THE EFFECTS OF HIGH-FIDELITY SIMULATION ON ASSOCIATE DEGREE NURSING STUDENTS' PERCEIVED SELF-EFFICACY AND PERCEIVED PRACTICE READINESS

by

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ABSTRACT

Nursing educators are increasingly utilizing high-fidelity simulation to provide realistic educational experiences to prepare students to enter the workforce. High-fidelity simulation is utilized with the belief when students encounter real-life patients they will be more confident in their ability to care for them. This quantitative study examined the effects of high-fidelity simulation on senior nursing students' perceived self-efficacy and perceived practice readiness. The sample (N=48) consisted of senior associate degree nursing students at a community college in the Southeast. The findings showed high-fidelity simulation had a positive effect on students' perceived self-efficacy and perceived practice readiness at certain points in the study, while other times not demonstrating a positive correlation. Implications for use of simulation as a teaching strategy in nursing education and recommendations for future research were proposed.

DEDICATION

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LIST OF ABBREVIATIONS AND SYMBOLS

AND	Associate Degree in Nursing
BSN	Bachelor of Science in Nursing
C	Caucasian
CNE	Certified Nurse Educator
COP	Communities of Practice
F	Female
HESI	Health Education System, Inc
MSN	Master of Science in Nursing
NCLEX	National Council Licensure Examination
NE	Nurse Educator
PI	Professional Identity
RN	Registered Nurse
US	United States

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CHAPTER 1:

INTRODUCTION TO THE STUDY

Background and Significance

A crucial nursing education challenge is preparing new graduates to succeed in a complex healthcare environment. They will work in fast-paced stressful settings and must be able to care for patients using clinical competency, accuracy, and timely decision-making skills (Jung, Lee, Kang, & Kim, 2017; Tuttle, 2009). Concern about lack of readiness of graduates to practice nursing in the clinical environment is not a new phenomenon (Casey, Fink, Jaynes, Campbell, Cook, & Wilson, 2011). Even now, new graduates perceive a gap between theory and practice with reference to their education and the real workplace setting (Jung et al., 2017).

In addition, many nurses experience a reality shock when they participate in clinical practice (Jung et al., 2017). According to Kramer (1974), reality shock is experienced by new graduate nurses when they transition from academia to their first professional-practice experience in hospitals (Kramer, Brewer, & Maguire, 2013). Reality shock, coined by Kramer (1974), describes this as the discovery that school-bred values conflict with work-world values as discrepancies between what new graduates understand about their education is different than the "real" world of healthcare services (Duchscher Boychuk, 2008). New graduate nurses may experience problems related to complexity of care, heavy workloads, technological advances, and lack of communication skills; thus, they experience a transition shock with increased work related stress (Rudman & Gustavsson, 2012; Wu et al., 2012). Nurses report that the transition from the classroom to the practice setting is a period of stress, role adjustment, and reality shock

(Brown, 2016). More than ever, graduate nurses face workplace challenges and need to feel competent and prepared for practice (Woods, West, Mills, Park, Southern, & Usher, 2015). It is imperative that new nurses attain and sustain the upmost level of competency in overall safety (Zimmerman & House, 2017).

For over a decade, nurses have transitioned from student practice to independent practice with the aid of high-fidelity simulation (Brown, 2016; Rauen, 2004). Simulation standardizes student exposure to clinical situations where they can safely learn from their mistakes (National League for Nursing [NLN] 2015; Tuttle, 2009). Because students learn from mistakes during simulation, perceived self-efficacy may be increased, and the students perceived practice readiness may be improved.

General self-efficacy refers to a student's perceived ability to be successful at a task (Tuttle, 2009). This study will assess the effect of high-fidelity simulation on senior level associate degree nursing (ADN) students' perception of self-efficacy and perceived practice readiness at a community college in the southeast United States (US). Increased self-efficacy among nursing students may enhance students' practice readiness.

The literature review demonstrated a positive correlation between the use of high-fidelity simulation and increased self-efficacy, as well as perceived practice readiness among new graduates, including students from baccalaureate (Aggar, Bloomfield, Frotjold, Thomas, & Koo, 2018; Casey et al., 2011; Hsin-Hsin, 2016; Kameg, 2010; Lasater, 2007; & Woods et al., 2015), and associate degree nursing programs (Brannan, White, & Bezanson, 2008; Dunn, Osborne, & Link, 2016; Tawalbeh & Tubaishat, 2014). Participants who experience high-fidelity simulation reported increased perceived self-efficacy, which ultimately increases their overall confidence (Aggar et al., 2018; Casey et al., 2011; Hsin-Hsin, 2016; Kameg, 2010; Lasater, 2007; Woods et

al., 2015). Although the literature is replete with studies involving Bachelor of Science in nursing (BSN) students, little has been done with Associate degree nursing (ADN) students. Therefore, this quasi-experimental quantitative study will test the hypothesis that incorporating high-fidelity simulation into nursing curricula increases ADN students' self-efficacy and perceived practice readiness.

