

Reform of Teaching Methods and Content of "Introduction to Oncology"

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ABSTRACT

This study discusses the teaching reform of the methods and content of "Introduction to Oncology". A questionnaire is used to understand the subjective opinions on "Introduction to Oncology" among 63 students in the Department of Clinical Medicine, Youjiang Medical University for Nationalities in 2019. The sample is divided into two classes, with 31 and 32 students, respectively. Class 1 is taught with a new method while class 2 is taught in the traditional means. The academic performances of the two classes are then compared through the final examination. The results of the questionnaire survey show that students subjectively believe that the two classes have significant differences in course teaching with clinical practice, humanistic knowledge and advanced technology, but no significant differences in ideological and political content. In the final examination, the average score of class 1 was 83, with the excellent rate of 85% and the pass rate of 100%, while the average score of class 2 was 72, with the excellent rate of 69% and the pass rate of 100%. The results show significant differences between the final exam scores of classes 1 and 2. Thus, this study shows that adopting new teaching methods can improve students' academic performance.

Keywords: introduction to oncology; teaching reform; teaching methods; teaching content

INTRODUCTION

In recent years, the morbidity and mortality of tumors have been on the rise worldwide. Tumor has become the primary disease that endangers human health and causes death. The prevention and treatment of tumors has therefore become a huge challenge for medical workers. Faced with this severity, accelerating the training of oncology professionals and providing more excellent specialists for the clinical diagnosis and treatment of tumors are imperative. Medical undergraduates are the backbone of future clinical work, and therefore their lessons require high attention that should include oncology. The teaching system needs improvement to help in the students' learning and cultivate their multidisciplinary comprehensive diagnosis and treatment of tumors. Thus, this method can guide the direction for future clinical practice and the specialist work of medical students. However, various problems in the teaching of oncology still need urgent solutions in China.

"Introduction to Oncology" is a course that systematically and concisely expounds on the basic concepts, biological behavior, epidemiology, etiology, diagnosis, treatment, and prevention of tumors. New understanding of the prognosis, diagnosis and treatment methods

of tumor diseases are also briefly introduced. The textbook content is scientific, readable, and practical, providing essential reference for clinical professionals to understand tumors. *"Introduction to Oncology"* is not only suitable for beginners, but also for medical workers and students of other majors.

Given that *"Introduction to Oncology"* is a basic and necessary course for medical students to grow into qualified doctors, the teaching methods and content are extremely important. The increasing incidence of tumor year by year requires medical students to no longer be limited to understanding tumor. In this regard, the course *"Introduction to Oncology"* plays an increasingly important role in the study of clinical medicine, of which the traditional teaching methods need changes.

Clinical practice is an important link in medical education, serving as a transition stage for students from the classroom to the ward, from theory to practice. This stage is a bridge between basic theory and clinical practice, and the key to training medical students to become qualified clinicians (Sun & Xu, 2008). The quality of clinical practice thus directly affects that of the entire medical education.

The ideological and political work of colleges and universities is related to the fundamental problem of the kind of people these institutions cultivate, how to develop them and for whom. Adherence to the central link of cultivating people by virtue, and to put ideological and political work throughout the entire process of teaching, is necessary to realize a well-rounded education, as well as strive to create new developments for the country's higher education (Shi, 2018). In the new era, medical talents must not only have high ability and noble morality. Medical colleges should keep pace with the times and attach importance to the role of ideological and political education. However, for a long time, higher medical colleges have not paid enough attention to ideological and political education, and offer fewer courses related to such matters. The lack of interdisciplinary and infiltration of professional teaching results in the lack of comprehensive and continuous training, which prompts medical students to ignore humanistic care.

Given this scenario, this study analyses the results of different teaching methods in the course *"Introduction to Oncology"* by the Department of Clinical Medicine, Youjiang Medical University for Nationalities in 2019, discusses the current teaching status and existing problems, and proposes effective reform measures. The aim is to improve the medical students' interest in learning this course, mobilize their enthusiasm, and enhance their practical ability. We thus designed a new method to introduce oncology by adding new elements such as ideological and political aspects, clinical practice, humanistic knowledge and advanced teaching technology, to compare with the traditional teaching method.

METHODS

The subject includes 63 students enrolled in the clinical medicine department of Youjiang Medical University for Nationalities in 2019. The students are divided into two classes, with 31 and 32 students in classes 1 and 2, respectively. Each class has to attend the course *"Introduction to Oncology"* twice a week from September to October 2021, with a total of 16 hours. However, class 1 is taught in a new way while class 2 is taught with the traditional teaching methods. Before the experiment, an anonymous questionnaire is used to understand the students' subjective opinions on the teaching methods of the *"Introduction to Oncology"* course. Table 1 shows the questionnaire. On November 5, 2021, the two classes took a closed-book final exam, after which the chi-square test was performed to compare the scores of the two groups. The test level is $\alpha=0.05$.

