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The Effect of Reflective Teaching on Critical Thinking Skills of Midwifery Students

Ying Zhou, Xiwei Zhang*, Lijun Song, Hua Zhang, Xiaohe Tian

Department of Obstetrics and Gynaecology, Beijing Anzhen Hospital, Capital Medical University, Beijing 100029, China

Corresponding author: Xiwei Zhang, anna13601216142@163.com

Abstract: *Objective*: To study and investigate the impact of the role of reflective teaching to midwifery students on the development of their critical thinking skills. *Methods*: 60 midwifery students were selected as research subjects, with 30 midwifery students in midwifery class 1 receiving traditional teaching methods and were classified as the control group. The other 30 midwifery students in midwifery class 2 received reflective teaching and were classified as the training group. The study compared the critical thinking ability scores, incremental critical thinking ability scores, post-training assessment scores, and satisfaction with the teaching between the two groups before and after the training. *Results*: Before training, the comparison of the critical thinking ability scores of midwifery students in the two groups was not statistically significant ($P > 0.05$); after training, the critical thinking ability scores of midwifery students in the two groups were effectively improved ($P < 0.05$). The total score of critical thinking ability in the training group was higher than that of the control group ($P < 0.05$); the degree of improvement of critical thinking ability in the training group was greater than that of the control group ($P < 0.05$); the assessment scores of the training group were higher than those of the control group ($P < 0.05$); and the satisfaction rate of the effect of teaching midwifery students in the training group was higher than that of the control group ($P < 0.05$). *Conclusion*: Reflective teaching training for midwifery students can help to improve teaching quality and training effect, promote midwifery students' critical thinking ability and professionalism, and gain recognition from midwifery students.

Keywords: Reflective teaching; Midwifery students; Critical thinking ability

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1. Introduction

Critical thinking can help individuals use their existing knowledge and experience reserves flexibly in various complex situations, deepen analysis and inference based on scientific logical thinking, and finally make reasonable and effective behavioral decisions. The use of critical thinking can produce relatively clear, constructive thinking results, can further explore the truth, promote justice, and promote social progress [1–2]. From the perspective of modern medicine, the current complex medical environment and ever-changing medical needs require midwives to have the ability to make independent judgments, decisions, and implementation in clinical practice, which determines that midwives must have a certain degree of critical thinking skills [3–4].

Midwifery students are highly malleable in the theoretical learning stage, and if they can master certain critical thinking skills, they will be able to carry out purposeful and meaningful judgment, reflection, reasoning, and decision-making independently in the future when they face complex clinical nursing problems, and then carry out their work better [5–6]. For this reason, this study tries to apply reflective teaching to the teaching of midwifery students and achieves good experimental results. The study detail is reported as follows.

2. Information and methodology

2.1. General information

Sixty midwifery students were selected for the study, with 30 midwifery students in the midwifery 1 class receiving traditional teaching methods and were categorized in the conventional group. The other 30 midwifery students in the midwifery 2 class received reflective teaching and were categorized in the training group. Control group: all females, age 17.5–20 years, mean age 18.75 ± 1.11 years; education: all vocational high schools. Training group: all female, age 17–20.5 years, mean age 18.88 ± 1.22 years; education: all vocational high school. Comparison of general information such as gender, age, and education of midwifery students in the two groups was not statistically significant ($P > 0.05$). Inclusion criteria: (1) midwifery students have certain nursing knowledge and thinking ability; (2) midwifery students are aware of this study. Exclusion criteria: (1) Midwifery students who gave up the training in the middle of the course; (2) Midwifery students who were absent from the training course for reasons of holiday or sick leave.

2.2. Training methods

2.2.1. Control group

The control group adopts the traditional method of training: selecting senior clinically experienced instructors to train the midwifery students, using the textbook as the main basis for teaching the routine theoretical knowledge of midwifery within the prescribed teaching time, and conducting an assessment after the training.

2.2.2. Training groups

The training group receives reflective teaching. Key points for the implementation of reflective teaching: (1) Pre-learning reflection: reflective content is integrated into the teaching design. Before the teaching is carried out, based on relevant literature, summarize the characteristics of midwifery work and the knowledge mastery ability of midwifery students, explore the main influencing factors affecting the development of the critical thinking ability of midwifery students, make reasonable adjustments and additions to the content of traditional teaching materials, and formulate the theoretical teaching content that incorporates the connotation, significance, and method of reflective learning. (2) Reflective learning: Emphasis on the teaching of theoretical knowledge of critical thinking: before teaching midwifery professional knowledge, firstly, make an in-depth analysis of the theoretical knowledge of critical thinking to help midwifery students clarify the importance of critical thinking to midwifery, and to enhance the enthusiasm and initiative of midwifery students in the development of their critical thinking ability. Adjustment of teaching methods: critical thinking teaching throughout the training, breaking the traditional teaching teacher single lecture learning mode. The instructor releases the course content in advance, the midwifery student prepares for the content of the lecture, the midwifery student carries out the study on their own according to their knowledge reserve, literature review, network search, discusses and collates the important points, difficulties and doubts in the study chapters, and the instructor carries out the lectures according to the collated and summarized information in a targeted manner. High-simulation simulation teaching: part of the midwifery skills that exist in the theoretical lectures, selecting student representatives to