With an emphasis on creating contextual learning environments, and a need to replicate actual clinical situations, nursing education faces many challenges. Changes in healthcare access, technology advances, the need for more clinical opportunities among decreasing hospital based clinical sites, and the growing knowledge base required for newly graduated nurses compound the process of preparing graduates (NLN, 2015; Tuttle, 2009). High-fidelity simulation has become an integral part of nursing curricula. The results of this study will be significant and relevant to the field of nursing; the results may assist faculty in the promotion of student's perceived self-efficacy and suggest strategies to improve perceived practice readiness through simulation.

Nurse educators must also consider new learning strategies to better prepare students to assume increasingly complex roles that require a much higher level of critical thinking (Lasater, 2007; NLN, 2015). Simulation provides diverse learning opportunities for students as they integrate theory with actual practice, while making real time clinical decisions in an environment where there is no risk to actual patients (NLN, 2015). Individuals have voiced specific concern about practice readiness, which is demonstrated by adequate preparation of nurses to work in a clinical environment (Woods et al., 2015).

Although simulation has been used outside healthcare for decades, nursing education has more recently adopted this important method to educate students (Aebersold & Tschannen,

2013). Simulation provides a new method to accompany contextual learning (NLN, 2015). A decade ago, in order to accommodate the needs of nursing programs, faculty, students, and community stakeholders, high-fidelity simulation became a core component of nursing curricula (Aebersold & Tschannen, 2013; Tuttle, 2009).

With changes in healthcare access, technological advances in health care delivery, complexity of our healthcare system, complex patient care, and the growing lack of hospital-based clinical placements for students, it is crucial to incorporate simulation experiences throughout the program of learning (NLN, 2015). Instructors use high-fidelity simulation to teach, remediate, and evaluate the clinical competency of nursing students, while building self-efficacy and opportunities for reflection (Stone, Patterson, Reid, Geis, & Auerback, 2015). High-fidelity simulation, used in nursing education by incorporating teaching and learning strategies such as preparation materials and pre-post debriefing should enhance students' self-efficacy as well as students perceived practice readiness (Pike & O'Donnell, 2010). The use of high-fidelity simulation may lead to students increased self-efficacy as well as their perceived practice readiness in the inpatient setting.

Nursing Pedagogical Practice

According to Jacobs (2017), the strength of a pedagogical approach is the intentional integration of knowledge, clinical reasoning, skills practice, and ethical considerations across the curriculum. Pedagogical practices prepare nursing students prior to simulation through the use of active learning activities, utilizing teaching strategies such as active learning or multiple learning styles, combined with high-fidelity simulation has become a core component in nursing education (Jacobs, 2017). However, nursing education must go beyond the simple imparting of

information. Effective teaching strategies link theory to practice, fosters critical thinking, and must be relevant while stimulating students to think (Jacobs, 2017).

Incorporating realistic and reliable simulation allows nurse educators to develop learning environments, which encourage the development of students' self-efficacy and their ability to make the sound clinical choices needed for practice readiness (Jacob, 2017). The opportunity to gain practice-based experience is an essential component in problem solving and clinical decision-making for nursing students. Therefore, the inclusion of simulation enhances nursing curricula, which ultimately enhances nursing students' self-efficacy in critical thinking and problem-solving abilities needed for clinical practice and may lead to perceived practice readiness.

Statement of Problem

New graduates find they do not have either the expertise or confidence they need to feel practice ready in order to navigate a highly dynamic and intense clinical environment (Casey et al., 2011; Jung et al., 2017). Upon graduation, students may feel ill prepared for actual nursing work, and may lack confidence in their ability to perform clinical skills or make crucial decisions (Jung et al., 2017; Tuttle, 2009). The task of preparing new nurses to practice safely, effectively, and compassionately in today's rapidly changing health care setting remains a challenge (Casey et al., 2011). A lack of self-efficacy can ultimately hinder practice readiness and the ability to care for patients (Woods et al., 2015). Ultimately, a lack of self-efficacy affects students' ability to be practice ready, which may also increase the reality shock felt by new nurses.

