Effectiveness of the Implementation of Case-based Learning Teaching Methods in Oncology Teaching Visits

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Abstract: Objective: To explore the implementation effect of case-based learning teaching method in oncology teaching and research. **Methods:** 110 oncology students interned in our hospital were selected, and the time interval of the selection was set from June 2023 to June 2024, and the research subjects were grouped into groups with reference to the method of randomized numerical table, of which 55 students were in the control group and 55 students were in the observation group. The control group was taught by conventional teaching methods and the observation group was taught by case-based learning methods, and all students in all groups were required to continue teaching for three months. The test scores and teaching satisfaction data of the two groups were compared statistically. **Results:** After teaching, the total learning achievement of the observation group was higher compared with that of the control group; after teaching, the total satisfaction rate of teaching of the observation group was higher compared with that of the control group, $P<0.05$. **Conclusion:** In oncology teaching and research, the use of case-based learning and teaching methods is conducive to improving the students' test scores and enhancing the degree of teaching satisfaction.

Keywords: oncology; teaching methods; cases; implementation effects

1. Introduction

Case-based learning teaching method is a kind of teaching strategy that takes real clinical cases as the core and guides students to learn and explore actively, aiming to break the pure theoretical inculcation mode in the previous teaching, closely combine theoretical knowledge with clinical practice, and stimulate students' learning interest and initiative by analyzing and solving actual cases . Based on this, this paper aims to explore the implementation effect of the case-based learning teaching method in oncology teaching and research, and is now based on the specific content of this study as follows.

2. Information and methodology

2.1 General information

110 oncology students who were interned in our hospital were selected, and the time interval of the selection was set from June 2023 to June 2024, and the study subjects were grouped with reference to the random number table method, of which 55 were in the control group and 55 were in the observation group. The male to female ratio of the study subjects in the observation and control groups was 30:25 and 31:24 respectively; their ages ranged from 21 to 28 years and 21 to 29 years respectively; and their mean ages were (25.34±1.03) and (25.36±1.05) years. By comparing the above data (gender and age) between the two groups, it can be concluded that there is no significant difference between the two groups ($P>0.05$), so the results of this study are not affected by the underlying data and are comparable. Inclusion criteria: those whose academic qualifications were not less than full-time undergraduate degree; those who were all taught by the same clinical teachers; those whose previous study bases were compatible, etc. Exclusion criteria: those who were disciplined during the internship; those who were transferred to another hospital for study in the middle of the internship; those who were on leave of absence for more than 1 week during the internship, etc.

2.2 Methods

The control group adopts conventional teaching methods: in accordance with the requirements of the departmental system of the oncology department, the environmental requirements of the ward, the professional operation process and the order of the internship teaching tasks, students are introduced to the requirements in detail to carry out the teaching work. The observation group utilized the case-based learning teaching method, with the following specific implementation steps: (1) Preparation of teaching materials: create a case database, collect doctor-patient communication problems in the relevant departments of the hospital in the past, and take it as a typical case, so as to initially stimulate the students' interest in learning. (2) Classroom teaching and discussion: first tell the students about the classic cases, then extract the problems

from them and guide the students to discuss. Students will be grouped in groups of five, and organize the groups to show the final results of the discussion and debate. For students who still have doubts about the problem, the teacher will lead them to analyze the problem, and in the process, teach the method of expanding ideas and relevant theoretical knowledge, and focus on key issues, and finally summarize the lessons learned. (3) Case analysis and role-playing: Students are provided with past cases of doctor-patient communication, and are asked to identify and analyze the mistakes and correct ways of handling them. Subsequently, role-playing activities are carried out to let students experience the feelings of patients, doctors, family members and other different roles, to gradually improve their ability to think differently and master the communication skills with patients and family members. Students are taught how to inform patients with advanced tumors of their conditions and how to anticipate the psychological changes of patients and their families after they have been informed. (4) Strengthen subjective initiative: encourage students to take the initiative to discover the problems in the cases and design solutions. A teaching simulation is conducted for all cases of different severity, so that students can gradually master the methods and skills of dealing with doctor-patient relationship. (5) Clinical Practice and Summarization: After completing the classroom teaching, discussion and analysis, the clinical teacher will lead the students to carry out clinical practice in small groups. Students are required to record the situation, problems and solutions of doctor-patient communication in outpatient clinics and wards, so as to strengthen the mastery of thinking skills and operational skills. (6) Establishment of performance appraisal mechanism: According to the actual learning situation of students, develop corresponding performance appraisal methods to fully mobilize their subjective initiative and sense of responsibility. Refer to the common performance appraisal and evaluation mechanism to avoid students' inertia, resulting in perfunctory work and quality decline. At the same time, a perfect quantitative evaluation system of nursing performance is established to play a good management-oriented role, and distribution is made based on labor results to further improve the enthusiasm of nursing staff. Both groups continued teaching for 3 months.

