



The effect of high fidelity simulation methods on nursing students

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Abstract

This study aims to define the effect of scenario-based high fidelity and redo simulation methods on medical error tendency, self-efficacy and state anxiety levels of nursing students. Our study which is designed as control group in experimental quality pre and post-test research was approved by Sivas Cumhuriyet University Ethical Committee and its consents was taken from all informed participants. The sample of the study consists of the second grade 80 students (redo simulation group n=40, single simulation group n=40) who have been trained in the Faculty of Health Sciences during the spring semester in 2017-2018 academic year. Including the single simulation group (20) and the repeated simulation group (20), a total of 40 subgroups were formed in two-student-groups. These subgroups were participated in the education of 'the simulation scenario of a patient with chronic lymphocytic leukaemia' which consists of five steps. Self-description form, the state anxiety inventory, the self- efficacy scale and the chronic lymphocytic leukaemia patient scenario skill assessment and the medical error situation evaluation checklist have been used as data collecting tools. Data have been evaluated by using Student t-Test, Mann Whitney U Test, Wilcoxon Marked Rank Test, Paired Sample t-Test, Chi-square Test, Kruskal Wallis H Test and Cronbach alfa analysis. While the self-efficacy and anxiety levels of the groups are close to each other in our study, it is determined that there is a statistically remarkable increase in self-efficacy and a decrease in anxiety of the repetitive simulation group after the training. At the first application, the skill levels and their tendency to medical errors of both groups are close to each other, but, after the second application, it is determined that there is a statistically remarkable decrease in the tendency to medical errors of the repeated simulation group and that those students correctly fulfilled the nursing attempts expected from them ($p < 0.05$). The majority of the students in our study emphasized the simulation should be repeated for the effectiveness of education. As a result, it could be said that the repeated simulation method is effective for nursing students in increasing self-efficacy, and reducing anxiety and tendency to a medical error. In this context, it is recommended to include a repetitive simulation method in nursing curriculum programs.

High-fidelity simulation (HFS) has become a bridge between theoretical knowledge and practical skills. A safe and realistic environment is commonly used in nursing education to improve cognitive, affective and psychomotor abilities. Debriefing following a simulation experience provides opportunities for students to analyze and begin to reflect upon

their decisions, actions and results. The nursing literature highlights the need to promote the concept of reflective practice and to assist students in reflection, and research indicates the need to refine and develop debriefing strategies, which is the focus of the current paper.

The purpose is to explore the value of reflections after HFS by investigating nursing students' perceptions of their learning when a Three-step Post-simulation Reflection Model is used. Simulation is a student-centered educational method, which typically provides a new learning experience for students in a clinical or lab setting, and has been a growing part of the curricula in nursing education for the last decade. Simulations are defined as activities that mimic the real clinical environment by incorporating medical procedures, decision-making, and critical thinking through techniques such as role playing and the use of devices such as interactive videos or mannequins. Simulations range from simple to complex, and may include live actors, and low to high fidelity simulators. High-fidelity simulators (HFS) are highly technical, life-like human mannequins that breathe, talk, have heart and lung sounds, and are used to replicate evidence-based clinical scenarios for training purposes.

Adults tend to learn best when information can be applied to real-life experiences. Additionally, learner's self-reflection has become a key component that contributes to the development of simulation training. Nursing educators realize that simulation is an innovative teaching and assessment tool that must adapt to the learning styles of the new generation. Jeffries (2005) proposed the Nurses Education Simulation Framework (NESF) as a useful guide in which students play an active role. The theoretical model comprised of five major components: teacher factors, student factors, educational practices, simulation design and outcomes. Nurse educators are often faced with the problem of how to provide clinical learning experiences that promote effective clinical judgment and increase self-efficacy among nursing students. Research indicates that simulation has demonstrated benefits in preparing the newly graduated nurses for the clinical practice environment. However, nursing education literature indicates the need for more research that explores the effectiveness of simulation in nursing education. Despite the increase in the use of educational simulation the evidence about its effectiveness as an educational strategy is inconsistent. Therefore, the evaluation of simulation is critical in determining student learning and efficacy of their experience. The purpose of this study was to evaluate the nursing students' perception of obstetric HFS and its effect on their obstetric knowledge, communication skills, and critical thinking. The main theme in the first written reflections was identified as "Starting to act as a nurse", with the following categories: feeling stressed, inadequate and inexperienced; developing an awareness of the importance of never compromising patient safety and beginning to understand and implement nursing knowledge. The main theme in the second written reflections was identified to be "Maturing in the profession", with the following categories: appreciating colleagues, good communication, thoughtfulness and gaining increased self-awareness.

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