The Effects of Simulation-based Education on Advanced Cardiac Life Support for the Students of College of Nursing

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Abstract. The purpose of this study was to find the effects of simulation-based education in clinical education for students of college of nursing. 51 students were enrolled in this study. Nursing students were educated by study protocol about advanced cardiac life support (ACLS) for three days. In first day, self learning was performed by manual. In second day, pre-test for knowledge on ACLS and survey were done before simulation-based education. In last day, post-test and survey were performed after another simulation-based learning. The data before and after simulation-based education were compared by independent t-test. There were the statistical significant differences between before and after simulation-based learning in the knowledge score and clinical performance on ACLS. There were no significant differences in self-efficacy, professionalism, and preference of simulation education. This study showed that simulation-based education could improve the knowledge and clinical performance on ACLS for the students of college of nursing.

Keywords: simulation, nursing education

1 Introduction

Clinical practice is essential in clinical education for the student of college of nursing, but has become more difficult to be performed in real clinical setting because most patients didn't agree to be a sample for practice anymore and some clinical situation is rare to be encountered in clinical education.

Simulation is one of the educational methods that can solve the these problems and give a standardized and repeatable clinical setting to the students safely [1, 2].

The purpose of this study was to find the effects of simulation-based education on knowledge, self-efficacy, professionalism, clinical performance, satisfaction and preference in clinical education for students of college of nursing.

2 Method

2.1 Design and subjects

This study was designed to identify the effect of simulation education for nursing students. The subjects were 59 nursing students in one university. At first, researchers explained the purpose of the study for enrollment. 51 students who agreed with the participation in this study were enrolled. All 59 nursing students were educated, however, data of just 51 students were used for analysis.

2.2 Procedure

Nursing students were educated by study protocol about advanced cardiac life support (ACLS) for three days.

In first day, self learning was performed by manual including cardiac arrest algorithm, immediate post-cardiac arrest care algorithm, bradycardia with a pulse algorithm, tachycardia with a pulse algorithm, major electrocardiograms and drugs of ACLS, defibrillation and synchronized cardioversion.

In second day, pre-test for knowledge on ACLS and survey for self-efficacy, professionalism, clinical performance, satisfaction and preference were done before simulation-based education.

All students underwent simulation practice as a scheduled role of one team according to the eight simulation scenarios based on real clinical settings. Debriefing was performed after each simulation and student's role of one team was changed in turns.

In last day, post-test and survey were performed after another simulation-based learning.

2.3. Instruments

Pre-test and post-test for knowledge on ACLS were consist of four topics including team concepts, ACLS algorithms, major electrocardiograms and defibrillation respectively.

A survey for the effect of simulation education was composed with twenty seven questionnaires in five categories including self-efficacy, professionalism, clinical performance, satisfaction for clinical education and preference for simulation-based learning.

2.4 Data Analysis

The data before and after simulation-based education were compared by independent t-test in SPSS 14.0.

3 Results

The mean knowledge score before simulation was 7.92±2.08 and that after simulation was 8.67±1.57. There was the statistical significant difference between before and after simulation-based learning(p=0.044).

Clinical performance on ACLS before simulation was 20.67±4.07 and that after simulation was 29.78±2.82. There was the significant difference between before and after simulation-based learning(p<0.001).

Satisfaction for clinical education before simulation was 14.88±2.03 and that after simulation was 16.02±2.08. There was a significant difference in satisfaction of clinical education (p=0.006). There were no significant differences in self-efficacy, professionalism, and preference of simulation education.

4 Discussion

Many studies showed the simulation-based education could improve the knowledge, performance confidence, and learning satisfaction, although each settings of education were so different [3-5]. But, simulation-based education didn't influence on self-efficacy, professionalism, and preference of simulation in this study.

5 Conclusion

This study showed that simulation-based education could improve the knowledge and clinical performance on ACLS for the students of college of nursing.

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