Nurse Education Today 39 (2016) 93–98

Contents lists available at ScienceDirect

Nurse Education Today

journal homepage: www.elsevier.com/nedt

Research Paper

# The effects of pediatric community simulation experience on the self-confidence and satisfaction of baccalaureate nursing students: A quasi-experimental study

Jaclynn Lubbers *, Carol Rossman [1]

*Calvin College, Grand Rapids, MI 49546, United States*

ARTICLE INFO

*Article history:*
Accepted 19 January 2016
Available online xxxx

*Keywords:*
Simulation
Community nursing roles
Self-confidence
Pediatric nursing

SUMMARY

*Objectives:* Simulation in nursing education is a means to transform student learning and respond to decreasing clinical site availability. This study proposed an innovative simulation experience where students completed community based clinical hours with simulation scenarios. The purpose of this study was to determine the effects of a pediatric community simulation experience on the self-confidence of nursing students. Bandura's (1977) Self-Efficacy Theory and Jeffries' (2005) Nursing Education Simulation Framework were used.
*Design:* This quasi-experimental study collected data using a pre-test and posttest tool. The setting was a private, liberal arts college in the Midwestern United States.
*Participants:* Fifty-four baccalaureate nursing students in a convenience sample were the population of interest. The sample was predominantly female with very little exposure to simulation prior to this study.
*Methods:* The participants completed a 16-item self-confidence instrument developed for this study which measured students' self-confidence in pediatric community nursing knowledge, skill, communication, and documentation.
*Results:* The overall study showed statistically significant results ($t = 20.70$, $p < 0.001$) and statistically significant results within each of the eight 4-item sub-scales ($p < 0.001$). Students also reported a high level of satisfaction with their simulation experience.
*Conclusions:* The data demonstrate that students who took the Pediatric Community Based Simulation course reported higher self-confidence after the course than before the course. Higher self-confidence scores for simulation participants have been shown to increase quality of care for patients.


## Introduction

Simulation in nursing education is a means to both transform student learning and respond to the decreasing availability of clinical sites. Given its successes, many national nursing organizations now support simulation as a clinical experience for nursing education and encourage its expansion (IOM, 2011; AACN, 2008; Hayden et al., 2014). This pilot study was developed to discover if pediatric community simulation experiences used as a portion of clinical hours could increase self-confidence of beginning undergraduate nursing students and if they were satisfied with such an experience. Data was needed before this model could be approved for ongoing use within this department of nursing. The results of this pilot seem to suggest positive outcomes. The data can be helpful to others with similar needs for clinical placements who might be considering use of simulation for out-patient scenarios.

## Literature Review

### Background

Simulation is a pedagogy being used in a wide range of professional training programs today. Gaba (2004) has defined simulation as a "…technique, not a technology, to replace or amplify real experiences with guided experiences, often immersive in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion" (p. i2). Simulation in nursing education uses created scenarios of patient experiences that typically begin with students hearing an introduction to the scene and what patient lies before them. Students then must choose actions and communication skills that will elicit additional information they need to act, choose appropriate actions to positively impact the patient, and/or follow the unfolding scene descriptions that are continually given to them to know if their information is accurate and complete and

* Corresponding author at: DNP Department of Nursing Calvin College, Grand Rapids, MI 49546. Tel.: +1 616 526 7873; fax: +1 616 526 8567.
*E-mail addresses:* Jll23@calvin.edu (J. Lubbers), Clr24@calvin.edu (C. Rossman).
[1] Tel.: +1 616 526 8599; fax: +1 616 526 8567.

http://dx.doi.org/10.1016/j.nedt.2016.01.013
0260-6917/

if their actions are appropriate (Jeffries, 2005). The patients in this study are medium-fidelity manikins (Reilly and Spratt, 2007) that appear the approximate size and look of pediatric patients but they do not have computerized vital signs or sounds. The instructor describes the initial scene to give students context and a reference point from which to begin their next actions—typically further assessment is needed that students need to perform and they need to ask for pertinent information that they need to act. Simulation gives students practice in clinical situations that can be debriefed. In this debrief, the scene is discussed with all participants about how they felt, why they chose the actions they did, what they would do differently next time (Jeffries, 2005; Lioce et al., 2015; Decker et al., 2013). It is postulated that the most learning is found in this debriefing time of reflection and evaluation.

Time spent in simulation activities has more recently become accounted for as a portion of clinical hours for students (Hayden et al., 2014; Veltri et al., 2014). Hayden et al. utilized simulation as a 1:1 ratio with traditional clinical hours. This is an emerging concept in nursing and more study related to the best practice of clinical hour accounting that includes both simulation and traditional clinical settings is needed. This study chose to follow the 1:1 ratio where each hour of simulation was counted as one clinical hour in the pediatric rotation, as little was found in the literature supporting any alternate ratios to account for this time.

Recent studies indicate a positive trend in learning outcomes when simulation is utilized in undergraduate nursing clinical courses (Hsu et al., 2015; Dunn et al., 2014; Crocetti, 2014; Hayden et al., 2014; Veltri et al., 2014). Most studies of simulation focus on high-fidelity-type use of the simulation experience (Schlairet, 2011; Dunn et al., 2014; Jeffries, 2005; Yang et al., 2012; Samawi et al., 2014; Kameg et al., 2010; Najjar et al., 2015) yet, our need was in the community roles of pediatric nursing where new pedagogies were needed due to a shortage of clinical sites for the upcoming school year. No studies of simulation were found that related to outpatient roles for beginning nursing students such as our community clinical experience required.

