

# Application of Case Combined with Seminar Teaching Method in Pediatric Nursing

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## Abstract

**Objective:** To explore the application effect of case combined with seminar teaching method in Pediatric Nursing. **Methods:** Two classes in junior year were selected by convenience sampling in 2022, and the two classes were randomly divided into the intervention group and control group by tossing a coin. The intervention group utilized the case combined with seminar teaching method, while the control group used the traditional teaching-based method. The stage test average score, final exam results were compared after the end of the course. The autonomous learning ability evaluation scale and the Chinese critical thinking ability scale were used to attain students' autonomous learning ability and critical thinking ability before and after the course. The self-made evaluation scale was used to know students' evaluation of the new teaching method after the course. **Results:** 1) The stage test average scores of the intervention group and the control group were  $79.13 \pm 6.39$  and  $74.67 \pm 5.25$  respectively ( $P < 0.05$ ), the final exam scores were  $79.83 \pm 6.09$  and  $75.21 \pm 4.91$  respectively ( $P < 0.05$ ); 2) The total scores of autonomous learning ability were  $118.67 \pm 7.70$  and  $106.49 \pm 7.67$  respectively ( $P < 0.05$ ), and the total scores of critical thinking ability were  $283.45 \pm 7.82$  and  $251.37 \pm 8.93$  respectively ( $P < 0.05$ ); 3) More than 80% of the students in the intervention group believed that the case combined with seminar teaching method could deepen the understanding of knowledge, promote the habit of thinking and literature consulting, and improve the ability to analyze and solve problems, integrate knowledge and communicate and coordinate. **Conclusions:** Application of case combined with seminar teaching method in Pediatric Nursing improved the students' autonomous learning ability and critical thinking ability, and strengthened the students' understanding and application of knowledge. The students had a positive attitude towards the new teaching method.

## Keywords

Case Teaching, Seminar, Autonomous Learning, Critical Thinking

## 1. Introduction

Pediatric Nursing is a required course of nursing specialty, and covers many childhood diseases. However, because of the different anatomical structure, physiological function and psychological behavior of children at different stages, the characteristics of the disease are different from that of adults, and the conditions are prone to change. For students away from childhood, learning pediatric nursing well is a certain challenge. The traditional teaching-based teaching neglected the main role of students, although the teachers spent a lot of energy preparing lessons and PPT, students still had difficulties in learning. They mostly listened passively to the teacher, coupled with the lack of clinical experience and real scenes, they could not understand and integrate what they had learned well. Meanwhile, the classroom atmosphere was not active, students' class participation was not enough, and their independent learning ability and critical thinking ability need to be improved, resulting in the unsatisfactory learning effect. Case teaching method is a kind of teaching method that guides students to actively participate in the discussion through the typical setting of specific cases, and finally achieves the improvement of problem-solving ability, which is widely used in higher medical education. It is an active learning strategy that focuses on students as the center [1] [2]. Seminar teaching method refers to the seminar and discussion conducted by students under the guidance of teachers. Students actively participate in class discussions, cooperate in division of labor, take the initiative to think about problems and search for information, so as to improve teaching quality and promote students' all-round development [3]. The combination of case and seminar teaching mode has achieved remarkable teaching effects in the teaching of colleges and universities at home and abroad [4] [5] [6], however, it was seldom used in the teaching of Pediatric Nursing. Therefore, this study tried to apply the case combined with seminar teaching method in pediatric nursing course, and observe its application effect.

## 2. Participants and Methods

### 2.1. Participants

Since there were only two classes of nursing students, two classes in junior year were selected by convenience sampling in 2022. There were 72 participants in the intervention group and 70 participants in the control group. The two classes were randomly divided into intervention group and control group by tossing a coin. The intervention group adopted the case teaching method, while the control group adopted the traditional teaching-based method. The two groups were identical in terms of class hours, teaching progress, textbook, teachers and test paper. There were no statistical differences in gender, age, score point, autonomous learning ability and critical thinking ability ( $P > 0.05$ ).

### 2.2. Methods

#### 2.2.1. Integration of Teaching Content

Due to the limited teaching time, questionnaire survey was conducted for nurs-

ing managers, nurses and interns, so as to closely integrate teaching content with clinical practice. In addition, ideological and political elements and academic frontier are integrated into the teaching content to cultivate students' good sense of values and innovation.

### **2.2.2. Case Writing**

The teaching team was composed of full-time teachers and clinical teachers. The teachers of the course group prepared the cases according to the actual clinical cases. Each case was set with a disease variation and included two related diseases. The setting of case questions was based on nursing procedures, academic frontier, laws and regulations, and humanistic nursing.

