Original research

Assisting BSN students in moving from novice to advanced beginner through student-LED simulations

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ABSTRACT

Faculty in a baccalaureate nursing (BSN) program recognized that fundamentals students often expressed a lack of confidence regarding translating knowledge and skills from long-term care environments into acute medical-surgical environments. This study used Benner's novice to expert framework as the basis for designing and implementing a peer-coached student led simulation with the aim of easing student transition from novice to advanced beginner. A mixed-methods descriptive design was used to gather and analyze qualitative data from peer-coach and learner focus groups. Quantitative data via a self-developed questionnaire was obtained from learners before and after the simulation experience. Results of quantitative data indicated significantly improved confidence levels among learners post simulation. Themes from qualitative data revealed that learners possessed improved levels of confidence and feelings of preparedness. These results suggest that peer coaching through student-led simulations is one possible way to support students in transitioning from beginning to higher-level clinical experiences.

1. Introduction

Each semester of nursing school brings new challenges for students. Transitioning from one semester to the next can be difficult as students enter new clinical settings with new sets of learning objectives and instructor expectations. First semester students in the nursing school where this study took place were required to learn and integrate knowledge in four separate courses (pharmacology, pathophysiology, fundamentals theory and clinic, and health assessment theory and lab). During this first semester, nursing students cared for stable, chronically ill patients in the long-term care setting. In the following semester, students were challenged to apply the knowledge gained in the first semester while caring for acutely ill patients in the medical-surgical acute care setting. Faculty consistently noted a lack of self-confidence when transitioning to the medical-surgical acute care clinical setting. This seemed to create significant stress for the students. In an effort to increase confidence among students transitioning to the medical-surgical setting, a student led peer coached simulation experience was developed. The purpose of this study was to explore the impact of peer coaching when implemented during a simulation experience.

2. Background

2.1. Simulation for clinical experiences

The use of simulation has been increasing in nursing education and the majority of respondents in the National Council of State Boards of Nursing (NCSBN) National Simulation Study (87%) reported the use of either high or mid-fidelity simulation in their programs (Hayden et al., 2014). Simulation has been described as a supervised learning activity in which students or student groups provide nursing care to a patient who is represented by a manikin or actor (Cato, 2012). When used to recreate clinical experiences, simulation can provide a realistic environment in which students can practice basic nursing skills and apply knowledge learned to patient care situations (Cato, 2012). This study combined the use of simulation and peer coaching wherein coaching is "to direct or instruct a person or group of people in order to achieve goals, develop specific skills, or develop competencies" (Meakim et al., 2013, p. S5).

2.2. Peer coaching and the broader concept of peer learning

Peer coaching has been described by Ladyshewsky (2010) as two individuals of similar training and knowledge working together in a

non-evaluative manner to share knowledge, skills and ideas. Peer coaching is a social process and may decrease the challenges associated with building competency in healthcare (Ladyshewsky, 2010). It offers students a community in which to share information, help each other learn and engage in meaningful dialogue (Badowski and Oosterhouse, 2017).

The strategy of utilizing peers to assist others in learning has been described in the literature for many years (Himes and Ravert, 2012; McKenna and French, 2011; Olaussen et al., 2016); however, terminology related to this educational method remains inconsistent (Olaussen et al., 2016). Some of the terms used include peer coaching, situated peer coaching, peer teaching, peer tutoring, peer mentoring, and peer assisted learning (Brannagan et al., 2013; Burgess et al., 2014; Havnes et al., 2016; Himes and Ravert, 2012; McKenna and French, 2011; Olaussen et al., 2016; Stone et al., 2013). Peer learning has been suggested as an umbrella term and it includes all programs where students learn from other students (Olaussen et al., 2016). Peer coaching is used to describe what occurred in this study and is included within the broad category of peer learning (Himes and Ravert, 2012).

