Perceived benefits and challenges of repeated exposure to high fidelity simulation experiences of first degree accelerated bachelor nursing students☆

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S U M M A R Y

This study explored perceptions of first-degree entry-level accelerated bachelor nursing students regarding benefits and challenges of exposure to multiple high fidelity simulation (HFS) scenarios, which has not been studied to date. These perceptions conformed to some research findings among Associate Degree, traditional non-accelerated, and second-degree accelerated Bachelor of Science in Nursing (BSN) students faced with one to two simulations. However, first-degree accelerated BSN students faced with multiple complex simulations perceived improvements on all outcomes, including critical thinking, confidence, competence, and theory–practice integration. On the negative side, some reported feeling overwhelmed by the multiple HFS scenarios. Evidence from this study supports HFS as an effective teaching and learning method for nursing students, along with valuable implications for many other fields.

Introduction

The complexity of the current healthcare environment poses challenges to students whose knowledge and skills are evolving. Educators need opportunities for their students to practice clinical decision-making, but an inadequate number of appropriate clinical placements limit students' experiences with real patients. Simulated clinical experiences can provide a largely risk-free approach to learning in an environment as close to reality as possible and allow students to construct knowledge, explore assumptions, and develop psychomotor skills in a safe setting (Foronda et al., 2013).

Numerous studies have measured outcomes from simulations after exposing students to one or two scenarios. Yet, there is limited research on simulations involving multiple scenarios, where instead of one or two health scenarios evaluated in a single experimental session, this study used seven different health scenarios evaluated consecutively in a single experimental session. Exposing students to multiple scenarios all at once is important because multiple scenarios mimic actual nursing practice better and provide a wider breadth of experience than one or two scenarios. Additionally, simulation studies conducted in entry-level nursing education have been limited to diploma, associate degree nursing (ADN) programs, traditional 4- to 5-year Bachelor of Science in Nursing (BSN) programs, and second-degree accelerated baccalaureate nursing (ABSN) programs. Accelerated nursing programs, also known as a second degree nursing program, are usually 16–24 months in duration offered for adult learners who have a prior non-nursing degree. The first-degree ABSN program, the setting of the study reported in this paper, is designed for learners who have completed high school (Goodstone et al., 2013; Kaddoura, 2013; Lucas, 2014). To-date, no simulation studies have been conducted in a first-degree ABSN program, adding to the uniqueness of this study.

This study fills gaps in previous research that evaluates the effectiveness of clinical simulation for entry-level nursing students by assessing first-degree ABSN students' perception of multiple simulated scenarios in their first medical–surgical nursing course.

Review of Literature

The body of research on clinical simulation as a novel, supplemental teaching–learning strategy in nursing education is growing. Students

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engaged in clinical simulation may learn how to make sound decisions in unpredictable health care situations that are time-sensitive and require critical thinking and advanced skills (Mills et al., 2014). Simulation can be categorized as low-, moderate-, or high-fidelity, according to how closely it represents a realistic situation (Meakim et al., 2013). Sharp et al. (2014) defined high-fidelity simulation (HFS) as that which exposes students to high-risk scenarios to which they are not routinely exposed in traditional clinical settings. HFS commonly employs role-play to foster affective, cognitive, and psychomotor domains of learning (Kaddoura, 2012; Kaddoura and Williams, 2012; Lowenstein, 2014). The prevalence of HFS is growing in nursing education in response to a significant gap between the demands of current nursing practice and the nurses' education for that practice (Benner et al., 2010). HFS may be a powerful educational tool that can narrow this gap in a cost-effective and productive manner (Tawalbeh and Tubaishat, 2014).

Research on simulations among non-first-degree ABSN entry-level nursing programs has focused on learner outcomes of satisfaction, self-efficacy, self-confidence, competence, critical thinking (CT), clinical judgment, and knowledge gain. In that context, student response to HFS has been reported as positive with high degrees of satisfaction (Sharp et al., 2014; Tawalbeh and Tubaishat, 2014). Other researchers have reported increases in self-efficacy and self-confidence after HFS experiences (Cardoza and Hood, 2012; Kaddoura, 2010; Lucas, 2014). Clinical competence (Bultas et al., 2014; Lucas, 2014), critical thinking (Goodstone et al., 2013; Kaddoura, 2010; Loke et al., 2014) and clinical judgment (Bultas et al., 2014; Hao et al., 2014; Lucas, 2014) were also shown to be higher after a HFS experience. Nursing students' knowledge acquisition and knowledge retention were found to significantly improve with HFS (Tawalbeh and Tubaishat, 2014). Immediate knowledge gain was not significantly different between groups of students participating in HFS and those exposed to case studies (Sharp et al., 2014).