### **2.2.3. The Implementation of Case Combined with Seminar Teaching**

1) At least a week before class, the teachers of the course group sent corresponding cases, PPT, reference materials and learning resources to the experimental group students through the rain class. The students discussed the problems in group and completed a preview test.

2) In class, each group of student representatives reported on the resolution of the problem in the case and any remaining questions or doubts for 5 - 8 minutes, then teachers guided students to think, discuss and solve the existing problems.

3) After class, students would summarize the knowledge learned in class, and advanced knowledge according to the extension homework based on the case.

### **2.2.4. Teaching Effect Evaluation**

1) Student's stage test average score and final exam results

2) Students' autonomous learning ability

The autonomous learning ability evaluation scale of nursing students compiled by Zhang XY [7] was adopted. The scale includes four dimensions, namely learning motivation, self-management ability, cooperation ability and information literacy, with a total of 30 items. Likert 5-level scoring method is adopted, complete symbol is 5 points, complete inconformity is 1 point, reverse entries are scored in reverse order, the total score is 30 - 150 points, the higher the score, the stronger the independent learning ability. The Cronbach's  $\alpha$  of the questionnaire is 0.82. Questionnaires were distributed before and after the course, 142 questionnaires were distributed, and the effective rate was 100%.

3) Students' critical thinking ability

The Chinese Critical Thinking Ability Scale (CT-DI-CV) translated and revised by Peng MC [8] was used for assessment before and after teaching. The scale is divided into 7 dimensions: truth seeking, open mind, analytical ability, systematization ability, critical thinking confidence, intellectual curiosity and cognitive maturity, with 10 items in each dimension, a total of 70 items. Likert 6-level scoring method is adopted, the total score of each dimension is 10 - 60 points, and the total score was 420 points. The higher the score is, the stronger the inclination of critical thought dimension is. The Cronbach's  $\alpha$  is 0.90, and CVI is 0.89. Questionnaires were distributed before and after the course, 142

questionnaires were distributed, and the effective rate was 100%.

4) Students' comprehensive evaluation of the case combined with seminar teaching method

On the basis of reading literature [3] [4] [5] [6], a total of 17 items are designed, and 3 options were set respectively: agree, uncertain and disagree. The retest reliability of the questionnaire was 0.892, and the content validity was 0.85. After the end of the course, the students in the intervention group were investigated. 72 questionnaires were distributed, and the effective rate was 100%.

### 2.2.5. Data Analysis

Data were analysed using SPSS 25.0. The measurement data such as students' test scores, critical thinking ability and autonomous learning ability were expressed by  $(\bar{x} \pm s)$ , and the counting data were expressed as %. The comparison of two independent samples was conducted by *t* test. Statistical significance was set at a *p*-value of less than 0.05.

## 3. Results

### 3.1. Student's Stage Test Average Score and Final Exam Results

The average stage test and final exam scores of the intervention group were significantly higher than those of the control group ( $P < 0.05$ ). See **Table 1** in detail.

### 3.2. Students' Critical Thinking Ability and Autonomous Learning Ability

After applying the case combined with seminar teaching method, the total scores of the critical thinking and autonomous learning of the intervention group were significantly higher than those of the control group ( $P < 0.05$ ). See **Table 2** in detail.

### 3.3. The Experimental Group's Evaluation of the Case Combined with Seminar Teaching Method

More than 80% of the students in the intervention group believed that the case combined with seminar teaching method could deepen the understanding of knowledge, promote the habit of thinking and literature consulting, and improve the ability to analyze and solve problems, integrate knowledge and communicate and coordinate. See **Table 3** in detail.

## 4. Discussions

### 4.1. The Case Combined with Seminar Teaching Method Improved Students' Critical Thinking Ability

Critical thinking ability is one of the basic abilities that medical students should have, which is the ability of an individual to flexibly apply existing experience and knowledge to judge, reflect, reason and make decisions when facing a complex problem. **Table 2** shows that the score of critical thinking ability of students in the intervention group after the course is significantly higher than that of the

**Table 1.** Stage test average score and final exam results ( $\bar{x} \pm s$ , score).

group	<i>n</i>	stage test average score	final exam score
Intervention group	72	79.13 ± 6.39	79.83 ± 6.09
Control group	70	74.67 ± 5.25	75.21 ± 4.91
<i>t</i>	-	-4.542	-4.969
<i>p</i>	-	0.000	0.000

**Table 2.** The total score of students' critical thinking and autonomous learning ( $\bar{x} \pm s$ , score).

group	<i>n</i>	critical thinking	autonomous learning
Intervention group	72	283.45 ± 7.82	118.67 ± 7.70
Control group	70	251.37 ± 8.93	106.49 ± 7.67
<i>t</i>	-	21.634	9.448
<i>p</i>	-	0.000	0.000

