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Original Article

An analysis of the implementation effects of new paths and methods of occupational ethics education for medical students in higher vocational colleges

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Abstract: Objective: To investigate the implementation effects of new paths and methods of occupational ethics education for medical students in higher vocational colleges. Methods: A total of 668 students in higher vocational colleges were selected as the study subjects, and divided into traditional group (n=349) and innovative group (n=319) in accordance with their grades. The data pertaining to the students' views on the educational model of medical and occupational ethics, occupational passion, spirit of occupational risk, occupational ethics and codes, and doctor-patient rights and obligations and communication abilities and skills in the two groups were compared, so as to explore the influences of new paths and methods of occupational ethics education on the occupational ethics of medical students in higher vocational colleges. Results: The study results showed that the innovative group was significantly superior to the traditional group in the satisfaction with the courses of occupational ethics, pedagogical effects, occupational dedication and passion, doctor-patient communication ability, the fulfillment of doctor-patient rights and obligations, and the cognition of occupational ethics and codes ($P < 0.05$). Conclusion: The implementation of innovative methods of occupational ethics education for medical students in higher vocational colleges can produce significant feedback effects. The improved teachers' abilities and pedagogical methods, innovative teaching approaches and optimized curriculum can effectively improve the occupational ethics of medical students in higher vocational colleges.

Keywords: Higher vocational colleges, medical and occupational ethics, educational methods, new paths

Introduction

In China, there is an increasing need in the public's medical consumption and demands for health services, and people are expecting higher quality of medical services [1]. However, due to marketization and industrialization of medical and health services, a growing number of medical and health service institutions neglect social benefits and focus on seeking economic returns. Meanwhile, the public awareness of rights protection and self-protection is increasing, these will in turn cause tension for the doctor-patient relationship to a great extent. The doctor's occupational ethics remains a concern in society and occupational ethics education for medical students becomes crucial. It is of social and practical significance to continuously improve the occupational ethics education for medical students and cultivate medical talents for the progress in medical undertakings [2, 3].

Medical education for medical students in higher vocational colleges is characterized by medical and vocational education. Career ideal plays an integral role in achieving the value and objectives of life [4]. Unfortunately, many medical students engage in the medical profession either because of doctors' high social standing or because of their parents' wishes. They cannot fully and comprehensively understand the pressure and risks facing those engaging in the medical profession. Consequently, these medical students in higher vocational colleges usually failed to establish correct learning objec-

tives in terms of doctor's social responsibilities and the necessary moral requirements. The vague concept finally leads to such issues as the unwillingness to bear risks, lack of occupational passion and recognition [5].

The demand for medical jobs should be an important basis for the education of medical and occupational ethics in higher vocational colleges. It should also be fully reflected in pedagogical methods and contents, so as to achieve effective educational effects [6]. Regarding the cultivation of medical students, the occupational requirements should be met first. The training on grassroots medical staff should be strengthened, especially the training on health technical personnel and nursing personnel, and the practical ability should be evaluated [7]. Usually, the future employment of medical students in higher vocational colleges depends on their majors, and the characteristics of different majors vary greatly. Therefore, the occupational ethics education for medical students in higher vocational colleges should be conducted in accordance with the post requirements [8]. Additionally, medical education in higher vocational colleges, an integral part of medical undertakings in China, should not be limited to the knowledge from books, and make students to clearly and correctly understand occupational risks and recognize the profession of doctors from the bottom of their hearts. Meanwhile, medical students should have excellent communication abilities and skills with patients based on their understanding of the profession of doctors, occupational ethics and doctor-patient relationship [9, 10].

Overall, through a comprehensive and multi-perspective investigation of the actual situation of occupational ethics education for medical students in higher vocational colleges, this study analyzes the shortcomings of the current pedagogical methods from multiple levels and aspects, aiming at exploring more effective pedagogical paths and methods, and scientifically and properly evaluating the effects of occupational ethics education after the implementation of the new methods. Our goal is to provide scientific ways and a reasonable basis for strengthening the effects of occupational ethics education for medical students in higher vocational colleges.