Current research indicates there are many benefits to the use of peers in learning experiences of short duration. It can facilitate learning and skill performance, increase self-confidence, and may decrease anxiety (Badowski and Oosterhouse, 2017; Burgess et al., 2014; Curtis et al., 2016; Giordana and Wedin, 2010; Himes and Ravert, 2012; Li et al., 2010; McKenna and French, 2011; Stone et al., 2013; Valler-Jones, 2014). The literature suggests that peers can communicate content in a language more easily understood by learners (Ladyshewsky, 2010; Stone et al., 2013; Williams and Reddy, 2015). Peer learning experiences can be utilized to develop socialization and collegiality among students in nursing programs (Giordana and Wedin, 2010). Students have also reported an appreciation of independent problem solving and teamwork during peer learning activities (Himes and Ravert, 2012; Stone et al., 2013). The use of peer learning in nursing curricula may be cost effective and beneficial in faculty resource utilization (Curtis et al., 2016; Himes and Ravert, 2012; Stone et al., 2013). Providing peer learning experiences early in nursing programs has been cited as beneficial because it may increase student program satisfaction, support retention efforts or enhance students' professional attitudes in assuming a future mentoring role when in nursing practice (Brannagan et al., 2013; Burgess et al., 2014; Giordana and Wedin, 2010; McKenna and French, 2011; Ramm et al., 2015; Stone et al., 2013).

2.3. Gaps in literature for using peer coaching with simulation

Limited literature is available to provide insight on the use of simulation in combination with peer coaching. The use of peer learning in simulation has been used to teach technical skills such as vital signs, physical assessments, medication administration and dressing changes (Badowski and Oosterhouse, 2017; Curtis et al., 2016; McKenna and French, 2011; Ramm et al., 2015). Student-developed and led simulation experiences have been used to practice nursing care in critical events and in educational outreach and recruiting activities in pediatric nursing courses (Opton et al., 2014; Valler-Jones, 2014). Research indicates outcomes of such experiences include: an increase in confidence with participation in future simulation activities, an increase in confidence in course specific skills, appreciation of the responsibility of teaching in nursing, and reinforcement of one's own knowledge base (Opton et al., 2014; Ramm et al., 2015; Valler-Jones, 2014).

2.4. Theoretical framework

The theoretical framework used for this project was Benner's Novice to Expert Theory, which provides a basis for understanding the development of knowledge and proficiency in nursing practice (Benner, 1984). Although theoretical concepts are integral to providing nursing

care, it is through clinical practice experiences that nurses refine how to think about and practice the art and science of nursing (Benner, 1984). Benner describes the transition from novice to expert as movement from reliance on abstract principles to increased use of past experiences.

While Benner's (1984) Novice to Expert Theory was initially used to describe a nurse's growth in actual clinical practice, the theory is applicable to student knowledge and skill acquisition in nursing programs. The novice is described as one who has "no experience of the situations in which they are expected to perform" (p. 20). They lack the ability to make appropriate decisions in nursing care because they view situations from a theoretical standpoint and have no experiential context to use during the decision making process. This description is applicable to the fundamentals students who were the learners during this experience. These students were taking four theoretical courses, and in the clinical setting cared for stable patients in long-term care facilities. Most fundamentals students had no prior experience caring for patients in the acute care setting.

The coaches for this project were students who were nearing the end of their medical-surgical course. These students had been working in an acute care setting and providing supervised nursing care to patients with multiple medical-surgical problems. The medical-surgical students fit Benner's definition of the advanced beginner, described as "one who has coped with enough real situations to note recurring meaningful situational components" (p. 22). The advanced beginner still requires guidance and support in setting priorities and in determining relevant information. Benner notes that it is not always necessary for mentors of novices to have advanced clinical knowledge. Faculty believed that exiting medical-surgical nursing students possessed enough clinical experience to teach novice students how the fundamental concepts of nursing applied in the acute care setting. These students were also able to offer advice and empathy to the fundamentals students as a strategy for alleviating apprehension about the transition to the next course in the nursing curriculum. The medical-surgical peer coaches were responsible for designing and leading simulations involving the nursing care of patients with basic medical-surgical problems. This active learning method allowed for both coaches and learners to practice the application of medical-surgical concepts through experiential learning, which according to Benner, is how nurses advance their expertise in nursing practice.

2.5. Development of simulations

Prior to the peer coaching experience, coaches (the medical-surgical students) created patient scenarios based on cases encountered during their clinical time in acute care. The coaches and medical-surgical faculty met one day prior to the simulation. At that time, the coaches were required to have their scenarios prepared according to syllabus guidelines. This preparation day included gathering necessary equipment, developing patient charts (including medication and laboratory information), and practicing the simulations as a group. This served the dual purpose of allowing students to learn about each other's clinical experiences as well as to receive necessary feedback ensuring the scenarios were realistic, efficient and met syllabus objectives.