Previous studies focusing on BSN students suggests high-fidelity simulation enhances students perceived self-efficacy as well as provides for the development of a safe and secure, quality-learning environment, which may enhance students perceived practice readiness (Aggar

et al., 2018). Previous studies on simulation, self-efficacy, and perceived practice readiness have focused on BSN students (Aggar et al., 2018; Casey et al., 2011; Hsin-Hsin, 2016; Kameg, 2010; Lasater, 2007; Woods et al., 2015), yet few studies have focused on self-efficacy and perceived practice readiness in ADN students (Dunn et al., 2016; Brannan et al., 2008; Tawalbeh & Tubaishat, 2014). For graduates to do well in this profession, nurse educators must consider learning strategies, such as simulation, to better prepare nurses to assume those increasingly complex roles that require higher levels of critical thinking and clinical judgment skills (Casey et al, 2011; Lasater, 2007).

Purpose and Significance of the Study

Researchers continue to investigate the development of self-efficacy and practice readiness during simulation as nursing programs worldwide implement high-fidelity simulation with direct patient care (Woods et al., 2015). The purpose of this study is to assess the effect of high-fidelity simulation on senior level ADN students' perception of self-efficacy and perceived practice readiness at a community college in the southeast United States.

Research Questions

The research questions explored in this study are as follows:

1. What is the effect of high-fidelity simulation on students' perceived self-efficacy?
2. What is the effect of high-fidelity simulation on students' perceived practice readiness?

Research Design

This study employed a quasi-experimental research design that explored the relationships among the variables of high-fidelity simulation participation, perception of self-efficacy, and perceived practice readiness among senior level ADN students. The study was accomplished

with two survey tools: Nurse Competence Self-Efficacy Scale and Casey Fink Readiness for Practice Survey.

Functional Definitions

The following terms are defined and/or operationalized as noted.

High-fidelity simulation: "A sophisticated, computerized mannequin that can mimic a real-life situation" (Jefferies & Rogers, 2007, p. 28). In this study, students will experience a scenario in which a fully functional mannequin will function as the patient.

Self-efficacy: "The belief in one's ability to complete tasks necessary to manage a potential situation" (Bandura, 1997, p. 191) and the ability to take knowledge and skill and move them into action (Zeiber & Sedgewick, 2018). In this study, confidence will be used interchangeable with perceived self-efficacy representing positive self-confidence.

Readiness for practice: "Competent and having the knowledge, skills, and judgement that is required for such role performance" (Casey et al., 2011, p. 646). "Expectation-generated reality stress experienced by new graduate nurses as they transition from academia to their first professional-practice experience in hospitals" (Kramer, 1966). In this study, readiness for practice correlates with students having the perceived self-efficacy or confidence to start practicing as a RN.

Traditional clinical experience: Practice in an inpatient, outpatient, ambulatory or community setting where the student provides care to the patient under the supervision of a licensed instructor or preceptor

Clinical competence: The ability to care for patients successfully, having the knowledge, skills and judgement needed.

Summary

The opportunity for nursing students to gain clinical nursing practice currently is hampered by decreased hospital based clinical sites, the rapidity with which new technological advancements are introduced, and the limited time that faculty can dedicate to clinical education. Equipping nursing graduates with a sound knowledge base that supports safe practice and acquisition of competence is an essential outcome of pre-licensure nursing programs (Parker & Grech, 2018).

Due to the ongoing shortfalls of clinical placements and increased complexity of contemporary practice, academics throughout the world must rethink models of best practices to support student learning and preparation (Parker & Grech, 2018). Those models of best practice will promote active student-centered learning, which may develop high order thinking skills including problem solving, clinical reasoning, and critical and creative thinking. Self-efficacy and practice readiness should increase as students work in simulated situations that require the type of decision-making that reflects the complexity of the healthcare environment.

CHAPTER 2:

REVIEW OF LITERATURE

Chapter 2 includes a description of the theoretical framework and a review of the literature on the effects of high-fidelity simulation on senior level ADN students' perception of self-efficacy and perceived practice readiness in the community college. It is possible that improving perceived self-efficacy and perceived readiness for practice will be one way of reducing reality shock among new graduates. As new graduates move from the familiar role of nursing student to the unfamiliar role of registered professional nurse (RN), they may experience reality shock (Wakefield, 2018). This maladaptive transition from student to RN can occur due to lack of practical and emotional support, lack of self-efficacy, uncertainty in relating to new colleagues, and unrealistic performance expectations (Wakefield, 2018). In other words, new graduates may not perceive that they are ready for practice, and appropriate supports may not be in place to help them.

