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Application of pathology theory and practice integrated teaching mode in medical specialty of private universities

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Abstract: *Objective To explore the influence of the teaching mode of integrating truth and practice on the teaching effect of pathology for medical students in private colleges and universities. Methods A total of 162 undergraduate students majoring in nursing and rehabilitation therapy in 2018 were selected as the research objects, and the teaching research was carried out using the integration of reason and practice teaching mode and the traditional teaching mode respectively. Results The students were generally more interested and satisfied with the teaching mode of integration of science and practice, and the advantages of final examination results and saving class hours. Conclusion In pathology teaching, the integrative teaching mode of reason and practice is better than the traditional teaching mode.*

Keywords: *Pathology teaching; Integration of truth and reality; Teaching reform*

1. Introduction

Pathology plays a bridging role in basic medicine and clinical medicine. William Osler once proposed that "pathology is the foundation of medicine", and pathologists are honored as "doctors of doctors" [1] in clinical practice. Under the background of the "14th Five-Year Plan", the rapid development of The Times and society has put forward unprecedented requirements for talents from all walks of life. At present, the medical and health sector is facing various challenges from the deepening reform of the medical and health system. Among them, medical education reform is an important link to promote the development of medical and health field, and medical education is of great significance to the development of medical level in the future [2].As a bridge between basic medicine and clinical medicine, pathology plays an extremely important and key role and is called "the foundation of medicine". As a practice-oriented subject, pathology experiment is an important link in pathology teaching, accounting for 50% of the total teaching hours of pathology in medical higher education. As a mechanical discipline, pathology is a bridge between medical theory teaching and medical skill training. It allows students to observe various pathological morphological changes of microscopic tissues through the microscope, so as to consolidate the study of theoretical knowledge.

Pathology is the study of disease etiology, pathogenesis, pathology, clinical pathology, and the outcome of a discipline, to the anatomy, physiology, medical microbiology, the premise of medical immunology and other basic courses, and for subsequent internal medicine, surgery, gynecology and obstetrics, pediatrics and other professional course of study to lay the foundation, As a bridge between basic medicine and clinical medicine, it plays a role of connecting the past and the next in the whole medical specialty curriculum system [3]. Pathological knowledge provides theoretical basis for clinicians to prevent and treat diseases, and is known as the "soul of medicine". The study of pathology serves as a link between the preceding and the following in the whole medical discipline. Pathology is a subject of morphology. Students can have a deep and correct understanding of pathology theory and a firm memory by observing the images of gross specimens and pathological tissue sections of lesions. At present, the traditional pathology teaching adopted by most domestic colleges and universities is carried out separately from the theory course and the practice course, that is, the theory course is taught first and then the practice course is carried out. When teaching theories, students have difficulty in understanding abstract theories due to the lack of visual expression of images. This kind of delayed practice class leads to the disconnection between theory and practice, seriously affects students' understanding and memory of theoretical knowledge, and is the crux of "difficult to learn pathology". Therefore, it is of great significance to the reform of pathology teaching to combine theory and practice organically in the application and teaching of the teaching mode integrating pathology theory and

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practice, which can not only complete the real-time verification of theoretical teaching and practice teaching, but also make the reasonable application of limited class hours in private colleges and universities.

2. Data and methods

2.1 General Information

A total of 162 students majoring in nursing and rehabilitation therapy in 2018 were selected as the research objects. The application effect of the integrated teaching mode of truth and reality was objectively evaluated by questionnaire survey and final examination results. In view of the teaching arrangement of the current talent training programs of the two majors, the parallel comparison of different teaching methods is adopted in the early teaching, and the traditional teaching mode is set as the control group, while the teaching mode of integrating truth and practice is set as the experimental group. These students have no significant differences in age, admission scores and grade one medical foundation course scores, which are comparable.