carry out patients and midwives' high-simulation simulation roles, through the students' independent practical operation to demonstrate midwifery skills, carrying out discussions to find out the problems, analyze the root causes of the problems, and finally to summarize the problems and show the correct operation by the instructor. (3) Post-study reflection: midwifery students are required to submit one reflection note per week, which contains things observed during training, analyses of their own or teaching deficiencies and gains, and puts forward optimization suggestions for their development of critical thinking skills or teaching methods, and the teacher will check the reflection diary to improve and promote the subsequent teaching, and share and exchange the contents of the diary that have promotional value.

The teaching level of the two groups of teachers was the same, and both groups were trained for three months.

2.3. Observation indicators

2.3.1. Comparison of critical thinking ability scores and score increments before and after training of midwifery students in two groups

The Chinese version of the Critical Thinking Disability Inventory (CTDI-CV), revised by scholars such as Peng Mei-Chi and Wang Guo-Cheng was used to assess the two groups of midwifery students [7]. The Critical Thinking Disability Inventory contains seven categories, including intellectual curiosity, analytical ability, open-mindedness, truth-seeking, cognitive maturity, systematic ability, and self-confidence in judging, with 10 entries under each category, and a total of 70 entries in the inventory. The evaluation criteria for each item of the scale: <30 is negative critical thinking ability, 30–40 is poor critical thinking ability, 40–50 is positive critical thinking ability, and >50 is strong critical thinking ability. The overall evaluation standard of the scale: <210 is negative critical thinking ability, 210–280 is poor critical thinking ability, 280–350 is positive critical thinking ability, and >350 is strong critical thinking ability. The validity coefficients of the scale for each category were 0.55–0.77, and the combined validity coefficient for the content was 0.900, suggesting that the scale had good reliability and validity.

2.3.2. Comparison of the two groups of midwifery students' post-training assessment scores

After completing the training, the two groups of midwifery students participated in the same written assessment with a full score of 100 points. The content of the assessment includes knowledge of basic obstetric nursing routines, knowledge of midwifery skills, knowledge of the use of obstetric drugs, knowledge of ethics, legal and professional norms, and so on.

2.3.3. Comparison of satisfaction with the teaching effect of midwifery students in the two groups

Satisfaction with the teaching effect was surveyed by questionnaire, which was submitted anonymously by midwifery students of the two groups. A total of 30 questionnaires were distributed and 30 questionnaires were collected.

2.4. Statistical methods

The data in this study were analyzed by SPSS 23.0 to test the differences, and the measured data and count data were tested by t-value and $\chi 2$-value, respectively, and expressed as a percentage, (mean ± standard deviation), and the comparison of the two groups was statistically analyzed with statistical significance at $P < 0.05$.

3. Results

3.1. Comparison of the scores of critical thinking skills of midwifery students in the two groups before and after training

Before the training, the difference between the two groups of midwifery students' critical thinking ability scores was not statistically significant ($P > 0.05$). after the training, the two groups of midwifery students' critical thinking ability scores were effectively improved ($P < 0.05$), and the training group's total critical thinking ability score was higher than that of the control group ($P < 0.05$), as shown in **Table 1**.

Table 1. Critical thinking ability scores of midwifery students in both groups before and after training (mean ± standard deviation, points)

Projects	Pre-training		*t*	*P*	Post-training		*t*	*P*
	Training group (*n* = 30)	Control group (*n* = 30)			Training group (*n* = 30)	Control group (*n* = 30)		
Curiosity	33.25 ± 1.45	33.75 ± 1.27	-	-	43.68 ± 3.41	38.38 ± 5.45	-	-
Analytical skills	37.55 ± 2.47	37.65 ± 2.22	-	-	45.66 ± 3.21	36.48 ± 3.69	-	-
Open-mindedness	35.47 ± 1.58	35.78 ± 1.34	-	-	44.58 ± 3.78	36.55 ± 3.69	-	-
Truth-seeking	33.46 ± 1.89	33.82 ± 1.36	-	-	45.56 ± 3.96	39.25 ± 3.95	-	-
Cognitive maturity	36.68 ± 1.87	36.25 ± 1.68	-	-	46.84 ± 3.74	38.31 ± 3.71	-	-
Systematic ability	33.79 ± 3.46	33.88 ± 3.75	-	-	41.56 ± 1.45	35.78 ± 2.25	-	-
Judging Self-Confidence	33.85 ± 1.41	33.36 ± 1.34	-	-	47.12 ± 2.75	35.98 ± 3.85	-	-
Total Score	245.88 ± 10.55	246.75 ± 9.47	0.348	0.729	315.25 ± 10.24	265.74 ± 10.74	18.274	0.000

3.2. Comparing the increment of critical thinking skills scores before and after the training of midwifery students in the two groups

The training group's improvement in critical thinking skills was greater than that of the control group ($P < 0.05$), as shown in **Table 2**.