Materials and methods

General data

A total of 668 students in higher vocational colleges were selected as the study subjects. Among them, grade 2010 students were included in traditional group (n=349), and grade 2012 students were included in innovative group (n=319). The subjects were students at school, with their majors including medical imaging, medical technology, clinical medicine, pharmacy and nursing. This study was approved by the Ethics Committee of Jiangxi Health Vocational College. All subjects signed the written informed consent prior to participating in the study.

Inclusion criteria: (1) medicine and related majors; (2) healthy psychological state; (3) correct values; (4) normal thinking and expression ability; (5) voluntary participation.

Exclusion criteria: (1) value distortion; (2) occupational nonconformity; (3) voluntary withdrawal from the investigation.

Methods

All the study subjects were divided into traditional group and innovative group. The medical students of grade 2010 were included in the traditional group, and the traditional educational methods and contents of occupational ethics were adopted. The medical students of grade 2012 were included in the innovative group. For the medical juniors in the innovative group at the time of internship, innovative methods and contents of occupational ethics education were adopted. After performing pedagogical practices, we investigated and understood the effects of occupational ethics education for medical students in the two groups by questionnaire.

Observational indices and assessment criteria

The occupational training on investigators was conducted, the specific contents of the questionnaire were understood, and the uniform instructions on the potential issues during the investigation were provided. The investigation was performed through online questionnaires. The investigation involved five aspects: medical students' basic situation, views on educational

Table 1. Comparison of basic information of students

Basic information of students		Innovative group (n=319)	Traditional group (n=349)	t	P
Gender	M	127	145	0.208	0.648
	F	192	204		
Major	Nursing	81	80	0.412	0.567
	Pharmacy	42	27		
	Medical imaging	53	60		
	Clinical medicine	74	98		
	Medical technology	69	84		

methods of medical and occupational ethics and doctor-patient rights and obligations, occupational passion and dedication, understanding of occupational ethics, practical performance, and doctor-patient communication skills, and a comprehensive and multi-perspective analysis of the actual situations and effects of the aforementioned five aspects in traditional group and innovative group was performed.

Statistical method

The SPSS20.0 was adopted to systematically sort out and analyze the data. The statistical analysis was performed using the relevant statistical formulas, and the appropriate values were selected, input, and detected using Student's t test, so as to reduce errors. The standard working hours of [n (%)] was taken for measurement, and the variance data were used to check the internal variances in different groups. The experimental results were detected by Student's t test, and the differences in the data between groups were detected by F. $P < 0.05$ indicated a statistically significant difference in the data.

Results

Comparison of students' basic information

A total of 668 medical students were investigated, of whom 396 (59%) were female students and 272 (41%) were male students. Based on the majors of medical students, 113 (17%) students majored in medical imaging, 153 (23%) students majored in medical technology, 69 (10%) students majored in pharmacy, 161 (24%) majored in nursing, and 172 (26%) majored in clinical medicine. There was no remarkable difference in gender between traditional group and innovative group. Therefore, there was no statistical significance in the general information of students ($P > 0.05$) (**Table 1**).

Comparative analysis of pedagogical methods, contents and effects of occupational ethics

The comparison of pedagogical effects, contents and methods of occupational ethics education between the two groups exhibited that the innovative group was significantly superior to the traditional group in pedagogical effects, and there were statistically significant differences between the two groups ($P < 0.05$). Therefore, it can be concluded that the pedagogical contents and methods of occupational ethics after reforms and innovations are consistent with the medical practices, exhibiting a strong feasibility. The pedagogical effects on occupational ethics and teachers' assessment showed that the scores in the traditional group were significantly lower than those in the innovative group regarding pedagogical contents of occupational ethics, and occupational abilities, effects, and dedication, and there were statistically significant differences ($P < 0.05$) (**Figure 1**).

Comparative analysis of occupational passion and dedication

The comparison of spirit of occupational risk and occupational passion suggested that the innovative group was significantly superior to the traditional group in the effects, and there were statistically significant differences between the two groups ($P < 0.05$). The innovative group could more comprehensively, objectively and profoundly understand the social res-

