Preliminary Study on the Pharmacology Practical Teaching Reform in Pharmacy in Higher Vocational Colleges

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Abstract

Pharmacology training course is an important part of pharmacology teaching and an important means to let students understand and master the basic knowledge of pharmacology. In order to meet the requirements of high-quality technical talents under the new situation, this paper, by making corresponding reforms of current training in pharmacology teaching contents, methods, means and examination method, and tracking questionnaire survey on course effect, explores a training mode of pharmacology to adapt the new trend of vocational education. A total of 188 second-year pharmacy students participated in the study. Course assessment and questionnaire survey were used to evaluate the reformed course. Students in this course performed well. The number of students who failed to pass the exam is 0. The data from the questionnaires indicated that students generally held positive attitudes toward the innovative teaching contents and model.

Keywords: pharmacology training, teaching method, teaching reform

1. Introduction

Pharmacology is a strong theoretical and practical subject, and the teaching process includes practical teaching and theory teaching. The practical teaching of pharmacology is a larger proportion in pharmacology teaching. It is the mutual authentication process of theory basis and practice operation as well as the extension and supplement of teaching theory. Through training teaching, students can improve their hands-on ability, logical thinking, the ability to comprehensively use knowledge, team spirit, data processing and writing reports, lay a solid foundation for further their employment. So, improving pharmacy practical teaching quality is the key to enhance the pharmacy teaching quality and also is the effective way to cultivate high-quality technical pharmacy talents.

However, the traditional pharmacological teaching method of is single and based on pharmacological experiments in the content. This is closely associated with the verification and research content; there is a disconnection between the training content and the requirements of pharmaceutical jobs for vocational education graduates. Several new teaching methods were tried in this area, such as simulative drugstore, cases based learning and online teaching (Gang & Li, 2012; Gupta, Arora, & Kaushal, 2014; Karaksha, Grant, Anoopkumar, Nirthanan, & Davey, 2013).

Therefore, this paper through the exploration of pharmacology teaching methods reform, changes the traditional mode that is centered as the validation of drug pharmacological activity to the new teaching mode as the center of clinical medication and pharmacy services.

2. Methods

Select 188 second-year pharmacy students at Leshan Vocational & Technical College as the research object, carry out the pharmacology comprehensive skills training courses based on clinical medication and pharmacy services, reform and innovate in the training content and training methods.

2.1 Practical Training Content

Practical training content has four modules.

2.1.1 Training of Basic Skill of Using Medicine

Teachers provide students with different drug packaging and instructions, each of two students is a group, each

group chooses five drugs, is familiar with the instructions, practices medicine introduction and medication guide. Then, the groups mock the patients who buy medicines, and the pharmacy service staffs introduce medicines and medication guide. They are required to accurately describe the main roles and purposes, detail the usage and dosage; clarify the adverse drug reactions, and explain the medication notes

2.1.2 Skills Training of Prescription Dispensing

The students are divided into 5 groups, each group reviews the 10 prescriptions provided by teachers, pick up the wrong types and points out the error type and records the analysis content in details. The groups can mock the patient and pharmacy service staffs according to the qualified prescription after the check, disperse the prescription and practice dispensing medicines.

Table 1. The record table of prescription-checking condition

Prescription doctor	Name of Patient	Check result	Error type	Error description

2.1.3 Guidance Ability Training of Common Disease Medication

Five students form a group, each group chooses a practical training topics. Topics include: medication guides of clinical common disease, such as hypertension, coronary heart disease, hyperlipidemia, acute upper respiratory tract diseases, bronchial asthma, digestive ulcer, acute gastroenteritis, iron deficiency anemia, urinary tract infection. Students are required to collect information in their extracurricular time, be familiar with the clinical manifestations of the disease, and guide the medication; through the production of presentations and explanation in classroom, the students complete the training content.

2.1.4 Comprehensive Ability Training of Medication

Introduce the knowledge contest mode, five students are a group. The teacher provides question and the groups discuss and provide answers. The topic involves in all aspects of pharmaceutical services. Through competition and group discussion, students can improve their interests in learning, positive thinking and problem-solving abilities.

3. Evaluation Methods

Evaluation methods include examination and questionnaire survey.