Table 2. Comparison of the incremental scores of critical thinking skills between the two groups of midwifery students before and after training (mean ± standard deviation, points)

Projects	Post-training score increment for the training group	Post-training score increment for the control group	t	P
Curiosity	9.40 ± 1.45	2.35 ± 1.74	-	-
Analytical skills	8.13 ± 2.71	1.74 ± 1.36	-	-
Open-mindedness	8.56 ± 2.34	1.50 ± 1.42	-	-
Truth-seeking	10.86 ± 3.45	3.96 ± 2.74	-	-
Cognitive maturity	8.40 ± 12.46	0.97 ± 1.69	-	-
Systematic ability	8.74 ± 2.58	2.95 ± 1.31	-	-
Judging self-confidence	8.74 ± 2.67	0.23 ± 3.45	-	-
Total score	68.88 ± 7.12	15.24 ± 4.45	34.992	0.000

3.3. Comparing the average post-training assessment scores of midwifery students in the two groups

The appraisal scores of the training group were higher than those of the control group ($P < 0.05$). See **Table 3**.

Table 3. Comparing the average post-training assessment scores of midwifery students in the two groups (mean ± standard deviation, points)

Groups	Average performance in appraisals
Training group (n = 30)	90.74 ± 1.86
Control group (n = 30)	83.52 ± 4.39
t	8.294
P	0.000

3.4. Comparison of the two groups of midwifery students with the effect of teaching satisfaction

The satisfaction rate of midwifery students' teaching effect in the training group was higher than that in the control group ($P < 0.05$), as shown in **Table 4**.

Table 4. Comparison of the satisfaction rate of the effect of teaching midwifery students in the two groups [n(%)]

Groups	Very satisfied (n)	Satisfied (n)	Unsatisfied (n)	Satisfaction rate (%)
Training group (n = 30)	22	8	0	100.00
Control group (n = 30)	16	10	4	86.67
x^2	-	-	-	4.286
P	-	-	-	0.038

4. Discussion

As the general public's demand for modern medical care continues to increase, nursing staff will inevitably take on more responsibility [8]. As a role that involves both soothing the mind of the mother and mastering professional skills, midwives should have the comprehensiveness of clinical thinking, and they should possess the logic of critical thinking [9–10]. Critical thinking, as one of the core competencies of midwives, can help them make correct clinical decisions, which is conducive to the effective development of midwifery [11–12]. While midwifery students are highly impressionable, the teaching stage is an important opportunity for midwifery students to improve their theoretical reserves and thinking ability is the first part of the whole career quality training [13–14]. The conscious integration of reflective teaching in the training of midwifery students is of great significance both for the development of their abilities and for the progress of the discipline [15].

The conclusions of this study show that: after the training, both groups of midwifery students' critical thinking ability scores were effectively improved ($P < 0.05$), and the total score of critical thinking ability of the training group was higher than that of the control group ($P < 0.05$). The degree of improvement of the critical thinking ability of the training group was greater than that of the control group ($P < 0.05$); the assessment scores of the training group were higher than that of the control group ($P < 0.05$); the traditional teaching methods are mainly based on the textbook to teach the routine theoretical knowledge of midwifery, which restricts the development of their critical thinking. The traditional teaching method is mainly based on the textbook to teach the routine theoretical knowledge of midwifery, and students passively accept the teaching, which restricts the development of their critical thinking. Reflective teaching through the whole process of pre-study, study, and

post-study conscious integration of critical thinking content, promotes midwifery students to take the initiative to observe and think about the problem, solve the problem, in the learning and problem-solving in the extension of the original knowledge, improve independent learning and creativity, and effectively promote the depth of the use of critical thinking skills. High-simulation simulation teaching integrates theoretical knowledge into specific clinical scenarios to help midwifery students quickly and skillfully master the essentials of nursing operations and independently and actively judge and analyze problems, which is more conducive to the exercise of their professional operation ability, thinking ability, communication ability, emergency analysis, and treatment ability. The writing of a post-course reflection diary, on the one hand, encourages midwifery students to accumulate lessons and insights, and on the other hand, it is beneficial to the improvement of the ability to analyze and summarize problems. The satisfaction rate of midwifery students in the training group was higher than that of the control group ($P < 0.05$), which fully indicates that the implementation of reflective teaching training has given midwifery students more opportunities to give play to their subjective initiative, and has been recognized by the students.

In conclusion, the implementation of reflective teaching training for midwifery students can help to improve the quality of teaching and training effects, promote the critical thinking ability and professionalism of midwifery students, and gain the recognition of midwifery students.

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Disclosure statement

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