The concept of simulation is not new within healthcare, and the use of high-fidelity simulation has increased over the years (NLN, 2015). To address these changes, nursing education has invested in the use of high-fidelity simulation as a viable teaching strategy. The belief is that simulation experiences increase students' self-efficacy in managing real-life patients (Wakefield, 2018).

The literature review included articles, theses, and dissertations using the key terms *readiness for practice*, *high-fidelity simulation*, *healthcare*, *reality shock* and *self-efficacy*. This

review includes studies related to the history of simulation, learning theories associated with the development of self-efficacy, and the use of simulation in healthcare education and practice.

History of Simulation

Simulation has been utilized outside healthcare for decades (Aebersold & Tschannen, 2013; Rauen, 2004). The art of simulation began with flight simulators, space programs, and the automotive industry (Aebersold & Tschannen, 2013). The aviation, transportation, nuclear power industries, and the social and behavioral sciences have all used simulation to teach concepts, to allow risk-free practice, and to teach, practice, and/or evaluate critical-thinking skills (Rauen, 2004). Simulation training offers students an extremely valuable opportunity to receive real-world scenario training (Henry, 2018). Simulation training dates back to the early 20th century with the use of replica models of actual equipment being used (Henry, 2018). Simulation started with the civil aviation and has advanced to heath care, military, law enforcement, transportation, and athletics (Henry, 2018). Thus, simulation is an effective method of instruction across several disciplines (Blue, Rike, Escalante, Yeon, & Munoz, 2018), and simulation-enhanced learning is a well-recognized and respected educational methodology, which holds the advantage of facilitating clinical competencies with no risk to patients (Owens, 2016).

Research comparing simulation to traditional teaching methods, indicates high-fidelity simulation is more realistic, and more effective for imparting and helping students retain knowledge (Rauen, 2004). Medical simulation in primitive forms has been practiced for centuries (Rosen, 2008). The introduction of human patient simulation toward the end of the 20th century was a major step in the evolution of health sciences education (Rosen, 2008).

Nursing education began to start using simulation in the 1990s and according to a study by the National Council of State Boards of Nursing, using simulation for up to 50% of clinical experience is as effective as bedside patient care (Hayden, Smiley, Alexander, Kardong, & Jefferies, 2014).

The availability of appropriate clinical experiences has a major influence on enrollment in nursing programs (Curl, Smith, Chisholm, McGee, & Das, 2016). There has also been a number of reasons for the use of simulation as a learning and teaching modality in healthcare education, including failure of traditional learning models, changing clinical environment, lack of clinical opportunities for patient care, and increased focus on patient safety (Shepherd & Burton, 2019). Due to the need for more skilled healthcare professionals by the industry, there is an increased demand for more students as well as appropriate clinical placement sites during their educational process. With the increased number of students, this competition for learning space has led to a decreased availability of clinical placement sites that are appropriate and relevant to student learning (Shepherd & Burton, 2019). The provision of appropriate clinical placements relies on the existing healthcare workforce to support the students, but at the expense of healthcare professionals who have increased workloads and are providing direct patient care (Shepherd & Burton, 2019). The use of simulation provides an effective means to teach, utilizing multiple domains that are occurring in a safe learning environment.

Simulation in Healthcare

Long established as an approach to training in aviation and other industries, the use of clinical simulation in the education of health professionals has expanded remarkably in recent decades (Tofil et al., 2011). Simulation provides learners with an interactive, practice-based instructional experience and is a method for students to learn experimentally, while practicing

skills in a safe environment (Hawkins, Todd, & Manz, 2008). Clinical simulation employs a technology-enabled learning environment to help replace or amplify real experiences with guided immersive experiences that are intended to replicate the real world (Tofil et al., 2011). Many healthcare professionals, including respiratory therapy, pharmacy, social work, mental health, and emergency medical technicians, have benefited from the use of simulation during training (Bradley, 2006; Owens, 2016). These professions share one important component in healthcare education: lives depend on successful decision-making and teamwork during emergencies (Bradley, 2006), and those skills can effectively be practiced in simulated environments (Aebersold & Tschannen, 2013).