On the day of the simulation experience, coaches worked in groups of four with one student acting as the standardized patient. In some instances, coaches acted in the role of a family member. Coaches led the simulations, shared their experiences and advice, and provided feedback and guidance on skills and care planning. Learners (fundamentals students) rotated through four simulation scenarios, each lasting approximately 1 h. Objectives for the learners were to gather vital signs, perform a focused physical assessment, and identify at least one pertinent clinical problem in need of a nursing intervention. Coaches led a short debriefing immediately after each simulation using debriefing questions provided by faculty. At the completion of all simulations, faculty led a debriefing session including all coaches and learners.

Table 1
Pre and post simulation structured interview guides used with fundamentals students.

Pre-simulation questions		Post-simulation questions	
1	In anticipating this simulation experience, is there anything that makes you uncomfortable?	1	Do you feel as though this experience has added anything to your strengths?
2	After the clinical experiences you have had this semester, what do you feel your strengths are in caring for patients?	2	What part of this experience was most beneficial for you?
3	After the clinical experiences you have had this semester, what do you feel your weaknesses are in caring for patients?	3	How well do you feel you performed during this simulation?
4	Do you feel this semester has prepared you for this simulation experience?	4	How did having a more experienced peer in the room make you feel?
5	If at this moment, you were told you needed to walk into an acutely ill patient's room and obtain vitals and an assessment how would you feel.	5	Do you feel as though your first semester of the nursing program adequately prepared you for this experience?
		6	Are there areas you wish had received more focus?

The simulation experience took the place of the final week of hands on patient care in the clinical setting for both groups of students. The coaches (medical-surgical students) substituted this experience for 12 h of clinical time. The fundamentals students substituted this experience for 6 h of clinical time.

2.6. Research questions

The primary research question of this study was: What is the impact of a peer coached simulation experience on the reported confidence levels of exiting fundamental students preparing for the acute medical-surgical environment? A second question posed: What are the benefits for the peer coaches leading these simulations? The importance of providing quality simulation experiences in lieu of traditional clinical hours requires thoughtful consideration. The faculty researchers sought evidence to learn whether this strategy was beneficial to both group of students.

3. Methods

3.1. Design

A mixed-method descriptive design was used to determine the outcomes associated with using peer coaching through a student-led simulation. Structured interview guided focus groups were conducted immediately prior to and immediately after the simulation experience for the fundamentals students. The medical-surgical students participated in focus groups after the simulation experiences. These interviews were facilitated by one of the three investigators and recorded using a digital recorder. Additional quantitative data were collected from the fundamentals students using a self-developed questionnaire. Completion of the questionnaire occurred immediately prior to and after the simulation experience.

3.2. Study sample

This study took place at a four-year, public, comprehensive University located in a rural area and serving approximately 9000 students. The School of Nursing averages an enrollment of 40 students in the first semester and 40 students in the second semester for any given year. Data collection for this study occurred during 2013 with additional survey data collection in 2015. This additional data collection was completed to provide a larger sample size for statistical analyses.

A convenience sample of 49 fundamentals students participated in the quantitative survey portion of this study. Three pre-simulation group interviews and three post-simulation group interviews occurred with fundamentals students. Groups ranged in from eight to 16. Fundamentals students participated in the study on the day of the week that their clinical course met. This resulted in varying group sizes during the qualitative interview portion of this study. Medical-surgical

students were interviewed immediately after the simulation. Three group interviews were conducted. Sizes of the groups varied between eight and 16. Unfortunately, individual group sizes were not tracked during data collection.

3.3. Data collection

Prior to data collection, approval was received from the University's Institutional Review Board charged with protecting the rights and welfare of human research subjects. Informed consent was completed prior to any qualitative or quantitative data collection.

Investigators led pre and post simulation focus groups for fundamentals students using structured interview guides. The pre-simulation focus groups were conducted to gain an understanding of how students were feeling prior to the simulation and to allow students time to self-reflect and create self-awareness. Researchers thought this may provide a greater understanding of the impact of the simulation experience by allowing for a comparison of pre and post simulation themes. The structured interview guides can be found in Table 1.