Examination: assess in accordance with the results of the training work (30%), the training teacher site score (40%), training test scores (30%). The maximum mark is 100.

Questionnaire survey: investigate and understand the students' evaluation on teaching process and results by issuing questionnaires to the students who participated in the training course.

4. Result Analysis

4.1 Students' Performance and Interval Distribution

The distribution of each grade section was in the Table 2. From the table, it can tell that the scores of the most students are concentrated in the 80-100 points, accounting for of the total number. The number of students who failed to pass the exam is 0. From the distribution of scores, the students do a good job in the course.

Table 2. Interval distribution of students' examination results

Groups	Grade sections				
	<60	60-69	70-79	80-89	90-100
Number of people	0	3	30	112	43
Percentage	0	1.6%	16.0%	59.6%	22.9%

4.2 Questionnaire Analysis

A total of 188 questionnaires were issued and 184 questionnaires were recovered. The recovery rate was 97.9%.

4.2.1 Students Evaluation on Traditional Pharmacology Training

Through the questionnaire survey, it found that on the choices of the traditional laboratory operation training with experiment reformation and the integrated skills training with the application of pharmaceutical knowledge, 76.09% of the students loved the latter (Figure 1). Only 27.17% of students believed the traditional training could meet the learning requirements of the students on pharmaceutical professional skills (Figure 2). From the survey data, we could see that the traditional training cannot match the students' interests and requirements on pharmacological knowledge.

Figure 1. Comparison of students' satisfaction with different forms of Pharmacology trainings
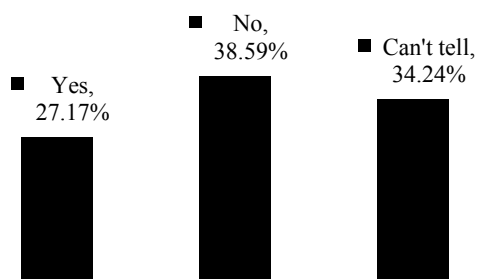

Figure 2. Evaluation of students about whether could the pharmacology of traditional training course meet the requirements of professional requirements

4.2.2 The Students' Evaluation on Reformed Training Course

Students' evaluation results on reformed content see table 3. From the Table 3, 67.39% of students were satisfied with training contents, 76.63% of the students expressed their satisfaction with the teaching methods. Whether the training content could reflect the learning requirements of pharmacology course, 70.65% of the students' answers were yes. The survey result improved 43.48% compared the one of whether the traditional pharmacology training can meet the students' requirements for the pharmacy professional skill learning (27.17%). From the above, the students' satisfaction degree of reformed training course is high, more close to the students' requirements on learning professional knowledge.

Table 3. Students' evaluation statistics on reformed training course (%)

Survey content	Yes	No	Can't tell
Are you satisfied with the reformed training content?	67.39	6.52	26.09
Are you satisfied with the teaching way after the reform?	76.63	4.89	18.48
Do you think the reformed training content can reflect the learning requirement of pharmacology course?	70.65	9.78	19.57
Can the reformed course content strengthen students learning interest in pharmacy knowledge?	76.63	4.89	18.48
Can the reformed course content improve the team coordination ability?	83.15	3.26	13.59
Can the reformed course content improve students self-study ability?	70.11	9.78	20.11
Can the reformed course content improve students' ability to use theories to analyze and solve problems?	78.26	4.35	17.39

In terms of the improvement of students' comprehensive quality by reformed training contents, 76.63% of students believed the new training course could increase their interests in learning the pharmacy knowledge; 86.15%, 70.11% and 78.26% of the students thought their team cooperation coordination ability, self learning ability, use of theoretical knowledge to analyze and solve problems were strengthened. The results showed that the new training course had a significant improvement in improving students' comprehensive abilities compared with the traditional one.