Simulation in Respiratory Therapy

Respiratory therapy is a competency-based profession, in which practice occurs in clinical settings (Walsh, Reise, & Correia, 2017). Clinical competencies in pediatrics are challenging for student respiratory therapists to acquire due to competition for limited pediatric sites (Walsh et al., 2017); therefore, respiratory therapy students utilize simulation to provide a safe environment where they can practice. Many institutions offering respiratory therapy use simulation as an essential component of their training to prepare for clinical practice (West, Kim, & Parchoma, 2017).

Simulation in Social Work and Mental Health

Healthcare professionals are often not prepared to intervene with patients experiencing substance abuse disorders. To better prepare healthcare professionals to care for patients with substance abuse problems the curriculum introduced (SBIRT): screening, brief intervention, and referral to treatment. SBIRT is now integrating simulation to provide healthcare providers the necessary skills to address patient substance use. The study utilized standardized patient

simulation to educate nursing students, medical students, and graduate psychology and social work students. The objective of the study was to use simulation to increase learner satisfaction and increase confidence among students. The study found the use of simulation increased knowledge and skills among all students. The students also found simulation enhanced their level of confidence when dealing with substance abuse patients.

Simulation in Nursing Education

Simulation has been used in nursing education for many years (Aebersold & Tschannen, 2013), and simulation-based learning is considered to be a more effective teaching and learning method appropriate to implement with the rapidly changing world of nursing education (Park & Yu, 2018). For nursing students, simulation provides an avenue in which students can safely encounter situations where patient safety is compromised, and where they can foster the development of patient safety competencies (Walsh et al., 2017). High-fidelity simulation provides an overall safe and life-like teaching and learning strategy (Aebersold & Tschannen, 2013), and is effective as a supplement to or even replacement of the direct clinical hours needed to prepare students for practice (Hayden et al., 2014). Jefferies (2005) asserts that simulation offers nurse educators a significant educational strategy that allows the flexibility to practice skills, is student centered, interactive, and experiential.

There is an urgent need to change the focus of nursing education from the traditional teacher-centered training programs to student-centered active methods (Zarifsanaiey, Amini & Saadat, 2016). Moreover, students find that realistic and reliable scenarios are more enjoyable as they sharpen critical thinking and psychomotor skills (Rauen, 2004). Simulation provides an opportunity to apply knowledge and theory to simulated practice through role-play by decision making, by recognizing changes, and by managing a deteriorating patient, as well as end of life

care (Cant & Simon, 2017). This type of clinical practice provides students with the opportunity to develop competencies in critical thinking skills, analytical, mental, and motor skills, as well as time management abilities and clinical performance confidence (Park & Yu, 2018).

Although nursing students learn fundamental skills and face skill assessments, they may still experience low self-efficacy and high anxiety levels (Lin, 2016). Student nurses need multiple opportunities to practice thinking and acting like a RN (Crawley & Ross, 2017). Providing quality-learning experiences in direct healthcare settings remains challenging due to the number of student nurses and the shortage of clinical placements. Once clinical placement is secured for a student, learning opportunities are dependent on factors such as student/preceptor relationship, a time pressured environment, patient/client clinical presentation, and the context in which the placement is situated (Crawley & Ross, 2017). Simulation can be utilized to assess students' skills in regard to patient assessments, evaluations, teaching, and learning strategies (Bradley, 2006). Clinical simulation offers a viable option to evaluate skill acquisition and assess clinical judgement, clinical thinking, and clinical reasoning skills in nursing students (Rauen, 2004).

Providing nursing students with quality learning opportunities in all healthcare settings is increasingly more challenging to obtain and sustain due to a growth in student numbers and an increased shortage of clinical placements (Crawley & Ross, 2017). Simulation was developed as a response to these challenges by replicating the reality of clinical environments and providing students with the opportunity to practice nursing assessment and nursing management in a safe place (Crawley & Ross, 2017). The review of literature demonstrates that high-fidelity simulation increases self-efficacy in healthcare professionals and BSN students, but little

information directly related to ADN students was found (Aggar et al., 2018; Casey et al., 2011; Hsin-Hsin, 2016; Kameg, 2010; Lasater, 2007; Woods et al., 2015).

The impact of simulation on BSN students' competence was assessed from a faculty perspective. A qualitative study utilized exploratory focus group interviews to discover faculty beliefs and feelings, which highlighted their perceptions, considerations, and suggestions regarding how simulation affected students' competence (Zakari, Hamadi, Audi & Hamadi, 2017). The study developed three themes: students' readiness and preparing them for simulated reality, required processes for successful simulation, and challenges for simulation implementation. The study found that simulation is an appropriate tool that augments student self-efficacy in their abilities and skills, which facilitates a students' learning environment by developing a simulation for students to practice specific nursing skills prior to beginning their clinical rotation. According to the study, the goal of simulation is to equip student nurses with the required knowledge and skills to assume their roles as graduates and to achieve academic recognition (Zakari et al., 2017). The study determined the value of simulation and that its impact on student learning outcomes, such as self-confidence and practice readiness, is well recognized.