2.2 Research Methods

The students majoring in rehabilitation therapy were taught the traditional teaching mode, that is, theory first followed by practice, with a total of 64 class hours, including 48 class hours of theory and 16 class hours of practice (25% of the total class hours of practice). The traditional teaching mode gives full play to the leading role of teachers and uses multimedia courseware for theoretical teaching. Nursing students are taught in a combination of reason and practice, with a total of 48 hours. Digital interactive microscope system is used to implement "seamless" integration of theory and practice teaching, so that theoretical teaching and practice teaching can be carried out simultaneously. Finally, a closed-book pure theory test with the same difficulty was adopted at the end of the semester to statistically analyze the differences in academic performance between the two groups. Statistical Methods Graph Pad statistical software was used to process the data

3. Results

3.1 Questionnaire Survey Results

After the end of the semester, 162 students were surveyed on their satisfaction with different teaching modes through questionnaire mini-program. The results showed that more than 90% (93) of the 104 nursing students thought that the classroom was more interesting under the teaching mode of integration of reason and practice. The immediate verification of practice helped them to understand and master the knowledge points in time, and their learning efficiency was also improved. Fifty-eight students majoring in rehabilitation therapy learned about the teaching mode of integration of reason and practice from nursing students during the semester. Compared with the traditional teaching mode, the students generally expressed more interest in the teaching mode of nursing major class.

3.2 Analysis of Final Exam Results

The final exam uses the same closed-book paper based on purely objective theory. Comparative analysis with per capita theoretical examination results. The results showed that the average score of 58 students in the two classes of rehabilitation therapy as the control group was 80.2, and the average score of 104 students in the three classes of nursing science as the experimental group was 80.4. Combining the class hours of the two majors, the experimental group is 48 class hours, and the control group is 64 class hours. If the scores of the two groups are roughly the same, it means that the experimental group saves 16 class hours than the control group, that is, the teaching efficiency is improved by 25%. This 25% is exactly the practice hours of the control group (saving 16 credit hours). The excellence rate of the experimental group was significantly higher than that of the control group ($P=0.0118<0.05$). The final examination results and excellent rate of students in the control group and the experimental group are shown in Table 1.

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Table 1 Comparison of students' final examination results and excellent rate

Groups	Number of samples	Final examination results	Excellent rate
Control group	29	80.2±9.5	10.3%
	29	84.3±6.1	14.3%
Test group	35	82.8±9.9	28.6%
	34	76.4±17.3	23.5%
	35	82.0±11.3	28.6%

4. Discussion

In view of the current situation of "professional + foreign language + modern skills" talent training in private colleges, the proportion of general education courses is significant, which is bound to reduce the effective class hours of professional courses. As an important medical professional course, pathology has a huge teaching capacity and requires a large number of class hours to ensure the acquisition and mastery of knowledge. Under such external conditions, its class hours are seriously insufficient. In the teaching process of pathology, the teaching mode of integration of reason and practice can not only closely combine theoretical teaching with practical teaching, but also effectively reduce the class hours and maximize the teaching effect in the limited class hours [3]. As a new teaching mode, the teaching mode of integration of reason and practice can make the theoretical teaching of pathology practical, so that students can explore and verify the theoretical knowledge in experiments, and use the theoretical knowledge to guide and explain experimental phenomena and results, so as to improve students' interest in learning and give full play to their subjective initiative [4].

In the first round of the teaching of different teaching modes are compared, and the effect of teaching according to the results raise one using 48 faculty period of teaching time in traditional teaching group 64 hours of teaching effect, students' test scores at the end of the excellence rate was significantly improved, prompt pathology of real integration teaching mode advantage. Before the second round of course teaching, the author used questionnaire to survey the students' tendency towards the two teaching modes, and the results showed that more than 95% of the students believed that the teaching mode of integrating truth and practice could improve their learning interest. In the second round of teaching, the teaching mode of integration of reason and reality was completely adopted, and the final examination results were significantly improved compared with the first round. It shows that the teaching mode of integrating reason and practice can not only reflect the dominant position of students in the new era, but also effectively reduce the class hours and improve the teaching effect. In the teaching process, the following aspects are mainly used to reflect the implementation of the teaching mode of integration of reason and reality.