**Table 3.** Intervention group students' evaluation of the case combined with seminar teaching method (*n* = 72).

items	Agreement n (%)	Uncertainty n (%)	Disagreement n (%)
deepen understanding of knowledge	64 (88.89)	7 (9.72)	1 (1.39)
develop the habit of loving thinking	63 (87.50)	9 (12.50)	0 (0)
improve the ability to think and analyze problems	62 (86.11)	9 (12.50)	1 (1.39)
improve the ability to integrate knowledge	61 (84.72)	9 (12.50)	2 (2.78)
improve teamwork ability	58 (80.56)	13 (18.05)	1 (1.39)
develop the habit of literature searching	58 (80.56)	10 (13.89)	4 (5.55)
develop the habit of reading your textbook carefully	56 (77.78)	15 (20.83)	1 (1.39)
improve communication and coordination skills	56 (77.78)	14 (19.44)	2 (2.78)

control group, which is consistent with other relevant research results [1] [3] [6] [9]. **Table 3** presents that more than 80% of the students in the intervention group believed that the new teaching method could enable students to develop the habit of loving thinking, and improve the ability to think and analyze problems. The possible reasons are as follow: 1) Case teaching method is a common teaching method to improve students' critical thinking. The teaching group set up problems in cases based on nursing procedures, new developments, laws and regulations, and humanistic nursing, so students needed to evaluate, diagnose, and plan the care that needs to be implemented based on the information provided in the case. Meanwhile, students should focus on children and families, and think about how to provide humane care, how to improve care measures, and how to protect their rights and interests. This process required constant

thinking for judgment, reflection, and decision making; 2) During the discussion, everyone boldly expressed their own views, affirmed, questioned or criticized the views of others, and finally reached a consensus. 3) The guiding role of teachers before, during and after class could enhance students' reflection on their own thinking, so as to make continuous improvement.

#### **4.2. The Case Combined with Seminar Teaching Method Improved Students' Autonomous Learning Ability**

Autonomous learning ability is the ability of individuals to use cognitive and objective human and material resources to acquire and master the necessary knowledge with high quality and skill ability [10]. The study shows that after the teaching reform, students' autonomous learning ability improved significantly, which is consistent with the results with the studies [5] [6] [9]. **Table 3** shows 80.56% intervention group students thought that the new teaching method could improve their teamwork ability and develop the habit of literature searching. The main reasons may be as follows. 1) Before class, the teacher provided a wealth of learning resources in the rain class, such as pictures, videos, cases written with real cases and preview PPT, etc., which could better meet the diversified learning needs of students and improve their learning interest. Interest is one of the driving forces of autonomous learning. 2) In order to complete the case study task assigned by the teacher, they would work in groups to solve problems through preview, literature review and discussion before class, when these efforts failed to solve the problem, they would seek the help of senior students and teachers. In class, in order to solve the problems that still existed before class, they would concentrate on thinking, seriously discuss and participate in learning for a longer time through the teacher's guidance. During the process, students learnt through teamwork, their thinking became more active and they communicated more. When a problem was solved through effort, a strong sense of accomplishment would promote more autonomous participation in teaching. 3) The strengthening of critical thinking improved students' autonomous learning ability. Some studies have shown that improving the self-confidence and analytical ability of critical thinking can help nursing students improve their independent learning ability [11].

#### **4.3. The Case Combined with Seminar Teaching Method Improved the Test Scores**

**Table 1** shows that the average test scores and final exam scores of the intervention group are higher than those of the control group, and the differences are statistically significant, which is consistent with study of Bi M, Li X and Zhou HL [1] [6] [12] [13]. 88.89% of the students in the intervention group thought the new teaching method could deepen understanding of knowledge. The reason may be related to the improvement of students' autonomous learning ability and critical thinking ability. 1) Independent and in-depth learning enables students to better understand and apply relevant knowledge. In addition, each case in-

volves a change of condition, including two related diseases, so that students can be exposed to complex cases and better integrate the knowledge they have learned. Meanwhile, the problems in the case and the tasks assigned by the teacher can enable students to study and review with a purpose. 2) After the improvement of critical thinking ability, students will analyze problems in an organized and purposeful way and make prudent judgments, which is conducive to students' careful analysis of questions and logical answers in exams.

In conclusion, the case combined with seminar teaching method in Pediatric nursing has achieved good effect. In the future teaching, the course team will continue to improve the case base, and strengthen the ideological and political construction of the curriculum and make full use of digital teaching tools to cultivate excellent nursing talents who are willing to contribute to nursing career.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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