

The Application of "Sandwich Teaching Method" in the Teaching of Surgery

Lei Hui

Hubei College of Chinese Medicine, Jingzhou, Hubei, China

Keywords: Sandwich teaching method; Surgery; Teaching application

Abstract: The aim of this study is to observe and evaluate the effectiveness of the "Sandwich Teaching Method" in surgical education. 120 medical students from our university who participated in surgical research from July 2022 to December 2022 were selected as the research subjects. The 120 students were randomly divided into two groups, with one group receiving conventional teaching methods and the other group receiving the Sandwich Teaching Method. The self-assessment teaching effectiveness and teaching satisfaction of the two groups were compared and analyzed. The results showed that students who received the Sandwich Teaching Method scored higher in theoretical knowledge, case analysis, and overall scores, as well as higher teaching satisfaction compared to students who received conventional teaching methods. Therefore, it can be concluded that the use of the Sandwich Teaching Method in surgical education can improve students' learning efficiency and enhance their professional abilities.

1. Introduction

Sandwich teaching method is a new teaching method based on small class teaching, which integrates cross learning, group cooperation, learning report and other methods [1], and allows students and students, students and teachers to communicate with each other. When using sandwich teaching method, we should stimulate students' learning initiative and strengthen students' ability of self-thinking and practical exploration. At this stage, in the teaching of Surgery, the sandwich teaching method has attracted great attention from teachers, and has been popularized and applied with good teaching results. This study reports the implementation effect of sandwich teaching method in Surgery as follows.

2. Data and methods

2.1 Basic data

A total of 120 medical students were selected from our school to participate in the study of Surgery. The time span was from July 2022 to December 2022. Through random grouping, 60 students were included in the reference class, and the remaining 60 students were included in the experimental class. Among them, in the reference class, 33 were boys and 27 were girls. The age distribution ranged from 18 to 21 years old, with an average age of (19.62 ± 1.24) years; In the

experimental class, 34 were boys and 26 were girls. The age distribution ranged from 18 to 21 years old, with an average age of (19.23 ± 1.11) years. The statistical difference between the basic data of the two classes was significant ($P > 0.05$).

2.2 Method

The reference class implements the conventional teaching method, which is in the charge of the same teacher. Using the traditional teaching method, the teacher takes the leading position and teaches the students the knowledge of subarachnoid hemorrhage. The experimental class implements the sandwich teaching method. 60 students in the experimental class are randomly divided into 10 groups. Each group has 6 students, namely A, B, C, D, E, F, G, H, I, J groups. Then the students in each group are numbered, namely A1-6, B1-6... and so on. The teaching is carried out in the order of "raising questions → group discussion → cross learning → group report → teacher summary → goldfish tank discussion → summary and feedback", and the teaching time is 90 minutes. As a common surgical disease, subarachnoid hemorrhage is also an important cause of acute stroke. Now take subarachnoid hemorrhage as an example to analyze the implementation process of sandwich teaching method.

A. Ask questions. The teacher taught the students "burying the alarm clock untimely bomb", introduced the case of sudden death of stars, firmly attracted the students' learning eyes, and mobilized their learning enthusiasm. For example, the two stars that students like have a split hemorrhage in the cerebral artery, and the final outcome is diametrically opposite. The famous football star Morosini died on the spot on the court, and the famous sketch actor Zhao Benshan had a sudden cerebral hemorrhage successfully rescued. The teacher asked the students the corresponding questions, For example, "What are the characteristics of the symptoms of subarachnoid hemorrhage? What is the cause of subarachnoid hemorrhage? What special and auxiliary examinations are needed? What are the precautions for treatment in the acute stage of hemorrhage?" and other related questions.

B. In group discussion, the teacher allows students to think independently and discuss cooperatively on the above issues, so that students can have different opinions or suggestions in mutual discussion.

C. Cross-learning. Students enter into new groups according to their own numbers. For example, students C3 are reassigned to the third group. The members of the group are A3, B3, C3, D3, E3, F, 3G, H3, I3, and J3. In the new group, each student reported their different views and related issues in the group. During the intra-group discussion, teachers should also play their own role in education and guidance, let each student fully express their different views, and help students get familiar with the problem. If the students have conflicts and differences during the discussion, they should guide each group to continue the warm discussion, and ask each group to send a representative to make a summary speech on the suggestions or opinions of their group members.

D. Student report. Students return to the original group, and each group member selects a member representative to share the discussion results of this group. The reporting method can be carried out through blackboard writing, oral presentation, electronic presentation, etc.

E. The teacher summarizes and analyzes the students' summary and classroom performance. According to the teaching content and learning focus of this lesson, the teacher guides the students to learn the causes, symptoms and manifestations, diagnosis methods, etc. of the disease, and puts forward corresponding expanded questions for this problem, such as "How to treat aneurysms and arteriovenous malformations?" "What treatment methods should be taken for patients with cognitive impairment and acute intracranial hypertension?", etc. Teachers should provide students with rich pathological data, and require students to carry out physical examination of their medical history, search for the results of electronic examination, propose diagnostic ideas and explore the causes of differential diagnosis.

F. "Goldfish tank" discussion. Each group will send one member as the "goldfish" to give a keynote speech in the circle. The

remaining members will listen patiently and observe carefully. They can put forward their own confused questions to the students in the "goldfish tank", or supplement the content of the "goldfish tank" students, discuss and analyze together, and propose feasible treatment methods based on typical pathological data. G. Summarize feedback. The teacher objectively evaluates the "goldfish tank" question, provides students with corresponding reference answers, reviews and summarizes the whole teaching process, and lets students reflect after class. The students put forward corresponding views on the content learned this time, and the teacher patiently answers.

