

# Application Research of Medical Simulation Teaching in Nursing Education

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**Abstract**—With the continuous development of medicine and the growing quality of society, the nursing model in the modern medical model is also undergoing an overall transformation. Nursing education is a part of medical education, and it is an educational discipline with the main purpose of cultivating clinical nursing applied talents. Nursing education has attached attention. In order to meet the needs of the society and cultivate high-quality nursing staff, many schools in China have applied medical simulation teaching. By using the method of medical simulation teaching, simulating the clinical situation of patients and applying scientific assessment methods, a medical simulation teaching and nursing skills training center has been built, so that medical students with high comprehensive ability of skill operation can be trained through practical teaching. The research on the application of medical simulation teaching in nursing is summarized as follows.

**Keywords**—*medical simulation teaching, nursing education, application research*

## I. OVERVIEW OF MEDICAL SIMULATION TEACHING

### A. *Simulation Patients*

Simulating patients are divided into basic nursing model man and standardized patients. The basic nursing model man is the basic structure of the human body. It is the earliest “medical simulation technology”. It is mainly used for the practical learning of the basic skills operation of the nursing student, so that the stereotyped knowledge can become image and students are easy to learn the knowledge in the textbook and their interest in this way of learning can be strengthened. Standardized patients, also known as professional simulated patients, are normal people or patients who can accurately display the actual clinical patient's condition after doing the standardization and systematic training. In 1999, the "Minimum Basic Requirements of Global Medical Education", proposed by the International Committee of Educational Changes of the Chinese Medical Fund of the United States, puts forward that standardized patients and various cases are regarded as one of the ways to evaluate medical students. Many key medical universities in China also regard standardized patients as one of the assessment contents in the teaching evaluation of medical students.

### B. *Simulation System*

The computer physiology-driven simulation system monitors the operation process of a certain or a series through computer software, and then simulate the real physiological characteristics of the human body and various cases and treatment situations commonly encountered in clinical practice by the use of computer software system. It can set the required case treatment process according to the needs, so that students can learn the standard scientific treatment process. Medical trainers can perform clinical practice on the simulated person and can choose training objectives according to different stages of training.

### C. *Simulation Teaching Method*

The simulation teaching method includes basic simulation teaching and high simulation scenario simulation teaching. The basic simulation teaching mainly focuses on the teaching of ability of practical operation and clinical analysis thinking. It requires teachers to take actual nursing cases encountered in clinical nursing as the example, which put the actual operation through simulation application and teaching, so that the students can feel the real scene in the simulation scene, and let students learn the nursing practice knowledge effectively. The students can memorize the learning content through the practical operation in the simulated nursing scene, and their clinical thinking is more vividly inspired.

High-simulation scenario simulation teaching is a simulation teaching by using the most advanced physiological driving technology in the world and a comprehensive nursing teaching course throughout the three-year or four-year nursing teaching. The real clinical environment can be simulated to make the connection between classroom teaching and clinical practice more closely, so that students can learn comprehensive knowledge content more effectively. It can improve students' comprehensive ability of clinical operation, and cultivate their ability to solve problems by themselves.

Training venue of medical simulation teaching

The training venue of medical simulation teaching contains a training center including a simulated ward. The training center is the main place for cultivating students' practical ability. It reflects important indicators of school teaching, scientific research, discipline construction and scientific research management. It is divided into different training functional areas according to the training courses of clinical nursing skills and the different practical requirements of each clinical professional teaching. The different functional areas are provided with corresponding nursing operation facilities and graphics, to enable

students to have a deep impression of what they have learned in this area. It is equipped with basic facilities such as simulated wards, intensive care areas, and nursing stations, to narrow the gap with the actual hospital conditions, so that nursing teaching can get real and effective teaching and education in the training center.