4.1 Pathology teaching design before class

There are many contents in pathology, and one principle should be adhered to when making teaching plans -- highlighting the general theory and simplifying the monograph. The general chapter covers the adaptation and damage of cells and tissues, repair, local blood circulation disorders, inflammation and tumors, which are the basis for students to learn about diseases in clinical courses. Therefore, these chapters need students to master the basic concepts, basic pathological changes and the impact on the body, and teachers should explain clearly when teaching. Most of the pathological monographs overlap with the content of later clinical courses, so teachers should focus on introducing the etiology, pathogenesis and pathological changes of diseases in the teaching process. In combination with the clinical manifestations, diagnosis and treatment of diseases introduced in clinical courses, the teaching of monograph needs to focus on the clinicopathological links between etiology and related diseases. Such a design can not only lay a solid theoretical foundation for disease prevention and nursing, but also effectively connect basic medical courses with clinical specialized courses, changing the traditional teaching method of pathology focusing on pathological changes and pathogenesis.

4.2 Integration of teaching materials in class and the laboratory to complete the integration of teaching

Pathology teaching content mainly includes two parts, general and monograph, in which there is repetition of content. In order to avoid the disconnection between general and monograph teaching content, the teaching content is modularized and integrated by breaking the chapter restriction [5]. For

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example, in the chapter of adaptation and injury of cell tissue, it is mentioned that cells appear adaptive hypertrophy in the face of injury factors, which coincides with the knowledge points of centralization hypertrophy and centralization hypertrophy in the discussion of hypertensive heart pathological changes in cardiovascular diseases. Teachers can help students integrate knowledge points across chapters in the teaching process. In addition, hypersensitivity inflammation can be related to anti-basement membrane glomerulonephritis and circulating immune complex deposition glomerulonephritis in urinary diseases. The combination of laboratories can transform the traditional classroom into a pathological teaching environment and increase the openness of classroom and the activity of students.

4.3 Test after class to consolidate the teaching effect

It is difficult for students to understand and master the knowledge of pathology due to its scattered knowledge points, complex mechanism and abundant memory contents. This requires students to learn independently and internalize the knowledge system taught by teachers on the basis of a preliminary understanding, and be good at discovering and solving problems in the learning process [6]. At the end of each year, students generally report difficulty remembering. In the teaching process, teachers can help students integrate knowledge points and memorize them in sections. After each class, online exercises are arranged for a test. For students, the completion of exercises is a simple review process. As a basic medical discipline, pathology requires students to have a certain ability to use time in clinical work [2]. In the teaching process, teachers should not only pay attention to the teaching of theoretical knowledge, but also innovate teaching methods to improve the clinical application ability of students. Students can be divided into groups to carry out discussion activities as a unit, increase the exchange between students, learn from each other and urge each other to make progress.

In the author's research, there is no difference in the overall teaching effect of two majors and two teaching modes with different class hours. However, there is a clear difference in the rate of excellence among students in the class. The reason may be that there are many classes in rehabilitation therapy major, so students can master knowledge more firmly, which makes up for the deficiency of traditional teaching mode.In addition, the students majoring in rehabilitation therapy were more likely to study science in middle school, and their learning of pathology was mainly based on understanding. Nursing students are mostly liberal arts students in middle school, so they learn pathology mainly by memory. In view of the characteristics of pathology, there are many contents to memorize and comprehension memory is needed. Students of the two majors adopt different methods to learn pathology, but both of them can achieve certain teaching effects.

Therefore, the application of pathology, theory and practice integrated teaching mode in the medical specialty teaching of private colleges can not only reflect the national demand for high-quality personnel training, but also improve the active participation of students in class, contribute to the construction and development of the discipline, and improve the quality of teaching.However, in recent years, with the rapid development of modern information education technology such as multimedia and computer network, the single traditional experimental teaching mode can not meet the needs of information medical education, and the experimental teaching of pathology is the same. The problems existing in the traditional experimental teaching mode are also gradually highlighted, such as the difficulty in ensuring the quality of the glass tissue slices used in experiments, and the need for students to spend a lot of time looking for useful information on the slices in experimental classes. In this case, the efficiency of experimental classes is worrying. In the future teaching process, it is urgent to optimize and explore the integrated teaching mode of pathology.

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