The Institute of Medicine (2007) recommends simulation to support nurses in the ongoing acquisition of knowledge and skills (Aebersold & Tschannen, 2013). As the link between simulation and patient safety becomes increasingly apparent, simulation will be adopted as the education and training method of choice for such critical behaviors as communication and teamwork skills (Aebersold, 2016).

Simulation and Self-Efficacy among BSN Students

Nursing education programs use selected healthcare institutions within their community for clinical instruction and experience. Unfortunately, the changing health care system limits the availability of clinical experiences for nursing students (Crawley & Ross, 2017). Before the change in healthcare delivery, nursing students took care of patients with a variety of medical diagnoses, those experiences are now limited (Crawley & Ross, 2017; Lasater, 2007). Today, students in the clinical setting deliver care to patients with similar diagnoses and treatment plans, although the experiences are limited (Crawley & Ross, 2017).

The use of simulation in nursing education is a reliable and valid way to teach. Studies examining the effect of simulation on the self-efficacy and practice readiness of BSN students' and newly graduated nurses demonstrate that high-fidelity simulation influenced students' self-efficacy. Large and small studies have been conducted involving BSN students and examined self-efficacy among all levels of nursing students (Aggar et al., 2018; Casey et al., 2011; Hsin-Hsin, 2016; Kameg, 2010; Lasater, 2007; Woods et al., 2015).

Large studies conducted by Aggar et al. (2018), Casey et al. (2011), Lasater (2007), and Woods et al. (2015), found that high-fidelity simulation had a positive impact on students' practice readiness and their ability to demonstrate confidence in their nursing skills. Woods et al. (2015) and Casey et al. (2011), utilized the Casey Fink readiness for practice survey to demonstrate with high-fidelity simulation BSN students' demonstrated confidence in caring for multiple patients as well as perceived practice readiness. Another large study demonstrated the correlation of high-fidelity simulation and the effectiveness of time management on improving nursing students' preparedness for medication administration in the clinical setting (Aggar et al, 2018). The study-demonstrated time management intervention via simulation can effectively

enhance students' preparedness for, and confidence in, medication administration in the clinical setting (Aggar et al, 2018). Lasater (2007) examined beginning nursing students' experiences using high-fidelity simulation as part of their regular curriculum and found this supported as well as affected the development of clinical judgement among the BSN beginning students.

Smaller studies found a correlation between high-fidelity simulation-based learning and improvement in students' self-efficacy (Goldsworthy, Patterson, Dobbs, Afzal & Deboer, 2019; Hsin-Hsin, 2016; Kameg, 2010; Kimhi, Reishtein, Cohen, Friger, Hurvitz, & Avraham, 2016; Lubbers & Rossman, 2016). One study regarding the learning of skills and skill performance demonstrated a positive effect on students' achievement outcomes (Hsin-Hsin, 2016). The use of high-fidelity simulation in regard to communication with patients demonstrated high-fidelity simulation enhanced students' self-efficacy in regard to communication with mental health patients (Kameg, 2010). Determining the effects of community health simulation on students' self- confidence among BSN students (Lubbers & Rossman, 2016) demonstrated increased levels of self-confidence. Positive self-efficacy was found in students who utilized high-fidelity simulation and the nursing process, demonstrating a positive correlation between increased self-efficacy with high-fidelity simulation when utilized before or after a clinical experience (Kimhi et al., 2016). In regard to increased self-efficacy with simulation in health teaching, there is a correlation between students' overall self-efficacy scores in performing health teaching with recommendations to enhance learner behaviors with high-fidelity simulation (Goldsworthy, Patterson et al., 2019).

With the increased use and demonstrated effect of using high-fidelity simulation, it is important to note that simulation scenarios must meet certain expectations, such as clear teaching objectives and sufficient information before high-fidelity simulation were positively correlated

with an increase in professional self-efficacy (Zhu & Wu, 2016). The goal of simulation is for students to transfer learning from simulation into the hospital setting. Nursing education must teach the essence of 'being' a nurse, the art of being practice ready in the ability to transfer clinical practice into real life experiences is salience (Zimmerman & House, 2016).

