professional Identity ($\bar{x}$±s)

Group	Cases	Cognitive Evaluation (points)	Social Support (points)	Frustration Coping (points)	Social Skills (points)	Self-Reflection (points)
Observation	10	3.71±0.21	3.73±0.21	3.81±0.19	3.51±0.21	3.42±0.15
Control	10	2.11±0.25	2.13±0.31	2.16±0.21	2.13±0.30	2.56±0.34
t	/	15.497	13.513	18.425	11.917	7.318
P	/	<0.001	<0.001	<0.001	<0.001	<0.001

3.4 Comparison of Satisfaction

The satisfaction rate in the observation group was 100.00%, significantly higher than the 60.00% in the control group ($P < 0.05$). See Table 4.

Table 4. Comparison of Satisfaction [n (%)]

Group	Cases	Very Satisfied	Satisfied	Moderately Satisfied	Not Satisfied	Satisfaction Rate
Observation	10	5 (50.00)	4 (40.00)	1 (10.00)	0 (0.00)	10 (100.00)
Control	10	3 (30.00)	2 (20.00)	1 (10.00)	4 (40.00)	6 (60.00)
x^2	/	-	-	-	-	5.000
P	/	-	-	-	-	0.025

4. Discussion

With the increasing societal demand for the quality of medical care, particularly in obstetric nursing, the professional competence and comprehensive qualities of nursing staff have gradually become critical indicators of hospital service quality [5]. Obstetrics, as a pivotal department within hospitals, undertakes significant clinical responsibilities that not only involve the life and safety of mothers and infants but also require nursing staff to possess advanced professional skills, meticulous care techniques, and the ability to handle complex situations [6]. However, traditional nursing education models, particularly in obstetrics, face numerous challenges. While the existing teaching methods provide nursing students with

fundamental theoretical knowledge and practical skills to some extent, the complexity of nursing work and the variability of clinical practice often make traditional teaching methods inadequate for fostering the comprehensive development of nursing students. In actual clinical practice, nursing students frequently lack critical thinking, emergency response abilities, and problem-solving skills, revealing the limitations of conventional teaching methods [7].

The traditional nursing teaching model focuses on imparting theoretical knowledge and training basic operational skills, often characterized by teacher-led lectures and passive learning by nursing students. The advantage of this model lies in its ability to quickly equip nursing students with fundamental theories and common nursing practices, making it suitable for the early stages of learning. However, as the medical environment becomes more complex and patient needs more diverse, the shortcomings of traditional teaching approaches have become increasingly evident.First, conventional teaching overly emphasizes the transmission of theoretical knowledge while neglecting the cultivation of clinical practice capabilities and critical thinking in nursing students. Although students can master basic skills through routine training, they often lack the ability to think independently and make quick decisions in complex or urgent clinical situations [8]. Second, traditional teaching often overlooks the individual needs of nursing students, with uniform teaching content and pace that fail to consider differences in students' foundational knowledge and clinical experience. This lack of personalization prevents some students from learning at a pace that best suits their development [9].To address these issues, the teaching model based on core competencies has emerged. This approach emphasizes the cultivation of nursing students' core abilities as its primary goal and adopts more interactive and integrated teaching methods. It is specifically designed to address the deficiencies of traditional teaching models and meet the demands of modern nursing education [10].

The results of the study indicate that the observation group demonstrated higher scores in core competencies, teaching quality, professional identity, and satisfaction compared to the control group. This suggests that the core competency-based teaching model, through personalized instructional methods, aids nursing students in continuously improving their comprehensive qualities in practical operations. Unlike traditional teaching methods, this model emphasizes clinical judgment, emergency response capabilities, and teamwork, integrating problem-based learning and case analysis to encourage nursing students to enhance their core competencies while solving real-life problems. By adopting this approach, nursing students not only master fundamental skills but also develop clinical thinking, communication, coordination, and quick-response abilities, better preparing them for the challenges of obstetric nursing work and improving their overall quality and professional competence.

In conclusion, the core competency-based teaching model effectively addresses the shortcomings of traditional teaching methods by focusing on the development of core competencies, enhancing clinical thinking and practical skills, improving teaching quality, and increasing professional identity and satisfaction among nursing students. This model is highly effective and worthy of promotion in nursing education.

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