## II. APPLICATION OF MEDICAL SIMULATION TEACHING IN NURSING EDUCATION

### A. *Application in Basic Nursing Teaching*

Chang Jinlan, Wang Ying, Nan Guiying, Jin Yuzhong and Xing Guosheng used the method of situational simulation teaching in the teaching of internal and surgical nursing. On the basis of the conventional situational simulation teaching, they carried out the situational simulation teaching of case and dialogue. With the use of this teaching mode, students' comprehensive learning ability can be significantly improved, which suggests that the simulation teaching model should be widely promoted. Qiao Xiuhui, Wu Yukun, Wu Wei and Jin Daoxin applied simulation teaching to different nursing courses, such as basic nursing, adult nursing and community nursing. Its application effectively improved the quality of teaching.

### B. *Application in Clinical Nursing Teaching*

Ruan Yanling, Huang Meixing and Lai Xueying applied the simulation teaching to the nursing teaching in the operating room and various clinical departments, so that the interns can fully understand the clinical knowledge in the combination of simulation teaching and clinical practice. In the clinical evaluation, the interns learning in this way have a good improvement on their performance and ability. Therefore, it is concluded that the simulation teaching is a new and effective teaching method, and is worthy of promotion and learning.

### C. *Application in other Nursing Education*

Medical simulation teaching can make students enthusiastic in learning. Students not only cultivate autonomy in learning, but also learn from each other in learning, and improve cooperation among students. In learning, students need not only to improve their own ability but also to exercise the sense of teamwork so as to improve the quality of nursing teaching. In the situational teaching, the students can adapt to the actual clinical work more quickly.

## III. ADVANTAGES AND DISADVANTAGES OF MEDICAL SIMULATION TEACHING

### A. *Advantages of Medical Simulation Teaching*

Medical simulation teaching breaks the shackles of traditional teaching mode. The traditional teaching mode can only instill the knowledge of students' books and the experience of medical staff. While in the new model of simulation teaching, the teaching forms are not only diverse but also vivid, the interaction between teachers and students is frequent, and the students' enthusiasm is increased. It fully demonstrates the practicality of medical simulation teaching. In medical simulation teaching, the use of simulated patients and simulated wards is not only full of fun, but also without the interference of risk factors, so that the classroom is full of fun in a low-risk environment. Medical simulation teaching can make students fully familiar with the real clinical work environment. The students can also train the clinical thinking and stimulate their own learning potential. Medical simulation teaching can simulate different cases and clinical environments according to the learning needs. Teachers can simulate the conditions and treatment scenarios that need to be learned according to the teaching content, and students can selectively learn the nursing content according to their own situations. Thus, the learning with medical simulation teaching is full of convenience.

### B. *Disadvantages of Medical Simulation Teaching*

First of all, medical simulation teaching is not enough to replace clinical practice. Nursing staff must be trained in real clinical practice. The medical simulation teaching can only cultivate students in a standardized and scientific way, but it can not really replace clinical practice. In addition, in medical simulation teaching, the workload has increased significantly compared to the traditional teaching model. In medical simulation teaching, the patient has the particularity that the simulated person can't simulate. The simulated person can only simulate the subjective part of the disease, instead of the patient's physical manifestation. The simulated person can only grasp and understand the condition through the true observation of the patient according to the fixed disease mode. Finally, in medical simulation teaching, nursing students can't communicate with real patients. People can't understand the communication between nurses and the simulated patients. Therefore, there are deficiencies in medical simulation teaching.

## IV. SUMMARY

The application of medical simulation teaching in nursing education has obvious advantages. In this teaching mode, the gap between basic nursing and clinical can be significantly shortened, and the disconnection between nursing theory knowledge and clinical practice is improved. In the simulation teaching mode, the interaction between teachers and students can be improved, as well as nursing science. The positive learning of nurses has enhanced their practical operation ability, cooperation ability and clinical thinking analysis ability. However, there are still some shortcomings in the medical simulation teaching mode. We should fully understand and improve the shortcomings and bring the advantages of the medical simulation teaching mode into full play. By the use of medical simulation teaching method, the clinical technology practice teaching should be implemented, and nursing education, skill training and scientific assessment should be carried out. Ultimately, the quality of teaching is improved.

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