2.3 Observation indicators

① Examination results, the final examination adopts the percentage system, and the examination questions cover single choice, multiple choice, fill in the blanks, short answer and case analysis, of which 40 points are for case analysis and 60 points for other questions. The examination paper was prepared by oncology experts and scoring standards were formulated, and after the examination was completed, the scores were graded by a unified flow-type marking method. ② Teaching satisfaction, carried out with the help of self-made questionnaire, the questionnaire content mainly involves learning interest, self-study ability, cooperation ability, teacher-student interaction, knowledge expansion and information acquisition and other dimensions, the questionnaire is full of 100 points. Among them, 90 points and above are very satisfied, 75 points (inclusive) to 90 points are satisfied, 60 points (inclusive) to 75 points are average, and less than 60 points are unsatisfied. The formula for calculating teaching satisfaction is: (number of very satisfied + number of satisfied) ÷total number of students × 100%.

2.4 Statistical methods

The indicators were detected using SPSS 26.0, [cases (%)] for count data, line $\chi 2$ test; ($\overline{x} \pm s$) for measurement data, line t test; data results calculated using statistical software $P<0.05$, that is, the difference is statistically significant.

3. Results

3.1 Academic performance

Table 1: After teaching, the total academic performance of the observation group was higher compared to the control group, $p<0.05$.

Table 1. Academic performance ($\overline{x} \pm s$, points)

Groups	Number of examples	Case analysis	Other topics	Overall performance
Control group	55	26.11±2.20	46.84±2.25	72.71±2.20
Observation group	55	35.25±1.02	53.13±1.28	88.29±1.27
t-value		27.959	18.028	45.475
P-value		<0.001	<0.001	<0.001

3.2 Teaching Satisfaction

Table 2: After teaching, the total satisfaction rate of teaching was higher in the observation group compared to the control group, $p<0.05$.

Table 2. Teaching satisfaction [Example (%)]

Groups	Number of examples	Very happy	Dissatisfied	General	Unsatisfactory	Overall satisfaction rate
Control group	55	18(32.73)	15(27.27)	10(18.18)	12(21.82)	43(78.18)
Observation group	55	27(49.09)	18(32.73)	7(12.73)	3(5.45)	52(94.55)
χ^2-*value*						6.253
P-value						0.012

4. Discussion

The results of this study showed that after teaching, the total learning achievement of the observation group was higher compared with that of the control group, suggesting that the use of case-based learning and teaching methods in oncology teaching and learning is conducive to the improvement of students' examination results. The reason for this may be that the case-based learning and teaching method can quickly catch students' attention by introducing real and attractive oncology cases. Compared with the traditional boring theory teaching, these vivid cases will visualize the abstract knowledge, students can intuitively feel the application of knowledge in practice, thus stimulating the inner desire for knowledge, actively engaged in learning, learning enthusiasm and initiative to greatly improve, in order to achieve good results to lay the foundation [1]. In the process of analyzing the case, students need to integrate and apply the scattered oncology knowledge to understand the complete logic of the disease from diagnosis to treatment, this deep thinking process, so that students no longer stay on the surface of the knowledge understanding, but in-depth grasp of the connotation of the knowledge, so as to better master the knowledge, and in the examination can flexibly use the knowledge to answer the questions [2]. Case teaching simulates real clinical scenarios, and students continue to exercise their clinical thinking skills when analyzing cases and proposing solutions. They learn to think from multiple perspectives and analyze the reasons for changes in conditions and coping strategies. This kind of thinking training is transferred to the examination, when facing the case analysis, short answer questions and other types of questions, students can quickly clarify their thoughts, accurately grasp the key to the problem, organize the answer, effectively improve the correct rate of answering the questions, and then improve the total examination results.

The results of this study show that after teaching, the total satisfaction rate of the observation group is higher compared with that of the control group, suggesting that the use of case-based learning and teaching method is conducive to improving the satisfaction of teaching in oncology teaching and research. The reason may be: case-based learning teaching method, oncology knowledge into the real and rich clinical cases, students actively participate in the case analysis and discussion, the learning process becomes full of fun, high enthusiasm for learning, naturally, the satisfaction of the teaching will also be increased. Case-based learning teaching method focuses on teaching interactivity, group discussions, classroom debates and other frequent links, this interactive teaching to break the barrier between teachers and students in the traditional teaching, students have more opportunities to express their own ideas, and teachers and classmates for in-depth exchanges. Frequent interaction between teachers and students not only helps to solve students' doubts in learning, but also creates a good classroom atmosphere, so that students learn in a relaxing and enjoyable environment, thus enhancing their satisfaction with teaching. Case teaching is closely linked to clinical reality, and students can learn the latest methods of tumor diagnosis and treatment and key points in clinical practice by analyzing real cases. This emphasis on the practicality of knowledge makes students clear about the close connection between what they have learned and their future clinical work, which satisfies their need for knowledge application and makes them realize the value of what they have learned, and thus become more satisfied with the teaching.

In summary, the use of case-based learning teaching methods in oncology teaching checkups is conducive to improving students' test scores, enhancing teaching satisfaction, and teaching in the clinic has a high value of popularization and application.

References

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