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Letter to Editor (Pages: 801-802)

Simulation in Medical Education and Some Considerations

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Dear Editor-in-chief

Quality improvement in higher education has attracted the interest of many higher education systems in the last decade (1). Medical education is bound to change to respond to the rapid evolution in medicine and must use modern educational methods, such as education based on simulation (1). In recent years, especially the last two decades, the country's education system has undergone significant changes, including the increase in the number of graduates, specialized fields, and the production of scientific content and research in medical sciences (2). Along with these changes, the use of simulators to design and construct a safe environment, teach, provide feedback to learners, conduct research, and evaluate the performance of learners fairly can be valuable in medical science education (2). The history of simulation in the teaching of medical sciences goes back many centuries, during which clinical characteristics and effects of diseases were displayed by simulation with mud and stone (3). Simulation training in its new form dates to World War II, when it was first used to train pilots (4). Simulation attempts to create a scenario that resembles reality as much as possible, devising an artificial situation as realistically as possible so that what is learned can be transferred to the real environment (5). The report of the Medical Institute states that reducing the risk and harm to patients requires health organizations and educational institutions to use simulation methods for training students (6).

Simulators are useful solutions for teaching in complex educational situations. They have different types and methods, such as physical, educational, medical, flight, simulation, and computer games. In clinical education, simulation can be written or visual-auditory or use actor patients, role-playing, and Human Patient Simulation (7). Factors such as a lack of sufficient feedback in the clinical environment, the inactivity of patients for examination, the unavailability of sufficient patients for training, the varying composition of patients in real environments, inaccessibility of clinical situations, and the large number of students in the clinical environment emphasize the role of simulation in medical education (8). The advantages of using simulation as a teaching strategy may include the following: the safety of the patient is not threatened; the clinical conditions and events and the learning schedule can be controlled by the instructor; there is a possibility to pause to provide feedback and correct the performance during the activity; multiple problems can be proposed at the same time; making mistakes is allowed; learning is interactive; and feedback is provided immediately. Furthermore, problem-solving and critical thinking skills, delegation, leadership, and communication skills are strengthened; multiple learners can benefit from a session and learn from each other's successes and mistakes; sessions can be recorded; trust and confidence can be created; and technical skills can be learned through performance and teaching psychomotor skills in care. Also, clinical teaching time is reduced, students learn at their own pace, and finally, education is comprehensive and not teacher-oriented (1, 9).

However, this method comes with disadvantages that complicate its use in medical science education. Expensive simulation equipment and the need for large spaces are some disadvantages of this method. Five to ten students can participate in each experiment, and achieving educational goals requires much time and space. The lack of physical space in colleges is an obstacle to implementing this method

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(10). The unfamiliarity of faculty members with simulators and how they work, the need for training, and the resistance to changing the conventional educational methods towards simulation are other challenges facing the use of simulation in medical science education (10-12). Another problem is the lack of realism in the scenarios and the reactions of the patients. The anxiety of learners during simulation can also limit the effectiveness of this simulation method (13).

The use of simulation has become widely popular in medical education in recent years, and the results of various studies show the positive effect of simulation on improving knowledge, attitude, communication skills, diagnosing patients' problems, critical thinking, learning confidence, experiment, and self-centeredness and on reducing the pressure and anxiety of learners in clinical environments (8, 14-18). Although simulation is less effective in learning mental principles and skills than traditional methods, it is highly suitable for teaching practical and clinical skills, especially when mental concepts have already been taught in other ways; it improves learning and accelerates the achievement of competence.

Key Words: Challenges, Learning, Medical Education, Simulation.

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