Simulation and Self-Efficacy among ADN Students

The effective use of simulation at all levels of nursing education creates an innovative strategy to supplement clinical experiences, yet little research has evaluated the effect of high-fidelity simulation among ADN students (Cur et al., 2016). Typically, ADN programs in community colleges charge lower tuition fees, take only two years to complete, and are more likely to enroll students from the community where the program exists (Sabio, 2019).

The ADN student falls into the category of the non-traditional learner and is considered a high-risk student (Diamond, 2016; Martin, Galentino, & Townsend, 2014). Non-traditional learners tend to delay enrollment in school by at least one year after graduation, enroll part-time while working full-time, are financially independent while also supporting dependents, are not married, and may lack a traditional high school diploma (Diamond, 2016; Martin et al., 2014). In addition, ADN students are typically older than traditional students are and are more likely to be minority students, have dependents, work full-time, and be of modest means (Sabio, 2019). Associate degree nursing students enroll in school with previous life experiences and prior work experiences; thus, they already have many real-life knowledge and skills.

A study evaluating cognitive skills and self-confidence levels of ADN students in regard to acute myocardial infractions (AMI) compared ADN students who participated in traditional didactic lecture versus those who participate in simulation (Curl et al., 2016). The study found

students' self-confidence and cognitive scores of students who utilized simulation were significantly higher leading to overall better confidence in students' ability to care for the patient.

Many factors influence the development of practice readiness, including self-efficacy in the ability to accomplish clinical tasks (Casey et al., 2011). Nurse educators must evaluate various teaching strategies that may promote self-efficacy and result in a perception of practice readiness. As students' progress, they need strong foundational experiences to learn and to gain confidence.

The changing education landscape offers new opportunities to master challenging circumstances, and there is a positive relationship between simulation and increased self-efficacy (Cant & Cooper, 2017). However, most studies were conducted with BSN students as participants, and explored the link between high-fidelity simulation and self- efficacy related health teaching, structural empowerment, and clinical reasoning (Babenko-Mould, Ferguson, Riddell, Hancock, & Atthill, 2014; Goldenberg, Andrusyszyn, & Iwasiw, 2005; Kameg, 2010; Lin, 2016; Roh & Lim, 2016; Tuttle, 2009; Zhu & Wu, 2016).

Simulation and Readiness for Practice

There is a preparation-practice gap for new nurses due to limited clinical experiences, lack of qualified clinical faculty, and limited number of students at a practice site at a given time (Zimmerman & House, 2016). Newly graduated nurses entering the workforce find they do not have the practice experience nor the confidence to navigate the healthcare environment (Casey et al., 2011). Newly graduated students identify a lack of self-efficacy for practice readiness in multiple areas. Simulation provides an opportunity to practice those skills and may increase self-efficacy related to those independent practice functions.

Simulation and Practice Readiness among BSN Students

There are several concerns related to the utilization of educational strategies, which result in readiness for practice. Readiness for practice was assessed among BSN nursing students (Lasater, 2007; Woods et al., 2015). BSN students identified the need for more simulation experiences and additional clinical time in order to apply theory to practice and to gain the experience needed to develop perceived readiness for clinical practice (Woods et al., 2015). Results indicate that high-fidelity simulation has the ability to support and affect the development of clinical judgement in nursing students (Lasater, 2007; Woods et al., 2015).

Simulation and Practice Readiness among ADN Students

Simulation affects the confidence and/or self-efficacy as well as the practice readiness of students' while influencing students' self-efficacy. To evaluate students' perceived readiness to assume the role of the registered nurse in today's everchanging health care system within the AND, student simulation is integrated as a teaching strategy (Simkins & Jaroneski, 2016). Simulation is an effective educational strategy in promoting the learner's assessment skills, attitudes toward teamwork, collaboration, confidence, and development of decision-making processes, while improving clinical competence (Simkins & Jaroneski, 2016). For example, students' self-confidence, critical thinking, and perceived practice readiness was increased by integrating simulation as a teaching strategy, as demonstrated by students being able to recognize clinical features of patients' major disease processes, and students were able to formulate interventions appropriate to changes in patients' conditions.