The self-developed survey questionnaire was composed of four items and used a numeric rating scale with zero representing "not at all prepared or confident" and ten representing "extremely prepared or confident." The questionnaire was reviewed for content validity by the faculty who developed the peer coached simulation experience. Fundamentals students completed the paper and pencil questionnaire immediately prior to and after the simulation experience. The questionnaire consisted of the following: (1) How prepared do you feel to care for a hospitalized patient? (2) How confident are you in obtaining and recording an accurate set of vital signs? (3) How confident are you in obtaining a focused assessment on an acutely ill patient? (4) How confident are you in identifying the most pertinent clinical problem and utilizing nursing interventions to respond to that problem?

3.4. Data analysis

Investigator led focus groups were recorded using a digital recorder and transcribed into a word document. Three members of the research team and a fourth person naïve to the data completed thematic analysis. Each member of the research team examined the transcription for themes. Upon completion of individual analyses, the research team came together to compare analyses and emerging themes were agreed upon and named accordingly. A variety of students actively participated in each focus group session. Saturation was reached through the focus group sessions as revealed by clearly identifiable recurring themes within the data.

Quantitative data analysis was completed using SPSS software. Means for survey responses to each question were calculated. Paired samples t-tests were performed to determine if a significant difference existed between pre and post simulation questionnaire responses (N = 49). Cronbach's alpha was used to measure internal consistency pre-simulation ($\alpha = 0.81$) and post-simulation ($\alpha = 0.86$).

Table 2
Student reported confidence levels pre and post simulation experience.

Question	Pre-Simulation	Post-Simulation	p value
How prepared do you feel to care for a hospitalized patient?	M = 5.96, SD = 1	M = 7.73, SD = 1.25	< .001**
How confident are you in obtaining and recording an accurate set of vital signs?	M = 8.96, SD = 1.04	M = 9.35, SD = 0.88	< .05*
How confident are you in obtaining a focused assessment on an acutely ill patient?	M = 6.32, SD = 1.38	M = 8.08, SD = 1.24	< .001**
How confident are you in identifying the most pertinent clinical problem and utilizing nursing interventions to respond to that problem?	M = 6.1, SD = 1.5	M = 7.84, SD = 1.14	< .001**

*significance at the 0.05 probability level, **significance at the 0.01 probability level.

3.5. Results

3.5.1. Fundamentals students

Survey data analysis with paired samples t-test revealed significant differences pre and post simulation for all four items on the questionnaire. Results for each item are located in Table 2.

Through consensus, the three researchers and fourth 'blinded' faculty member identified the themes that emerged from the focus group transcriptions. Pre-simulation themes were: (1) Feeling unprepared, nervous, and anxious regarding the unknown, and (2) Lack of confidence with current skillset.

Pre-simulation data indicated fundamentals students felt comfortable with basic nursing care and vital signs ("vitals are just vitals"). They were anxious about participating in the simulation experience because they would be interacting with students further along in the curriculum ("nervous maybe just because it's older students"), they would be introduced to new skills, and simply because it was a simulation.

Post-simulation themes were: (1) Feeling prepared to care of hospitalized patients, (2) Having confidence in the ability to identify the most pertinent clinical problem, (3) Feeling confident in using nursing interventions to respond to patient needs, and (4) Developing relationships with peer coaches. After the simulation experience students noted feeling more efficient. It was also noted that fundamentals students saw advantages to learning from other students versus from nursing faculty. One student stated, "it's more comfortable cause it's not so much as like a testing situation, I felt more like you could talk to them and be like- and is this right?"

3.5.2. Medical-surgical students (peer coaches)

The peer coach focus groups occurred post simulation experience. While all participants did not respond to all questions, a majority of students provided input during the interview process. Interview questions included: (1) What did you learn through this experience? (2) What benefits were gained through creating your scenario? (3) What benefits were gained through mentoring the fundamentals students through this simulation? (4) How did mentoring fundamentals students during this simulation influence your understanding of prioritizing patient needs?

Interview transcripts were analyzed for themes in the same manner described previously. Once again, through consensus the following themes emerged: (1) utilized leadership skills (2) gained knowledge from clinical experiences of peers (3) increased confidence in knowledge base, teaching, and (4) better understanding of the patient/family experience.