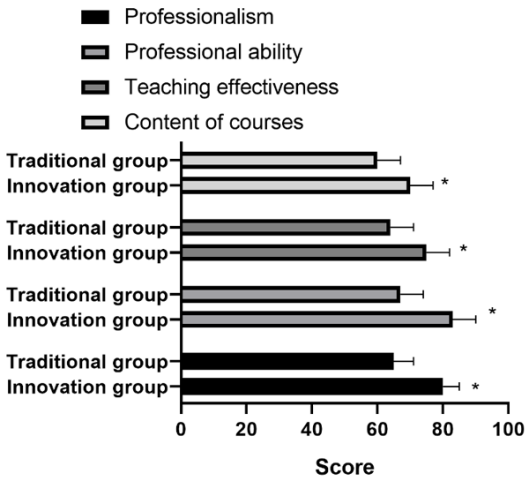

Figure 1. Comparative analysis of pedagogical methods, contents and effects of occupational ethics. The comparison of pedagogical effects, contents and methods of occupational ethics education between the two groups exhibits that the innovative group was significantly superior to the traditional group in pedagogical effects, and there were statistically significant differences between the two groups ($P < 0.05$). Therefore, it can be concluded that the pedagogical contents and methods of occupational ethics after reforms and innovations are consistent with the medical practices, exhibiting a strong feasibility. The pedagogical effects on occupational ethics and teachers' assessment showed that the scores in the traditional group were significantly lower than those in the innovative group regarding pedagogical contents of occupational ethics, and occupational abilities, effects, and dedication, showing statistically significant differences ($P < 0.05$). *represents that compared with the same index between groups, $P < 0.05$.

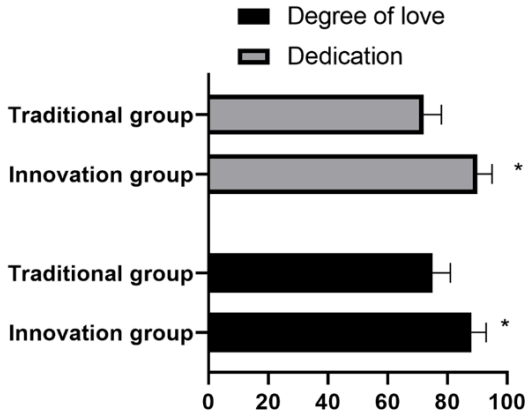

Figure 2. Comparative analysis of occupational passion and dedication. The comparison of spirit of occupational risk and occupational passion suggested that the innovative group was superior to the traditional group in the effects, and there were statistically significant differences between the two groups ($P < 0.05$). The innovative group could more comprehensively, objectively and profoundly understand the social responsibilities in the line. After receiving 2-year innovative education of occupational ethics, the innovative group significantly had stronger pressure and risk bearing abilities, and was not against medical profession psychologically. *represents that compared with the same index between groups, $P < 0.05$.

ponsibilities in the line. After receiving 2-year innovative education of occupational ethics, the innovative group significantly had stronger pressure and risk bearing abilities, and was not against medical profession psychologically (**Figure 2**).

Comparative analysis of students' cognition of occupational ethics and codes

The comparison and analysis of the medical students' cognition of occupational ethics and codes revealed that the innovative group was significantly superior to the traditional group in medical students' cognition of occupational ethics and codes, and there were statistically significant differences ($P < 0.05$). Medical students in the innovative group have fully understood that medical skills and ethics are the important criteria for the assessment of a qualified and outstanding medical worker (**Figure 3**).

Comparative analysis of students' cognition of doctor-patient rights and obligations and performance

The comparison of the students' cognition of doctor-patient rights and obligations and the performance demonstrated that the medical students in the innovative group explained the therapeutic cost, advantages and disadvantages of the therapeutic regimen, nursing and prognostic measures to patients and their families compared with those in the traditional group, resulting in remarkable differences in the data between the two groups ($P < 0.05$). This shows that medical students receiving innovative and reformed education of occupational ethics can more objectively treat patients' informed consent right (**Figure 4**).

