



The Application of Standardized Patient-case Teaching Method in the Teaching of Clinical Medical Students

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Abstract: Objective: To explore the application effect of standardized patient-case teaching method in the teaching of clinical medical students. **Methods:** From March 2021 to June 2021, 80 clinical medical students from Honghe Health Vocational College were selected as research subjects and randomly divided into two groups with 40 in each group. The control group adopted the traditional teaching method, and the observation group adopted the standardized patient-case teaching method. The final examination results and the recognition degree of the teaching mode of the two groups were evaluated. **Results:** The theoretical and technical scores of medical students in the observation group were significantly higher than those in the control group ($P < 0.05$). The recognition of learning interest, learning initiative, clinical thinking training, team cooperation training, the combination of theory and clinical training, clinical skills training and other recognition degree of medical students in the observation group were 100.0%, 100.0%, 97.50%, 97.50%, 100.0%, 97.50%, which was significantly higher than that in the control group 87.50%, 85.00%, 80.00%, 75.00%, 80.00%, 80.00% ($P < 0.05$). **Conclusion:** The standardized patient-case teaching method in clinical medical students' teaching can further improve theoretical performance and skill level, and the students' interest and enthusiasm in this teaching mode are high, which is worth promoting.

Keywords: Clinical Medical Students; Standardized Patients; Case Teaching Method; The Examination Results

With the rapid development of teaching in China and the in-depth study of medical education, it is believed that Chinese medical education should focus on theory, practice, excellent students and fine training. However, traditional clinical medical students take the infusing method in teaching and neglect practice. In addition, traditional Chinese medical students have a weak sense of participation and low interest in learning in the teaching process, which makes it difficult to cultivate medical students with active thinking and clinical thinking. Nowadays, the application of case teaching method is strengthened in medicine. By listing typical cases, students are guided to think actively and discuss with each other to stimulate creative thinking. In order to promote medical students to adapt to the real medical environment, the standardized teaching method of patients as simulated patients, considering the role of evaluator and instructor, so that medical students can truly complete the process of receiving and asking for treatment, and exercise the adaptability and comprehensive literacy. Therefore, the application effect of standardized patient-case teaching method in the teaching of clinical medical students was discussed in this study as follows.

1. Data and methods

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1.1 The general data

From March 2021 to June 2021, 80 clinical medical students from Honghe Health Vocational College were selected as the research subjects and randomly divided into two groups with 40 students in each group. They were all voluntary participants and filled in relevant questionnaires independently. The control group was 19 to 23 years old, with an average age of (20.51 ± 0.68) years old, including 25 males and 15 females; The observation group was 19 to 23 years old, with an average age of (20.66 ± 0.62) years old, including 23 males and 17 females; excluding students who were absent once or more and students who were not fully informed of the experiment. There was no statistically significant difference in basic data between the two groups ($P > 0.05$).

1.2 Teaching methods

1.2.1 The control group

The traditional teaching method was adopted, and the teacher developed the teaching purpose and content of each lesson and designed PPT according to the teaching plan. Teachers explained theoretical knowledge in combination with blackboard writing, such as explaining the symptoms, diagnosis and treatment of common diseases, and developing relevant imaging data and laboratory data to help students visualize the characteristics of each disease. After class, students were encouraged to think independently and give answers in next class.

1.2.2 The observation group

The standardized patient-case teaching method was adopted, and 40 students were divided into 8 groups with 5 students in each group. A group leader was appointed, who was responsible for receiving teachers' teaching arrangements, organizing students' discussion and summarizing the discussion results. 1) Standardized patients were recruited. Typical cases were selected according to the teaching purpose and content of each class, and "simulated cases" were designed. Two teachers conducted assessment, and teaching could be carried out after passing. 2) The teaching case, typical cases were selected according to relevant class content. For example, cases of myocardial infarction, heart failure and other diseases can be selected for cardiology teaching. Teachers released teaching cases to students one week in advance, set questions according to key points and difficulties, and required students to master case information completely, answered questions according to books and literatures, such as electrocardiogram performance, examination items, etc. Group leaders organized students to discuss within the group, and summarized the discussion results to make a report. 3) In classroom teaching, teachers first explained theoretical knowledge, and then organized students to conduct standardized patient consultation teaching, and supplied standardized patient related information to build a complete case information. According to the case data mastered in advance and on-site consultation, students in each group gave their own diagnosis results, and teachers commented on the diagnosis and treatment process of students in each group, such as omission, physical examination, missed detection, humanized treatment, etc.