TABLE 1. Questionnaire survey on the content of *"Introduction to Oncology"* in teaching reform

	Yes	No
Does it make sense to add clinical practice in the course of “ <i>Introduction to Oncology</i> ”?		
Is it helpful to you to include humanistic knowledge in the course of “ <i>Introduction to Oncology</i> ”?		
Is it necessary to supplement content from ideological and political aspects to the course of “ <i>Introduction to Oncology</i> ”?		
Is it necessary to adopt advanced technology to teach the course of “ <i>Introduction to Oncology</i> ”?		

RESULTS

ANALYSIS OF QUESTIONNAIRE RESULTS

A total of 63 questionnaires are collected from the students, yielding a recovery rate of 100%. Table 2 shows the evaluation indexes and comparison results of the two classes. The results show that, in terms of the content of “*Introduction to Oncology*” course, students subjectively believe that the two classes have significant differences in teaching the course with clinical practice, humanistic knowledge, and advanced technology, but no significant differences in ideological and political content.

TABLE 2. Analysis of the questionnaire results on the content of “*Introduction to Oncology*” in teaching reform

Does it make sense to add clinical practice in the course of “ <i>Introduction to Oncology</i> ”?	59 (93.65%)	4 (6.35%)
Is it helpful to you to include humanistic knowledge in the course of “ <i>Introduction to Oncology</i> ”?	44 (69.84%)	19 (30.16%)
Is it necessary to supplement content from ideological and political aspects to the course of “ <i>Introduction to Oncology</i> ”?	35 (55.56%)	28 (44.44%)
Is it necessary to adopt advanced technology to teach the course of “ <i>Introduction to Oncology</i> ”?	55 (87.30%)	8 (12.70%)

ANALYSIS OF FINAL EXAM RESULTS

Table 3 shows the analysis of the final exam results of experimental class 2 on November 5, 2021.

TABLE 3. Analysis of grade 2019, classes 1 and 2 final exam results of “*Introduction to Oncology*” course from Department of Clinical Medicine in Youjiang Medical University for Nationalities

Results (100 points total on paper)	Class 1 (new style teaching)	Class 2 (traditional teaching)
Highest score	98 points	92 points
Lowest score	66 points	65 points
Average score	83 points	72 points
Excellent rate (≥ 85 points as excellent)	85%	69%
Pass rate (≥ 60 points for passing)	100%	100%

Note: Differences between the final exam scores of classes 1 and 2 are significant.

DISCUSSION

IMPORTANCE OF “*INTRODUCTION TO ONCOLOGY*” IN CLINICAL MEDICINE COURSE

In the past half-century ago, due to the improvement of living standards and the progress in the field of medicine and health, the average human life expectancy has been prolonged and the peak age of cancer onset is after 40 years old, and thus the incidence and mortality rate of cancer have increased correspondingly. Nowadays, as tumors have become the top three causes of death in the world, to comprehensively master the classification, clinical manifestations, diagnostic basis, differential diagnosis and treatment prognosis of tumors is necessary (Tao, Lai, Shen, Cheng & Zhang, 2021). Although the "*Introduction to Oncology*" is an elective subject in medical courses, it involves a wide range of content and professional knowledge, strong clinical practice, and cross integration with other disciplines, so it is very important (Han, Yang & Xie, 2021).

TEACHING STATUS AND EXISTING PROBLEMS OF "*INTRODUCTION TO ONCOLOGY*"

At present, most schools are still limited to traditional large class lectures and practical observations of anatomical processes for "*Introduction to Oncology*", which enjoys the advantage of direct face-to-face lectures but also has many disadvantages.

First, curriculum ideology and politics are not given sufficient attention. Undergraduate education has considerable responsibility and is an important cornerstone of national development and social progress. As talents trained by the country and future builders of the motherland, undergraduates must have a solid foundation in curriculum ideology and politics to ensure their quality (Liu, 2021). In most medical colleges and universities, the undergraduate education focuses on the cultivation of professional quality and scientific research ability, while the ideological and political aspects are not given sufficient attention and their role is ignored. Few classical cases show the mutual effect among ideological and political elements, social reality and professional knowledge, which also lack flexibility and neglect the disciplinary orientation of the course for a healthy China. This gap has led to a disconnection between the cultivation of talents and professional needs, which cannot completely accord with the training requirements, let alone meet the social demand for specialization talents (Gong, Zhang, Ding, Gao, Yu, Liu & Chen, 2021).

Second, teaching models lack adequate training in professional thinking modes. Various teaching modes for undergraduates in higher medical schools in China are unscreened and basically use old teaching methods. Although at times advanced training models from abroad are referred to and courses combining theory and practice are set up, the result is that they simply superimpose rather than integrate the course "*Introduction to Oncology*" with other clinical cases. In addition, many undergraduates rarely see tumor cases in their lives, and even if they do, face difficulties in understanding and grasping its etiology, clinical manifestations, diagnosis, treatment, and prognosis, thereby limiting their professional thinking skills development and the achievement of the training objectives.

