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Simulation based cardiovascular system education in nursing: What recent studies say?

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Abstract

Cardiovascular diseases (CVDs) are the number one cause of death globally: people die annually from CVDs than from other cause. In this way nursing education system has key role of bringing to student the knowledge, skills and experience of managing CVDs. The aim of this review is to indicate the importance of simulation based cardiovascular system education in nursing. We conducted a systematic literature review to evaluate the study results within the simulation based cardiovascular system education in nursing. Akdeniz University center electronic databases including MEDLINE, CINAHL and PUBMED e.g. were searched studies published in English within the last five years with “nursing education”, “simulation based cardiovascular system education” and “simulation based education in nursing” key words. In the recent literature review, there are six-research studies simulation based cardiovascular system educations in nursing. A study conducted by Tawalbeh and Tubaishat (2014) indicated that traditional training is an effective teaching strategy; however, simulation is significantly more effective than traditional training. Another study has shown that use of the deliberate practice model and a simulation-based curriculum to learn cardiovascular assessment and diagnostic reasoning skills was found to be very important. Pilot students' data of another study in a multi-center research model reflected that undergraduate nursing students who received the simulation-based training achieved statistically significant pre-to-posttest improvement in cardiopulmonary assessment skills and cognitive knowledge. The study results conducted by Heidarzadeh and colleagues (2014) indicated that both of the simulation methods increased the perception of self-efficacy in cardiopulmonary resuscitation. Another RCT results conducted by Aqel and Ahmad (2014) indicated that high-fidelity simulation (HFS) provides students with interactive learning experiences in a safe controlled environment. Simulation is an effective teaching strategy for cardiovascular system education includes ACLS, cardiovascular assessment and diagnostic reasoning.

Keywords: Cardiovascular; nursing; CVD.

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1. Introduction

Cardiovascular disease (CVD) is a critical global health issue, and nurses play a very important role in decreasing the global burden and contributing to improving the wellness in individuals and communities (Lanuza et al. 2011). In a meta-analysis of secondary CVDs prevention programs, Clark and colleagues (2005) demonstrated a reduction in all-cause mortality and acute myocardial infarction (MI). Of note, 45% of the studies included in the analysis were nurse led or nurse managed. In this way nursing education system has very important role of getting to student the knowledge, skills and experience of managing CVDs.

Education methods and styles of nursing students must give opportunity to student the application of theoretical framework. In nursing education system; decreased access to patients, restrictions on student interventions and economic constraints have driven educators to find novel and improved ways to train their students (Jeffries et al., 2011). Especially in recent decades, simulation has started to receive increasing interest from nursing faculty. Simulation is regarded as a technique, device or activity that aims to authentically recreate, imitate or amplify characteristics, processes and experiences of the real world for the purposes of teaching, acquiring and assessing knowledge, skills and attitudes (Guise, et. al. 2012). Several features of deliberate practice contribute to simulation-based education: highly motivated learners with good concentration, engagement with a well-defined learning objective or task at an appropriate level of difficulty, focused, repetitive practice that leads to rigorous, precise educational measurements, informative feedback from educational sources. Several studies showed the effectiveness of simulation (Borg et al., 2004; Curtin et al., 2011; Sohn et al., 2011; Kim et al., 2016). A meta-analysis conducted by Kim and colleagues (2016) showed that simulation-based nursing educational interventions have strong educational effects, with particularly large effects in the psychomotor domain. Another study's findings indicate that simulation could be effectively used in teaching smoking cessation intervention education delivered to nursing students (Sohn et al., 2011). Because of this advantages of simulation, simulation based student education should be used to educate nursing students about preventing and managing CVDs.

2. Aim

The aim of this review is to indicate the importance of simulation based cardiovascular system education in nursing.

3. Methods

We conducted a systematic literature review to evaluate the study results within the simulation based cardiovascular system education in nursing. Akdeniz University center electronic databases including MEDLINE, CINAHL and PUBMED e.g. were searched studies published in English within the last five years with "nursing education", "simulation based cardiovascular system education" and "simulation based education in nursing" key words. Experimental studies evaluating the effectiveness of simulation based cardiovascular system education in nursing were included in this review.

4. Results

In the recent literature review, there are six research studies simulation based cardiovascular system education in nursing. An experimental, randomized controlled study conducted by Tawalbeh and Tubaishat (2014) indicated that traditional training is an effective teaching strategy; however, simulation is significantly more effective than traditional training in helping to improve nursing students' knowledge acquisition, knowledge retention, and confidence about Advanced Cardiac Life Support (ACLS).

Another study conducted by Jeffries and colleagues (2011) have shown that use of the deliberate practice model and a simulation-based curriculum to learn cardiovascular assessment and diagnostic reasoning skills was found to be very important. Students acquired important cardiovascular clinical skills in a nonthreatening, interactive, and self paced learning environment in the study. In the same

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context, pilot students' data of another study in a multi-center research model (Decker, et al. 2011) reflected that undergraduate nursing students who received the simulation-based training achieved statistically significant pre-to-posttest improvement in cardiopulmonary assessment skills and cognitive knowledge.

