

Application Situation and Countermeasure Study of Objective Structured Clinical Examination in Higher Nursing Education

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Abstract—To solve the problems in an objective structured clinical examination (OSCE) in higher nursing education, this article discussed the problems in the application of OSCE and then further explored the countermeasures. Finally, five innovative measures for limitations were put forward. Higher nursing education is very important for the future development of medical care in China, which requires to improve the development of nursing education by exploring better ways.

Keywords—higher nursing education; objective structured clinical examination; educational innovation

I. INTRODUCTION

After a long period of development and continuous exploration, the current higher nursing education in China has been significantly improved. However, in the course of curriculum practice, there is still a lack of combination with clinical practice. Traditional written examination and single operation examination have been questioned, focusing only on students' memory of knowledge and ability, ignoring the importance of problem-solving ability, critical thinking ability, decision-making ability and communication ability in emergencies. However, the latest nursing concepts and techniques have not been compiled into the teaching materials in time, which leads to the disconnection between the trained students and the clinical practice, and can not adapt to the higher nursing education of clinical nursing work in time. In recent years, OSCE has gradually been concerned by domestic educators, and tried to use OSCE in nursing teaching, specialist nurse training and nursing teaching assessment. [1]

II. THE INTRODUCTION OF OSCE

OSCE was first proposed by M. R. Harden[2] of Dundee University in 1975 to test medical students' clinical competence by simulating clinical scenarios. It emphasizes both knowledge, skills and attitudes[3]. According to the

teaching objectives, a series of test stations are set up to simulate the clinical situation. The subjects pass through each test station in turn within the prescribed time to check the standardized patients (SP) in the station, accept the questions from the teachers in charge of the examination, and put forward the diagnosis results and treatment methods. At present, a large number of studies have proved that OSCE, as an evaluation tool, has comprehensive, objective and effective advantages, and has become the preferred way to evaluate the clinical practice ability of nursing students[4]. Nursing OSCE is guided by holistic nursing and runs through the concept of "patient-centered" nursing. It can be divided into the following six steps: (1) Determining assessment objectives: Combining teaching and clinical practice to determine assessment objectives. (2) Establishing assessment framework: Consider the abilities that candidates should achieve according to their goals, such as critical thinking ability, nursing operation skills, etc., balancing the topics among different sites. (3) Designing examination stations: Nursing evaluation examination stations, operation skills examination stations and static examination stations are generally designed according to nursing procedures. (4) Recruitment and training of SP and examiners: In order to ensure fairness and effectiveness of the assessment. Examiners and SP need to be trained. (5) Implementation of assessment: Complete the assessment in the simulation environment within a specified time as required. (6) Feedback and evaluation: After the assessment, the examiner is required to give feedback suggestions, and the nursing students are required to summarize their own experience and task completion, write reflective diaries, and cultivate their critical thinking ability.

III. PROBLEMS IN THE APPLICATION OF OSCE

OSCE has played an important role in cultivating students' communicative ability, clinical management ability and critical thinking ability. It is beneficial to combine theory with practice, stimulate students' interest in learning, improve the

quality of nursing teaching and promote the improvement of objective and impartial nursing assessment. Not only provide an effective and reliable evaluation method for nursing education, but also provide a reference for the reform of nursing education curriculum. Although OSCE is used early in nursing field in China, it is still at the exploratory stage. Therefore, there are several problems in the application of OSCE.

A. The number of sites is not uniformly designed

For different assessment requirements of traditional Chinese medicine and Western medicine nurses, the number of test stations will be different. If the number of examination stations is too small, the reliability and validity of the examination will be reduced. The results of the examination are not enough to reflect the purpose of evaluation. If the number of examination stations is too large, the examination time will be too long and the objectivity of the examination will be affected[5]. At present, Delphi method is widely used in medical colleges and universities in China to construct examination stations, which is significantly influenced by the subjectivity of experts. There are also great differences in the number of sites, the length of stations, and the time arrangement of each site.

B. The excavation level of standardized patient function is shallow

Standardized patient refers to the normal person or patient who can reproduce the real clinical situation stably and vividly after standardized and systematic training. After training, SP can accurately represent the clinical symptoms, signs and medical history of patients, reproduce the real clinical situation constantly and vividly, and play the three functions of patient, assessor and instructor[6]. The instability of standardized patients will affect the fairness and impartiality of assessment. The international community advocates the use of non-medical professional and healthy standardized patients. Due to the limitation of objective conditions in China, standardized patients mainly come from low-grade students or teachers, and their mobility is relatively high. Teachers standardized patients are influenced by their profession, and there may be a certain degree of guidance tendency in the process of examination; while students standardized patients are not realistic enough to perform certain symptoms due to the limitation of social experience. Because standardized patients in our country are generally not trained professionally, the development of standardized patients' functions only focuses on the role-playing of patients and the evaluation of candidates' love and injury concepts and communication, and has not yet fully played the functions that standardized patients should have [7].