### *Theoretical Framework*

This pilot study chose Bandura's (1977, 1997) Self Efficacy Theory as a conceptual framework. Self-efficacy is defined as a future-oriented belief that one possesses the requisite skills to do what is needed to reach a successful outcome or to achieve some previously established level of attainment. The theory suggests individual behaviors are determined through continuous interaction between cognitive, behavioral, and environmental factors (Goldenberg et al., 2005).

According to Bandura (2004), "Efficacy beliefs influence goals and aspirations. The stronger the perceived self-efficacy, the higher the goals people set for themselves and the firmer their commitment to them.... Self-efficacy beliefs also determine how obstacles and impediments are viewed.... Those of high efficacy view impediments as surmountable by improvement of self-management skills and perseverant effort" (p. 145). Simulations introduce students to critical thinking processes in which they can perceive characteristics and fluid aspects of patient care situations and analyze them in a way that alters the manner in which nursing care is provided. Simulations may also promote students' confidence at actual clinical sites due to an increased sense of self-efficacy in practice (Bambini et al., 2009). It is posited an increase in self-efficacy may translate into increased quality of patient care because students gain self-confidence in their ability to success in the clinical setting and it is assumed these students will be less likely to fail to meet patient needs due to this self-confidence (Madorin and Iwasiw, 1999; Johnson and Kurtz, 2001; Goldenberg et al., 2005; Pajares and Urdan, 2006; Alinier et al., 2006; Bambini et al., 2009; Dowson et al., 2013). Overconfidence can become detrimental to patient care if one has confidence combined with poor skills, yet simulation can also be useful in identifying such overconfidence and utilize debriefing discussions to identify better choices in future situations (Yang et al., 2012).

Many studies have used patient care simulations to enhance learners' self-efficacy (Kameg et al., 2010; Dunn et al., 2014; Crocetti, 2014), satisfaction with learning, and self-confidence (Dunn et al., 2014; Schlairet, 2011; Crocetti, 2014; Jeffries and Rizzolo, 2006; Dearmon et al., 2013). Bambini et al. (2009) reported students showed increase in self-confidence in clinical practice settings that followed simulation experiences in that they felt better prepared to respond problems when a similar situation was encountered. Jeffries (2005) found simulation increased self-confidence and clinical judgements that translated into increased skills in clinical settings and better care for patients. In the landmark study undertaken by the National State Boards of Nursing (Hayden et al., 2014), it was found that students with more simulation training reported an increased self-confidence and felt more ready to enter nursing practice. This research indicates that nurses' sense of self-efficacy influences their self-confidence and can lead to improved quality of patient care. Self-confidence measures can be useful to assess student learning during simulation experiences.

Simulation provides a safe environment in which learners can practice and make errors in a controlled environment (Rushton, 2015; Reilly and Spratt, 2007; Dearmon et al., 2013). They also have opportunity to diagnose these errors and discuss how to remediate them (Reilly and Spratt, 2007). This remediation takes place during debriefing, which is an integral part of the simulation experience (Lioce et al., 2015; Decker et al., 2013). Beginning learners also have a need to learn to critically think about clinical situations as they learn to act upon them. Schlairet (2011) learned that simulation was about helping students learn to think, whereas direct care experience are about helping students learn to put knowledge into action. Research has found increased critical-thinking scores among nursing students who participated in simulation experiences (Yang et al., 2012; Samawi et al., 2014; Dowson et al., 2013; Cant and Cooper, 2010). Communication, refined through simulation training, has also been found to be a critical factor that ensures quality care for patients and self-confidence is an important measure of the impact of this training to improve communication skills (Hsu et al., 2015).

Jeffries (2005) Nursing Education Simulation Framework concepts guided this pilot study. These concepts and attitudes are: learning (knowledge), skills (performance), learner satisfaction, critical thinking, and self-confidence. Research indicates these areas are enhanced by the use of simulation as a teaching tool (Schlairet, 2011; Najjar et al., 2015; Dearmon et al., 2013). Schlairet (2011) demonstrated that simulation learning experiences were found to be as effective as traditional clinical experiences in promoting knowledge acquisition for nursing students. Reilly and Spratt (2007) and Lioce et al. (2015) caution the way simulation is set up, constructed, framed for students, and how students are allowed to interaction during the simulation creates the learning experience. Many studies stress it is imperative to create simulation scenarios that accurately reflect real life situations (Jeffries and Rizzolo, 2006; Samawi et al., 2014; Dowson et al., 2013; Alinier et al., 2006; Cant and Cooper, 2010). Using the knowledge gained from these studies helped craft our simulation scenes, set up, and framing for students in this pilot study.

This study was undertaken in an effort to determine the effects of a pediatric community simulation experience on the self-confidence of nursing students. Specifically in acquiring confidence in pediatric nursing knowledge and skill in performing nursing care, communication, and documentation in a pediatric community setting. Using the Jeffries (2005) Nursing Simulation Framework, the pre-test and post-test tool was developed for this study based on the nursing process areas of assessment, planning, implementation, and evaluation with an item related to self-confidence and/or critical thinking in knowledge, skill communication, and documentation in each of the nursing process areas. Four additional questions assessing student