Comparative analysis of students' abilities and skills in doctor-patient communication

The comparison of doctor-patient communication abilities and skills between the two groups

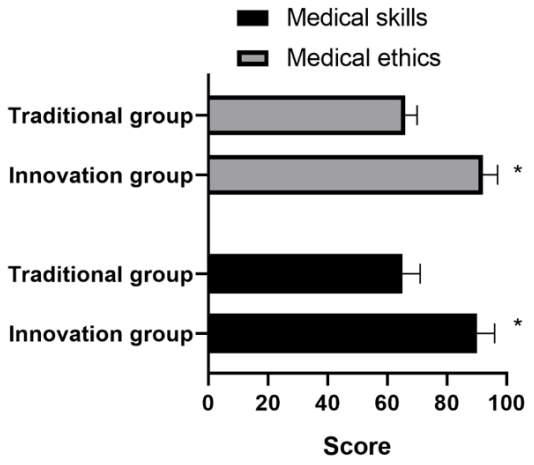

Figure 3. Comparative analysis of students' cognition of occupational ethics and codes. The comparison and analysis of the medical students' cognition of occupational ethics and codes revealed that the innovative group was significantly superior to the traditional group in medical students' cognition of occupational ethics and codes, and there were statistically significant differences ($P < 0.05$). Medical students in the innovative group had fully understood that medical skills and ethics were the important criteria for the assessment of a qualified and outstanding medical worker. *represents that compared with the same index between groups, $P < 0.05$.

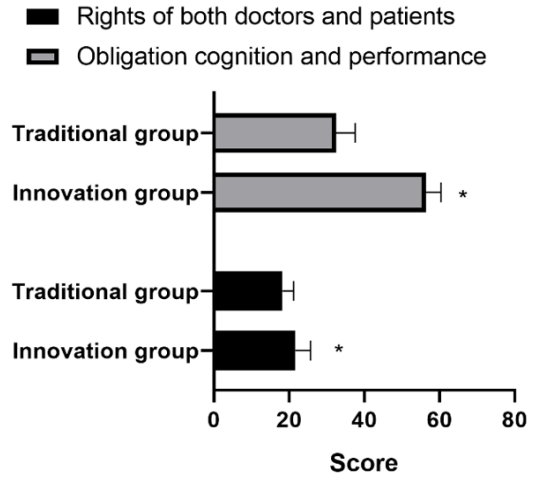

Figure 4. Comparative analysis of students' cognition of doctor-patient rights and obligations and performance. The comparison of the students' cognition of doctor-patient rights and obligations and the performance demonstrated that the medical students in the innovative group explained the therapeutic cost, advantages and disadvantages of the therapeutic regimen, nursing and prognostic measures to patients and their families compared with those in the traditional group, resulting in remarkable differences in the data between the two groups ($P < 0.05$). *represents that compared with the same index between groups, $P < 0.05$.

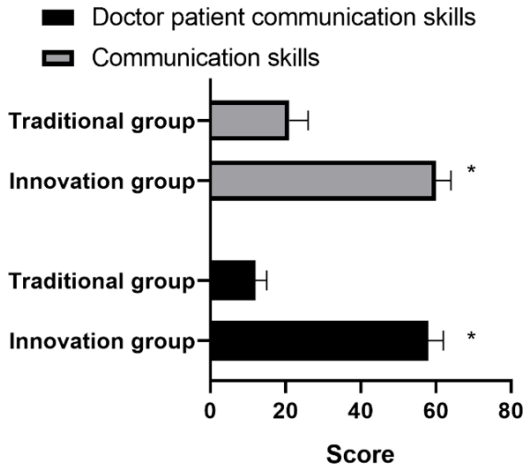

Figure 5. Comparative analysis of students' abilities and skills in doctor-patient communication. The comparison of doctor-patient communication abilities and skills between the two groups exhibited that the doctor-patient communication abilities and skills in the innovative group were remarkably improved, and there were statistically significant differences in the data between the two groups ($P < 0.05$). *represents that compared with the same index between groups, $P < 0.05$.

suggested that the doctor-patient communication abilities and skills in the innovative group were remarkably improved, and there were statistically significant differences in the data between the two groups ($P < 0.05$) (**Figure 5**).

Discussion

The comparison between the two groups exhibits that the medical students in the innovative group have a higher participation in social practices and humanistic experience, and the students willingly and independently accept and recognize the innovative educational contents and pedagogical methods of occupational ethics [11]. After implementation of innovative pedagogical approaches and methods of occupational ethics for medical students, medical students have a higher loyalty and recognition to the doctor profession and stronger pressure and risk bearing abilities, and establish defined career and learning objectives. Regarding the cognition of occupational ethics and codes, medical students in the innovative group can more objectively and correctly understand the occupational spirit and doctor-patient relationship, and have a more positive occupational attitude [12, 13]. The medical students in the innovative group have a more objective, suffi-

cient and reasonable understanding of the doctor-patient obligations and rights, and can employ the understanding in their practices and work. Medical students in the innovative group have stronger communication abilities and skills, more vigorously conduct communication with patients, show humanistic care, consider patients' complains from psychological and emotional perspectives, enabling them to be qualified medical works [14].