Critical thinking was found to have no significant difference between the simulated and traditional group of ADN students in the Health Sciences Reasoning Test posttest scores when an experimental pretest/posttest design was used. Critical thinking was measured in 42 first-semester ADN students using a two-group quasi-experimental design in relation to an 8-hour simulated learning experience versus a traditional clinical experience for 45 second-year nursing students in a maternal–child course (Rome, 2012). On the other hand, critical thinking difference scores increased from pretest to posttest when HFS experiences were evaluated in non-first-degree ABSN entry-level nursing students using Elsevier's Health Education Systems, Inc. (HESI) and California Critical Thinking Disposition Inventory scores (Melenovich, 2012).

Clinical competence was evaluated in a quantitative experimental study of the impact of HFS on fourth-semester ADN students: the experimental group completed an HFS experience plus a case study on delegation versus the control group that was exposed to the case study only. Pretest and posttest scores were compared using the Nursing Assessment Decision Grid (NADG), and the experimental group NADG scores improved significantly more than the control group (Garneau, 2012). Conversely, in a longitudinal study of ADN and traditional non-accelerated BSN students, participation in HFS for a portion of their clinical practicum did not significantly improve their perceived clinical competence, as measured by the Clinical Competence Appraisal Scale (Sportsman et al., 2011).

The impact of HFS on knowledge gain was examined when six graduating ADN cohorts were compared using standardized exit examination scores to evaluate the impact of exposure to different amounts of simulation on scores. No significant differences were found on exit examination scores or graduating GPA when three years of seniors were compared (Sportsman et al., 2011). Yet, statistically significant knowledge gains were reported in groups exposed to HFS using a pretest/posttest design. The use of simulation was examined in the classroom

with 45 ADN students. Results showed that significant learning occurred. Student perceptions of the classroom simulation were measured using a Likert scale, along with open-ended comments. Students perceived their knowledge had improved by integrating simulation into the classroom (Beyer, 2012).

Self-confidence and self-efficacy gains through HFS were measured in non-first-degree ABSN entry-level nursing programs, and research findings have been consistent in showing a positive effect (Garrett et al., 2011; Mould et al., 2011; Sportsman et al., 2011). Students felt more confident in their ability to care for their patient after participating in the simulation activity (Garrett et al., 2011). Competence and confidence were found to improve with HFS, and the scores were highly correlated (Mould et al., 2011). Similarly, measurements for competency significantly improved after HFS experiences (Sportsman et al., 2011).

Thus, where simulations of one to two scenarios have been tested, HFS has shown improved outcomes such as students' satisfaction, self-efficacy, clinical judgment, self-confidence, and clinical competence. On the other hand, outcomes such as critical thinking and knowledge gain were found to show no significant difference between groups in traditional and simulated clinical experiences where one to two scenarios have been examined. All of these findings were reported among ADN, non-first-degree ABSN, or traditional BSN students. The purpose of this study is to expand the science base by exploring the following research question: Are these outcomes similar or different among first-degree entry-level accelerated nursing students exposed to multiple scenarios?

Methods

Study Design

An exploratory qualitative research design using open-ended survey methods was used to explore the perceptions of first-degree ABSN students about their perceived benefits and challenges of repeated exposure to HFS. The descriptive exploratory design was consistent with the authors' intent to uncover and provide an accurate description of the subjective HFS experiences of students. The exploration of multiple scenarios may provide for a better understanding of participants' perceived benefits and challenges of repeated exposure of students to HFS scenarios and explore factors that may influence their experiences. It also allows for better assessment for how different scenarios may influence students' capacities to learn new information and provide a better platform for improving HFS experiences of students. This design may also help the researchers determine the best methods to be used in a subsequent study (Patton, 2015).

Sample and Setting

The convenience sample (N = 107) consisted of all first semester senior-level nursing students enrolled in a 32-month, first-degree ABSN program for high school graduates at a private university. The first year of the program consisted of a strong science foundation and required general education courses, and subsequently two years focused on fulfilling ABSN requirements. This program consistently produces more than 50 new graduates annually. If its student outcomes prove robust, such a program could provide an important model for contributing to the overall pool of available professional nurses across the globe. The sample was assessed at the beginning of the medical–surgical nursing course during the first semester of the third year. The sample of students had never been assigned to a clinical setting and had no previous exposure to HFS.

Procedures

Following approval of the University's Institutional Review Board (IRB), participants were invited to participate in the study during the