1.3 The observation on indexes

1) The final examination results of the two groups were evaluated: the theoretical score was assessed by 100-point test papers, including multiple choice questions, concept questions, short answer questions, etc., with a full score of 100. Skills scores were scored by teachers and standardized patients, including medical history collection, doctor-patient communication, professional skills and adaptability, etc., with a full score of 100.

2) The students' recognition of the teaching model in the two groups were evaluated: combined with the self-made teaching model recognition questionnaire, the evaluation was conducted from learning interest, learning initiative, clinical thinking training, team cooperation training, theory combined with clinical training, clinical skills training and other aspects, which was divided into approval and disapproval.

1.4 Statistical processing

SPSS 22.0 software was used for this study, and the measurement data were represented by t test ($\bar{x} \pm s$). The count data were expressed as χ^2 test [n (%)], and $P < 0.05$ was statistically significant.

2. Results

2.1 Comparison of assessment results between the two groups

According to **Table 1**, the theoretical and technical scores of medical students in the observation group were significantly higher than those in the control group ($P < 0.05$).

Table 1. Comparison of assessment results between the two groups ($\bar{x} \pm s$)

Group	Cases	Theoretical performances	Skill scores
Observation	40	92.52 ± 5.65	94.14 ± 4.92
Control	40	85.57 ± 6.16	88.87 ± 5.17
t	-	5.258	4.670
P	-	0.000	0.000

2.2 Comparison of assessment results between the two groups

Table 2 shows that the recognition of medical students in the observation group in learning interest, learning initiative, training of clinical thinking, training of teamwork, training of theory combined with clinical practice, training of clinical skills was 100.0%, 100.0%, 97.50%, 97.50%, 100.0%, 97.50%, which was significantly higher than that in the control group 87.50%, 85.00%, 80.00%, 75.00%, 80.00%, 80.00% ($P < 0.05$).

Table 2. Comparison of recognition of teaching modes between the two groups [n (%)]

Group	Cases	Learning interest	Learning initiative	Clinical thinking training	Team-work training	Theory combined with clinical practice training	Clinical skills training
Observation	40	40 (100.0)	40 (100.0)	39 (97.50)	39 (97.50)	40 (100.0)	39 (97.50)
Control	40	35 (87.50)	34 (85.00)	32 (80.00)	30 (75.00)	32 (80.00)	32 (80.00)
χ^2	-	5.333	6.322	6.134	8.537	8.889	6.134
P	-	0.020	0.011	0.013	0.003	0.002	0.013

3. Discussion

Clinical medical students mainly learn the knowledge and skills of basic medicine, clinical medicine, surgery and so on, and then master the ability of diagnosis, treatment and prevention of human diseases. The theoretical knowledge they need to master is complicated, and the skill level is very high, that is, clinical medical students have high learning difficulty. The results of medical students' assessment and recognition of teaching mode in the observation group were significantly higher than those in the control group, which proved that standardized patient-case teaching method could improve the theoretical knowledge mastery of medical students and exercise clinical skills, and the teaching mode was in line with students' interests, cultivate clinical thinking and teamwork ability, and improve learning initiative. Similar to Zhang Fan 's result that the examination of interrogation skills of the experimental group is higher than that of the control group at the end of the term, they all believe that the teaching concept of "student-centered" should be implemented in clinical medicine teaching, and teaching methods with interest, interaction and authenticity should be implemented to stimulate students' interest in learning and improve their subjective initiative. Case teaching method is adopted to induce students to preview in advance and think actively according to real cases and typical problems, and discuss in the group to express their opinions and verify each other. Design standardized patients combined with cases of virtual information at the same time, the real information, ensure the quality of cases, and in accordance with the standardized patient teaching progress of training, to ensure the correct and real performance, by imitating the patient's symptoms, real mentality, prompting students in consultations to receive the feedback from the "real", to improve their communication ability and practice ability.

In conclusion, the application of standardized patient-case teaching method in the teaching of clinical medical students can improve the teaching effect and teaching recognition, which is worth promoting.

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