The study results conducted by Heidarzadeh and colleagues (2014) indicated that both of the simulation methods (computer-based simulation and mannequin-based simulation) increased the perception of self-efficacy in cardiopulmonary resuscitation; therefore educational centers, depending on their situations and facilities, can use any of these methods in teaching students so that they will be prepared better to serve patients.

Another study results conducted by Aqel and Ahmad (2014) indicated that high-fidelity simulation (HFS) provides students with interactive learning experiences in a safe controlled environment. HFS enables teachers to implement critical clinical scenarios, such as cardiac arrest, without risk to patients.

On the other hand a randomized controlled study results showed that knowledge, self-efficacy and skill performance of cardiopulmonary resuscitation (CPR) were not significantly changed by group assignment, by the time, and interaction of group by time. The results suggest that the timing of repeat education, total training time, and students' mastery of CPR performance should be considered when developing simulation-based programs to improve and maintain students' CPR knowledge, self-efficacy, and skill performance.

5. Conclusion

Simulation is an effective teaching strategy for cardiovascular system education includes ACLS, cardiovascular assessment and diagnostic reasoning. It improves the students' knowledge, skills, experience and self-confidence. Therefore, simulation based cardiovascular system education should be implemented to the nursing curriculum to improve students skills, knowledge and experience.

On the other hand, results of this review showed that while there are lots of study about simulation based education in medicine, nursing or post graduated education (e.g. Issenberg & McGaghie, 2002; Hicks, et al., 2009; Curtin et al., 2011); there are a few study about simulation based cardiovascular system education in nursing. It is a fact that we need more study to show the effectiveness of simulation based cardiovascular system education in the field.

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References

- Borg, S., Ericsson, A., Wedzicha, J., Gulsvik, A., Lundback, B., Donaldson, G. C. & Sullivan, S. D. (2004). A computer simulation model of the natural history and economic impact of chronic obstructive pulmonary disease. *Value in Health*, 7(2), 153-167.
- Clark, A. M., Hartling, L., Vandermeer, B. & McAlister, F. A. (2005). Meta-analysis: Secondary prevention programs for patients with coronary artery disease. *Annals of Internal Medicine*, 143(9), 659-672.
- Curtin, L. B., Finn, L. A., Czosnowski, Q. A., Whitman, C. B. & Cawley, M. J. (2011). Computer-based simulation training to improve learning outcomes in mannequin-based simulation exercises. *American Journal of Pharmaceutical Education*, 75(6), 113-118.
- Decker, S., Obeso, V., Groom, J., Jeffries, P. R., McKay, M., O'Donnell, J. M. & Vazzano, J. (2011). Teaching cardiovascular assessment to pre-licensure nursing students using a simulation-based deliberate practice curriculum. *Clinical Simulation in Nursing*, 7(6), 2-11.
- Global Status Report on Noncommunicable Diseases. (2010). *World Health Organization Report*. Retrieved from http://www.who.int/nmh/publications/ncd_report_full_en.pdf on 15 February 2016
- Guise, V., Chambers, M. & Valimaki, M. (2012). What can virtual patient simulation offer mental health nursing education?. *Journal of Psychiatric and Mental Health Nursing*, 19(5), 410-418.
- Heidarzadeh, A. & Jahani, Y. (2015). The effect of computer simulation and mannequin on nursing students' perception of self-efficacy in cardiopulmonary resuscitation. *Iranian Journal of Medical Education*, 14(10), 876-885.
- Hicks, F. D., Coke, L. & Li, S. (2009). The effect of high-fidelity simulation on nursing students' knowledge and performance: A pilot study. *National Council of State Boards of Nursing*, 40, 1-10.
- Issenberg, S. B., McGaghie, W. C., Gordon, D. L., Symes, S., Petrusa, E. R., Hart, I. R. & Harden, R. M. (2002). Effectiveness of a cardiology review course for internal medicine residents using simulation technology and deliberate practice. *Teaching and Learning in Medicine*, 14(4), 223-228.
- Jeffries, P. R., Beach, M., Decker, S. I., Dlugasch, L., Groom, J., Settles, J. & O'donnell, J. M. (2011). Multi-Center development and testing of a simulation-based cardiovascular assessment curriculum for advanced practice nurses. *Nursing Education Perspectives*, 32(5), 316-322.
- Kim, J., Park, J. H. & Shin, S. (2016). Effectiveness of simulation-based nursing education depending on fidelity: A meta-analysis. *BMC Medical Education*, 16(1), 1-8.
- Lanuza, D. M., Davidson, P. M., Dunbar, S. B., Hughes, S., & Geest, S. D. (2011). Preparing nurses for leadership roles in cardiovascular disease prevention. *European Journal of Cardiovascular Nursing*, 10(2), 51-57.
- Soo, J. J. & Hea Kung, H. (2013). Effectiveness and retention of repeated simulation-based basic life support training for nursing students. *Journal of Korean Critical Care Nursing*, 6(2), 24-36.
- Tawalbeh, L. I. & Tubaishat, A. (2013). Effect of simulation on knowledge of advanced cardiac life support, knowledge retention, and confidence of nursing students in Jordan. *Journal of Nursing Education*, 53(1), 38-44.