C. The selection criteria of assessment personnel are not rigorous

In nursing education, assessment personnel are generally excellent and experienced clinical nursing workers and nursing teachers. However, there is no certain selection criteria for OSCE assessment personnel so far, which leads to unclear validity and reliability of OSCE assessment results.

D. The scope of applicable objects are limited

To date, OSCE covers medical-related qualification examinations and other forms of assessment, including residents, specialists, pharmacists, rehabilitation physicians, dentists, etc. The OSCE mode is also used in graduation assessment and single course assessment in Colleges and universities, but it is still not widely used in the practical operation skills assessment for on-the-job nurses and nursing interns.

E. OSCE examination system development and feedback mechanism are not perfect

Compared with traditional teaching assessment model, OSCE assessment model puts forward higher requirements for teaching resources, requiring a large amount of manpower, material and financial resources, while high investment limits the promotion and application of OSCE. OSCE mode is a relatively complex procedure, which requires a lot of preparatory work in the early stage, including the selection and training of standardized patients, the formulation of scoring scale, the design of standardized cases, the setting of examination stations, the design of examination process, etc. In the later stage, a large number of scoring tables need to be analyzed and feedback. In recent years, there have been some innovative literature reports about introducing OSCE into teaching reform, but generally it is limited to the application of comprehensive ability evaluation, and the feedback mechanism after evaluation has not yet been established. Even some colleges and universities are aware of the importance of OSCE in teaching assessment, but they can only stand back under the pressure of economy and manpower.

IV. INNOVATIVE MEASURES FOR LIMITATIONS

A. Carrying out a variety of site design patterns

Regarding the nursing procedure as the main line in setting up examination stations for various site design modes, including nursing evaluation, nursing diagnosis, nursing plan formulation, implementation of nursing measures, evaluation of nursing effect and health education. In the teaching of TCM nursing, examination stations such as data collection, TCM nursing technology, health education and dialectical nursing were set up to promote the learning of TCM nursing knowledge and skills of nursing students. Considering the collocation of the number of long and short stations, it is necessary to maximize the use of time, and to ensure that a certain interval of candidates' rotation is arranged, and to ensure the fluency of the examination process.

B. Completing standardized patient training

In clinical assessment, standardized patients (SP) has become the symbol of modern medical education and has been widely applied in the world. Research has proved that SP is a very valuable teaching method and is conducive to the development of medical education[8]. Traditional OSCE adopts a unified scoring standard, which reduces the subjective differences of examiners and is a quality assurance method. After the introduction of SP, SP has the characteristics of uneven and unstable, which has a certain impact on the reliability and validity of OSCE. Downing believes that the instability of SP score is the most important

factor affecting reliability, which is related to its lack of systematic training[9]. Firstly, SP should be recruited according to the needs of medical records. At the same time, we should pay attention to age, gender, origin and other factors. Practice in public under the guidance of clinical skills teachers to ensure that role-playing is up to standard and to minimize the interference of unrelated factors. In the use of SP, it is not appropriate to play for too long in a row to avoid fatigue discomfort, thus affecting the accuracy of the assessment. At present, SP can be applied to clinical teaching and assessment in hospitals through training nurses. Nurse SP is played by nurses working in corresponding specialty fields. Because nurses have long contact with patients, they can easily understand and simulate the complaints and symptoms of diseases, thus reducing the difficulty of training. However, there is still a professional gap between nurse SP and professional SP. The selection and training of nurses SP also need to consider the performance ability, clinical experience, working hours and other issues of nurses. In the future, nurses SP can be selected and trained from teaching hospitals which have close cooperation with schools to supplement the lack of professional SP[10].

C. Improving the admission criteria for examiners

We should give priority to recruiting experienced expert examiners, further train the examiners and abide by their role orientation in the process of examinations. We should not interfere with the behavior of examinees and SP. Not only can we not instruct the candidates and expose too much facial expressions, but also can we put forward opinions on SP's performance on the spot. We can give written suggestions after the examination. Although there is no uniform requirement for the number of examiners, some studies show that increasing the number of examiners can improve the reliability of examinations.