Third, the existing teaching methods and educational thinking are rigid, with mostly traditional indoctrination learning. This scenario leads to the lack of self-learning system and thinking independence of undergraduates, which cannot allow them to make new choices or acquire knowledge and skills from reflection (Wang, Guan, Yu, Cai, & Xu, 2021). Educational thinking is essential for educators. However, the past systematic educational thinking cannot meet the requirements for clinical quality of undergraduate medical students in modern society; rather it can only enable students to stereotype the tumors with a rigid impression. When faced with real tumor patients, these students may make wrong judgments about diseases due to the lack of typical clinical symptoms and unimpressive knowledge.

Fourth, the promotion of humanistic education is insufficient. In the medical education system of several western countries, medical knowledge only accounts for 1/3 while nearly 2/3

of the course is related to humanities and social sciences (Zhang, Kou, Zhou, & Zhang, 2020). Medical education researchers particularly advocate the use of interdisciplinary thinking, carry out multidisciplinary teamwork, and emphasize returning humanistic teaching to practice (Jiang, Zong & Zhang, 2021; Ma, 2021) “*Introduction to Oncology*” is a subject with strong integration of disciplines, such as anatomy, pathology, internal medicine, surgery, imaging, and even gynecology and pediatrics. Moreover, tumor patients are more psychologically stressed than other patients, and their discomfort is longer and difficult to relieve. For such disciplinary characteristics, strengthening the cultivation of students’ medical humanistic quality is necessary. However, the current teaching model ignores the importance of humanistic quality, which leads to the difficulties for medical students to adapt to clinical work and development as immediately as possible.

NEW IDEAS TO REFORM THE TEACHING OF “*INTRODUCTION TO ONCOLOGY*”

The following steps can be taken to reform the teaching of “*Introduction to Oncology*”. First, Schools should attach importance to ideological and political courses and address the relationship between knowledge, skills, and humanities (Liao, Xiao, Lu & Yu 2021; Ma, 2021) Emphasize the educational function of ideological and political elements, and integrate them into the classroom to nurture the talents needed by society for the country. Medical humanities must be developed comprehensively from six aspects, including sound personality, noble medical ethics, complete knowledge system, innovation ability, cooperative spirit, and legal consciousness (Zhou, 2021). Ideological and political elements and humanistic spirit must be fully integrated into the curriculum. Ideological and political education together with humanistic quality education cannot be limited to words but must be fully put into practice. Teaching courses must be planned carefully and diversified activities must be designed. For example, a problem-oriented research retrieval is a good learning method.

Second, promote the policy of “early, frequent, and repeated clinical practices”. In the early years, Jinzhou Medical University has put forward this teaching concept, but most medical institutes do not apply it well to medical education. For medical students, “repeated practice”(Zhang, Zhang, Xu, & Gao 2021) is a way to acquire knowledge faster. For the implementation of the clinical practice of “*Introduction to Oncology*”, the following three aspects are feasible: 1. Students are required to serve a local medical institution or community and write a report about their practice during the winter and summer vacations of the school year; 2. Arrange a responsible mentor for each medical student to follow at least once a week in outpatient clinics or to see real patients in the ward; 3. Take the Standardized Patients (SP) patients as an example (W, C, S & R, 2010) and require students to carry out consultation, conduct physical examination, and prepare major medical records, proposed diagnosis, differential diagnosis, and treatment plan.

Third, make use of advanced technology to reform classroom teaching. Since the 21st century, the rapid development of information technology has transformed the traditional information transmission teaching to a more challenging ability training focusing on knowledge search, screening, analysis and application, bringing new opportunities and challenges to the education industry (Guo, Wang, Ma & Pan, 2010). The classroom reform of “*Introduction to Oncology*”(Li, Song & Tao 2010) can be implemented from three aspects: 1. Combine online and offline courses, and introduce more network education resources from high-ranking medical colleges and universities; 2. Organize backbone clinical teachers in the Department of Oncology to record network resource sharing classes with real patient cases in the form of teaching and research projects; and 3. Use virtual reality technology to reproduce the occurrence of tumors in various organs of the human body and impact on other systems (Lu, Gao, Wei, Xu, Sun, & Wang, 2010; Buttussi, Pellis, Cabas, Pausler, Carchietti &

Chittaro, 2010).

In summary, the importance of "Introduction to Oncology" in the clinical medicine curriculum, the teaching status and problems, and new ideas for teaching reform are hereby discussed. In addition, the shortcomings of the current "Introduction to Oncology" course education are fully recognized, toward which practical and feasible teaching reform methods are put forward in the hope of achieving better teaching results and cultivating more quality talents for the country and for the people.

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