2.3 Observation criteria

Professional theory and practical skills assessment scores. After the completion of the practice in the field of science, the students in the two classes will be assessed for theoretical knowledge, case analysis and practical operation, with a full score of 100 points, of which, the full score of theoretical knowledge assessment is 40 points, case analysis assessment is 30 points, and practical operation assessment is 30 points. Compare the teaching satisfaction of the two classes of students, and use the self-made teaching satisfaction survey scale. The full score is 100 points. A score higher than 90 points means very satisfied, a score lower than 89 points and higher than 70 points means generally satisfied, and a score lower than 69 points means dissatisfied. Total satisfaction=(very satisfied+general satisfied) ÷ total number of cases × 100%.

2.4 Statistical treatment

The relevant data of this master data are effectively and accurately entered into the statistical processing system (SPSS 21. 0), and the data is processed. The counting data is expressed in the form of (percentage), and the calculation results pass the chi-square test; The counting data is expressed in the form of (mean ± standard deviation), and the calculation results pass the t-test. When P<0. 05, the calculation results are statistically significant.

3. Results

3.1 Comparison of professional theory and operation skill assessment results

The theoretical knowledge score, case analysis score and total score of the students in the experimental class are superior to those in the reference class, and the calculation result is statistically P<0. 05, while the practical skill score is significantly balanced (P>0. 05) compared with the students in the reference class, as shown in Table 1.

Table 1: Comparison of professional theoretical and operational skills assessment results

Group	Number of cases	theoretical analysis	case analysis	Practical operation	Total score
Experimental class	60	35. 34±2. 46	36. 21±2. 31	23. 23±1. 66	88. 24±3. 62
Reference class	60	31. 05±3. 22	22. 03±2. 13	22. 88±1. 54	77. 12±3. 42
t		8. 2006	34. 9564	1. 1973	17. 2960
P		0. 0000	0. 0000	0. 2336	0. 0000

3.2 Comparison of teaching satisfaction

The teaching satisfaction of students in the experimental class was 96.66% (58/60), which was superior to 81.66% (49/60) in the reference class. The calculated results were statistically $P < 0.05$, as shown in Table 2.

Table 2: Comparison of teaching satisfaction

Group	Number of cases	Very satisfied	Generally satisfied	dissatisfied	Total satisfaction (%)
Experimental class	60	36	22	2	96.66
Reference class	60	23	26	11	81.66
X^2					4.8877
P					0.0270

4. Discussion

In the teaching of Surgery, the sandwich teaching method is used to carry out systematic learning through practical exploration, cooperative discussion, summary and summary by focusing on teaching problems and adhering to the student-oriented teaching principle [2-3]. Compared with the past teaching methods, sandwich teaching method has changed the dominant position of teachers [4-5], respected the main role of students, improved the teaching quality of Surgery, and further strengthened students' communication ability, language organization ability, and summary ability. In addition, the application of sandwich teaching method in the teaching of Surgery can also improve students' satisfaction with teaching and students' interest in learning.

The results of this clinical study showed that (1) the theoretical knowledge score, case analysis score and total score of the students in the experimental class were superior to those in the reference class, and the calculated results were statistically significant ($P < 0.05$), while the practical skill score was significantly balanced compared with those in the reference class ($P > 0.05$). (2) The teaching satisfaction of the students in the experimental class was 96.66% (58/60), which was superior to 81.66% (49/60) in the reference class. The statistical results of the calculation ($P < 0.05$) showed that the effective application of sandwich teaching method in the teaching guidance of Surgery can strengthen the comprehensive ability of students and play an important role in promoting the comprehensive development of students. The fundamental reason is that sandwich teaching method, as a new teaching mode, mainly through the teaching process of "raising questions → group discussion → cross learning → group report → teacher summary → goldfish tank discussion → summary and feedback", allows students to apply the theoretical knowledge they have mastered into clinical practice, which not only lays a solid theoretical foundation for students, but also enables students to carry out practical operations with problems, Make students have a clear idea during their study [6] and improve their learning quality. By using sandwich teaching method, students can further understand what they have learned, achieve the teaching goal of strengthening students' knowledge internalization ability and practical operation skills, and make students' comprehensive ability develop well. Through the teaching activities of Surgery, it is helpful to update the traditional clinical thinking consciousness of students, so that they can adhere to the basic working concept of patient-centered in future surgical work, and improve the treatment effect.

To sum up, in the teaching guidance of Surgery, the application of sandwich teaching method can improve students' professional theoretical and operational skills assessment results and lay a

solid foundation for students.

References

- [1] Gao Peng. Analysis of the application of "sandwich" teaching method in clinical teaching of urology [J]. *Science Consulting*, 2021 (40): 84-85
- [2] Liu Lingying, Zhang Jing, Ma Youwen, etc. The application of "sandwich" combined case teaching mode in breast surgery nursing practice teaching [J]. *Health Vocational Education*, 2022, 40 (23): 108-109
- [3] Xu Hongyan. Analysis of the application value of "sandwich" teaching method in clinical laboratory teaching [J]. *China Health Care*, 2022, 40 (1): 18-19
- [4] Meng Qingwen, Liu Huajiang, Huang Shan, etc. Research on the role of "sandwich" teaching method in clinical internship teaching of cardiovascular medicine [J]. *China Health Industry*, 2020, 17 (30): 22-24
- [5] Zhou Jingtao, Liu Jia. Application of multiple teaching methods in the teaching of general surgery theory [J]. *Medical and Health*, 2022 (4): 148-150
- [6] Jiang Jie, Gu Jiayi, Liu Hong, etc. Application effect of "modified sandwich" technique in acute type A aortic dissection [J]. *Journal of Medical Postgraduates*, 2022, 35 (2): 175-179