4.2.3 The Docking Degree of Reformed Training Content and Professional Post Demands

The survey data of docking degree of reformed training content and future job demands showed that 60.33% of the students believe that d0cking of course content and job demands was better, and 27.72% believed there were fewer docking and 7.07% believed there was no ducking at all(Table 3).The results showed that the reformed training course content could better adapt to the students' demands for future job after their graduation, further met the requirements of talents in Higher Vocational colleges.
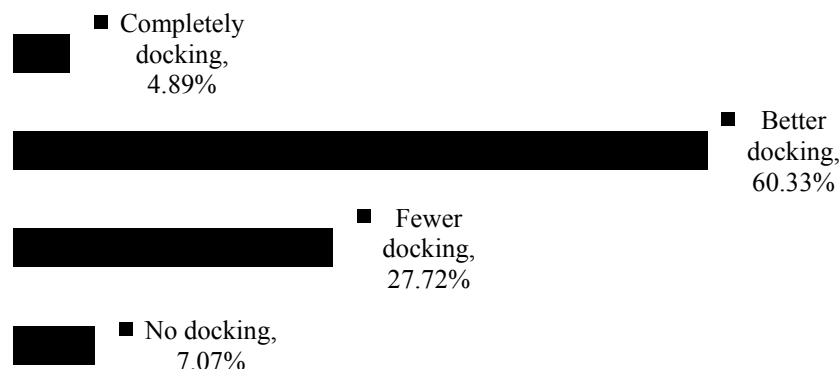

Figure 3. the docking degree of reformed training content and professional post demands

5. Discussions

The traditional pharmacological teaching method takes the verifying experiment operation as the training content, explores the Pharmacological activity as the purpose, and has the disconnection with the practical needs of future jobs. It cannot meet the talent cultivation needs of higher vocational colleges, so, it is imperative to reform the training contents, add the training course to meet the demands of future jobs. The course takes the several scenes involving pharmacy services as the main training contents, fully mocks the actual work situation, the content and form are more close to job requirement, has achieved good training effect.

The traditional pharmacology teaching mode has some disadvantages, especially passiveness and single teaching mode (Li, 2014). The reformed training course will change the passive imitation learning into positive active exploration learning. In the new training mode, students need to consult the literature in their spare time to prepare training materials. Self-learning can improve students' internalization of basic pharmacological principles and provide a greater opportunity for self-study and collaborative study (Li, Yu, & Yue, 2014). In this process, students find the problems and can discuss with teachers or students in the training, students became to study actively from passively. In the classroom, teachers use more flexible and diversified teaching methods, such as scene simulation, multimedia presentations and panel discussions, to further mobilize the students' initiative and enthusiasm in the learning process, and achieve good results.

In the further teaching reform, it can develop the virtual training platform based on this, using computer technology to expand the classroom training to the extra-curricular study (Kamath, 2015). Students can use software to practice the training freely and strengthen the learning effect. As for the training facilities, in order to have a smooth start of the new training course, it should increase the investment in training basic facilities, establish open training room and provide more training opportunities for students.

Training evaluation is an important link of training teaching and can urge students to complete learning mission of each class, which can reflect students' learning attitudes, the abilities to analyze and solve problems, and also the important ways to check and improve the effects and teaching qualities (Xue, Wang, Jiang, & Liang, 2012). The previous training examination were writing the training reports, and students only completed the training

according to the requirements of the training manual, handed over the reports on time, resulting in the almost same reports the neglecting the evaluation on students' behaviors in training process. In the new mode, the examination methods include the teachers' on-site evaluation, PPT production and presentation and evaluation, group discussion and defense and other ways, the process evaluation will be the focus of training examination, so that the results can better reflect students' learning effect in training process. Besides examinations, it is important to take regular feedbacks from the students to make the teaching more useful, interesting and effective (Tikoo, Gupta, & Geeta, 2015). Questionnaires for students was used in this paper to gather feedback and a lot of useful information was obtained for further improvement of pharmacology teaching reform.

6. Conclusions

Traditional pharmacology training course has been unable to meet the actual needs of the community for graduate students in pharmacy. Through the practice of pharmacology teaching reform, on one hand, it enhanced students' interest in pharmacology theory and practice and improved the importance of training course in teaching students' professional knowledge; on the other hand, through the change in teaching method, it encouraged and cultivated students' teamwork ability, self learning ability and using the theory knowledge ability to analyze ad solve problems, so that students' comprehensive quality is improved, laying a good foundation for the training of practical pharmacy talents.

Acknowledgments

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