D. Expanding the scope of applicable objects

In addition to applying OSCE to the practical teaching of nursing students in schools, OSCE can also be applied to the assessment of nursing students in hospitals, nurses in regular training and specialist nurses. In the early 20th century, with the rapid introduction and development of medical and nursing technology, the trend of specialization of nursing became more and more obvious, and specialist nurses emerged as the times require. The American Society of Nursing defines specialist nurses (CNS) as registered nurses with master's or doctoral degrees, who have rich clinical practice experience, are proficient in knowledge and skills in a particular field of clinical specialty, and have a high level of nursing[11]. In the 1990s, Peking Union Medical College Hospital carried out the exploration of training and using specialized nurses. After more than 10 years of development, it has trained more than 100 specialized nurses in more than 10 specialized nursing fields, such as intensive care, operating room, blood purification, emergency first aid, wound ostomy and geriatric nursing, and formed a team of specialized nurses with a preliminary scale. The formation and establishment of specialist nurses is a symbol of the development of nursing specialization. It has strong vitality and is a powerful driving force for accelerating the development of nursing disciplines[12]. Zhuang Lina[13] and others used OSCE in the

training of emergency specialist nurses. They believed that OSCE could not only improve the clinical ability of emergency specialist nurses, but also discover the weaknesses of clinical emergency specialist nurses and promote nurses' self-learning. However, the assessment of specialist nurses is different from that of regular nurses in terms of ability and requirement. It pays more attention to the training of specialist skills and knowledge. For example, the assessment of PICC specialist nurses should set up professional basic theory, PICC catheterization ability, PICC maintenance ability, PICC extubation ability and so on. At the same time, interpersonal communication ability, legal and ethical ability, and nursing document record should be run through the OSCE standard of specialist nurses.

E. Developing OSCE examination system and improving feedback mechanism

1) There is still much room for improvement in the application of OSCE in nursing education in China. Under the background of information technology, we can introduce innovative methods in combination with Internet + referring to foreign excellent examination modes. At the same time, we should pay attention to the improvement of structured clinical examination management and quality monitoring system, as well as the use of training and follow-up services.

2) People-oriented, easy-to-use. System framework design scheme is jointly participated by school nursing teaching managers, hospital clinical nursing teachers and software development engineers. After many discussions and demonstrations, it is determined that the content should be highly in line with clinical practice, the use habits should meet the needs of clinical nursing teaching and use, and it has the characteristics of simple operation and easy use, reflecting user-oriented. In the future, we can further rely on the Wechat Enterprise Number Platform to connect the system module data to the Wechat Enterprise Number of the school, so that the front-line teachers and nursing students can use the system directly on the mobile terminal, in order to further reduce the burden of use.

3) Effective use of teaching big data. After the OSCE examination system is fully used, many basic data will be generated in the course of operation, such as the total number of students taking part in the examination, the rotation interval between sites, the basic information of standardized patients, the feedback results of teachers and so on. Based on the statistical summary of these data, the school can dynamically monitor the real-time status of the examination for nursing students and effectively grasp the examination situation at each site. They can change the situation that only one stage or link of the examination can be sampled under the traditional conditions, so as to realize the whole process control of the examination quality, and improve it by feedback on the basis of data analysis and application, so as to continuously improve the quality.

4) Abundant interface schemes and strong expansibility. When designing the system, we should fully consider the expansibility and have abundant interface schemes. It can connect with the existing Hospital Information System and Electronic Medical Record business

systems in hospitals. When students simulate the operation of electronic medical records and discharge records, they can call and process the real case data to better improve the standard. Design of chemical cases. Examiners' evaluation is also completed in this system, which not only ensures the accuracy and authenticity of the operation data, but also realizes the purpose of "simulated real operation", greatly increasing students' operation opportunities[14].

V. CONCLUSION

OSCE assessment model opens up a new train of thought for the reform of nursing education teaching, which is in line with the current social hot spots of curriculum reform, and effectively solves the disconnection between nursing education and clinical work. It also adapts to the concept of modern nursing with human as the core, and makes an all-round and objective evaluation of nursing students' cognitive, emotional and psychomotor fields. It is bound to be more widely used in Chinese nursing education domain. Further exploration and practice are needed in developing various site design modes, improving standardized patient training, improving the admission standards of assessors, expanding the scope of application objects, developing systems and improving feedback mechanism, so as to form an integrated nursing teaching-assessment pattern with OSCE mode as guidance and covering all levels as soon as possible.

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