The medical and occupational ethics educations are the global concerns. In the early 1960s, the medical and occupational ethics education was first promoted in the United States. Up to now, a comprehensive, systematic and scientific system of medical and occupational ethics education has been established [15]. The investigation reveals that the courses regarding occupational ethics education are included in the curriculum system in nearly 90% of medical schools in the United States, and occupational ethics education is performed through giving full play to the moral education function of occupational courses, properly combining occupational ethics education with clinical practice education, carrying out targeted extracurricular activities, and offering humanities courses [16, 17]. However, due to cultural and regional differences, occupational ethics education adopted by American medical schools should not be fully implemented in China. China attaches great importance to the education of medical and occupational ethics. Relevant government documents define that innovative pedagogical methods and reform and occupational ethics education with a focus on honesty and dedication should be promoted. Currently, although remarkable achievements and some innovations have been obtained in the education of medical and occupational ethics in higher vocational colleges in China, the issues have not been fundamentally tackled. Therefore, a special attention should be paid to optimize the methods of the occupational ethics education [18].

The summary of this experiment shows that medical students receiving traditional education of medical and occupational ethics have a basic understanding of the doctor-patient obligations and rights and medical and occupational ethics, and show obvious shortcomings in social practices and humanistic experience. However, medical students in the innovative group receiving reformed education of curriculum regarding interpersonal communication, doctor-patient communication, nursing psychology, and nursing ethics can have an in-depth understanding of doctor-patient communication, and have stronger pressure and risk bearing abilities and an excellent quality of occupational ethics [19]. Therefore, occupational ethics education for medical students in higher vocational colleges should be conducted in accordance with the following aspects: First, it is necessary to continuously deepen the reform of humanities courses, establish a humanistic curriculum group for education of medical and occupational ethics, and adopt the contents and methods of humanities education throughout the cultivation of medical talents, so as to promote the effective combination and deepening integration of humanities education and science education [20]. Second, multiple pedagogical means, methods and approaches should be implemented for occupational ethics education for medical students in higher vocational colleges. The pedagogical methods (e.g., case analysis and scenario simulation) can be adopted to promote students' independent and active learning, so as to explore the behaviors, emotions and awareness for medical and occupational ethics. Third, the implicit and explicit education in the education of medical and occupational ethics should be combined and linked, and the humanistic experience and occupational and social practices in educational activities should be added [21].

It remains crucial to carry out the education of medical and occupational ethics in the occupational quality education for medical students, requiring long-term efforts. A correct understanding of multiple issues in medical ethics education and the innovation and development of a new model of medical ethics education play a pivotal role in effectively improving the occupational ethics and quality of medical students in higher vocational colleges [22, 23]. This study explores the defects in occupational ethics education for Chinese medical students in higher vocational colleges, aiming at establishing new paths and methods of occupational ethics education for medical students in higher vocational colleges through improving the methods of occupational ethics education,

expanding pedagogical approaches, establishing the teams of professional teachers, and properly innovating courses associated with occupational ethics education. As a result, considerable results have been achieved [24]. Regarding the future education of occupational ethics for medical students, the core and objectives of medical ethics education should be further expanded and defined based on the current innovative education. The pedagogical concept of occupational ethics should be highlighted from the perspectives of cultivation of medical ethics and behaviors, effective improvement of occupational quality, and continuous enhancement of occupational cognition and values, so as to fundamentally raise the awareness of and attention given to the promotion of occupational ethics and quality of medical students in higher vocational colleges. Through the enhanced construction and continuous reforms and innovations, the optimal methods and approaches can be obtained to innovate and improve the occupational ethics education for medical students, thereby improving their occupational ethics.

However, this study also has some limitations. The feedback on students' psychological quality is not very comprehensive. It is hoped that medical students can also pay attention to their mental health factors in the process of learning in the future.

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Disclosure of conflict of interest

None.

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