Post simulation interviews clearly revealed there were benefits for the coaches in this experience. The medical-surgical students spent most of their clinical time in the acute care setting, which required a great deal of reliance on the help from experienced providers surrounding them. Significant guidance was required when making patient care decisions and limited opportunities existed for the medical-surgical students to take on leadership roles. The coaches appreciated being able to share their knowledge and experience and act in leadership roles during the simulation.

As explained previously, coaches played the roles of both patients and family members during the scenarios. An unanticipated benefit of this part of the experience was that students recognized a greater understanding of the patient and family experience. One coach who acted as family member reported feeling ignored by the caregivers. Additionally, a coach acting as a standardized patient expressed greater understanding of the need for clear directions when providing patient education. Coaches were also able to reflect on the new knowledge they had acquired over the course of their time in acute care. Coaches expressed increased confidence in their overall knowledge base and one student commented, "it helped me see how far I've come."

4. Discussion

Results of this study indicate that the fundamentals students (learners) benefited from the peer coached simulation experiences. Learners reported increased confidence in preparedness for skills necessary for the medical-surgical nursing clinical. Pre and post simulation surveys demonstrated a significant difference in all four survey questions. Of note, the survey question addressing confidence levels for obtaining and recording an accurate set of vital signs was significant at the p < .05 level as opposed to all other questions, which were significant at the p < .001 level. The students' high level of comfort with this skill prior the experience may have led to the less significant change post simulation. The pre-simulation interviews revealed students were comfortable with obtaining vital signs prior to the experience with one student reporting, "vitals are just vitals".

Pre simulation interviews with learners revealed students generally felt unprepared, nervous and anxious. The anxiety reported by learners was related not only to the required skillset but also to working with more experienced students. This finding is similar to that of Valler-Jones (2014) where students reported anxiety related to potential judgement by peers. Learners in this study reported the development of positive relationships with coaches and enjoyed being able to ask questions about what to expect from their upcoming clinical experiences. Additionally, coaches shared they had experienced similar feelings of anxiousness when they were fundamentals students, which was validating to the learners. Post simulation data did not reveal a theme of anxiety but instead indicated increased confidence levels in regards to the upcoming medical-surgical clinic.

Student experiences during the medical-surgical clinic vary related to patient census and this simulation experience allowed coaches to share their unique clinical experiences with one another. Similar to the finding of previous studies, through coaching, the medical surgical students developed a sense of just how much they had learned (Opton et al., 2014; Ramm et al., 2015; Valler-Jones, 2014). Anecdotally, medical-surgical faculty reported coaches often used similar phrases and teaching points as their instructors had throughout the semester. This confirmed that faculty teaching points had been absorbed and retained by the medical-surgical students.

Prior to the implementation of this experience, both student groups spent one additional week in the clinical setting providing patient care. Some faculty questioned whether a simulation experience was more valuable than the traditional clinical in a patient care setting. This was of greatest concern when considering the medical-surgical students. Overall results, both quantitative and qualitative identify positive

experiences and growth for both student groups. Results lent support for continuing this experience and it is now a requirement in all clinical sections for both levels of students within the school of nursing where this study took place.

5. Limitations

The study was not without limitations. First, a convenience sample from one university was used which may limit the generalizability of findings. Secondly, the study sample consisted of several clinical groups with a variety of instructors. Although the simulation assigned was outlined in detail for the Medical-Surgical students in their syllabi, the guidance provided and individual instructor expectations may have varied among groups. Additionally, sample size limitations required that quantitative data be collected at two separate time points. The focus groups were conducted mainly by student research assistants but due to a lack of availability, on two occasions the faculty member in charge of the study conducted the focus group. Students may have been less apt to share negative thoughts with the faculty member. Finally, the study aimed to discover benefits of this simulation experience for both coaches and learners, thus the questions in the structured interview guides were focused on positive outcomes and negative student experiences may not have been revealed.

6. Conclusion

The purpose of this study was to explore the impact of peer coaching when implemented during a simulation experience. The results of this study support further use of this instructional design. This research adds to the literature regarding peer learning in general and provides a unique example of how peer coaching combined with simulation may achieve positive educational outcomes. Further research is needed to identify whether this strategy is beneficial in easing transitions in other schools of nursing and between other levels of nursing courses.

Conflicts of interest

No conflict of interest exists for either author of this paper.

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