Strengths in the Literature

To evaluate research studies, the studies must utilize clear research questions, have a sample size that is representative and adequate, criteria must be reliable and valid, the

appropriate statistical testing needs to be implemented as well as the study needs to allow for generalizations (Polit & Beck, 2004). The literature review strengths noted throughout the studies include adequate sample sizes ranging from 100-529 participants, utilizing participants from multiple schools (Casey et al., 2011), and a correlation between high-fidelity simulation, self-efficacy, and perceived practice readiness among students (Casey et al., 2011; Hsin-Hsin, 2016; Jamieson, Sims, Basu, & Pugh, 2019). The studies linked self-efficacy and practice readiness, as well as decreased anxiety levels, showing that as students develop self-efficacy, they feel they are more practice ready.

Limitations of Previous Studies

Some limitations of previous research include studies with small convenience samples and sampling limited primarily to BSN students (Brown, 2016; Tuttle, 2009). Other limitations are small sample sizes, students not taking the simulation experience seriously, and a lack of diversity related to age, gender, and ethnicity (Tuttle, 2009). The type of simulation equipment utilized, respondents past work experiences, average age of participants, past clinical placement sites, and the fact the study only measures students' own perception of their readiness for practice (Brown, 2016; Casey et al., 2011).

Utilizing one school of nursing is a limitation that studies have acknowledged, and this limits the results from being generalized (Jamieson et al., 2019). Conducting a national survey of perceived practice readiness among senior level nursing students could provide substantial evidence that will be useful for planning purposes across both education and health sectors to be sure students are well prepared for the realism of the workplace (Jamieson et al., 2019). Another area to expand research is to validate what new knowledge and competencies senior nursing

students bring to the practice setting in regard to clinical problem-solving decisions and team leadership as this influences the education-practice gap (Casey et al., 2011).

Identified Gaps in the Literature

The literature review found gaps in the literature in relation to studies of perceived self-efficacy and perceived practice readiness among BSN students and limited studies with ADN students as participants. The current study answers the call by Casey et al. (2011) to create future studies by broadening the pool of candidates with greater diversity and by considering multiple degree types in various geographic locations.

Theoretical Framework

Theoretical frameworks guide the development of ideological perspectives, creating the scaffolding that frames the study, and the road map and vehicle that drive the research in the direction it needs to go. The learning theory of Bandura can be utilized to demonstrate how students develop self-efficacy using simulation-based learning by providing a path to enhance students' self-efficacy (Lin, 2016). Self-efficacy based on knowledge and experience decreases student anxiety and enables increased skill acquisition and physical assessment improvement (Lin, 2016).

It is crucial to educate nursing students to make important clinical decisions based on critical thinking in a similar clinical setting through simulation-based learning (Park & Yu, 2018). Bandura's (2003) social cognitive theory is relevant to simulation as the process by which students can adapt to situations and their behavior is shaped and controlled by environmental forces. The social cognitive theory of self-efficacy posits that self-efficacy is an important concept in positive psychology as it relates a person's perception of the ability to produce a desired result by his or her own actions (Bandura, 1995). Instruction, modeling,

persuasion, and performance feedback improve skills and allow for self-development (Bandura, 2003). Bandura argues that self-efficacy, a person's belief that he or she can execute a task at a certain level of performance, is the most important factor affecting personal activity toward goal attainment (Bandura, 1991). It is essential for nursing students to possess self-efficacy or have the ability to enhance their self-efficacy to meet the challenges they will encounter during the educational preparation for practice as a RN. Individuals who possess a strong sense of self-efficacy view challenges with intrinsic interest and deep inclination for achieving the tasks and activities (Bandura, 1995).

Self-efficacy is a person's perception of capability, influencing events, and enabling individuals to take a hand in shaping the course their lives take, while giving them the ability to control that life (Bandura, 1995). Individual behaviors emerge from dynamic interactions of the individual, behaviors, and the environment; therefore, the social cognitive theory is considered one of the most significant guides for predicting behavior. The social cognitive theory of self-efficacy proposes the belief that students acquire knowledge by observing others within the context of social interactions, experiences, and outside influences. Through participation, persistence, and performance students achieve mastery of skills and reach their goals (Bandura, 1995). This pattern of success instills the belief that they can perform the specific function. Students develop self-efficacy in four ways: mastery, social modeling, social persuasion, and physical and emotional states (Bandura, 2017).

Mastery is the most effective path to self-efficacy. Successful experiences produce strong self-efficacy (Bandura, 1995). Mastering skills builds a robust belief about overcoming obstacles. Progress requires facing challenges, and properly resolving those challenges builds self-efficacy in the same way discouragement tends to follow failure. When students fail to

master a task, they need to learn from their mistakes rather than become discouraged. Students' behavior changes for the better through positive reinforcement (Bandura, 1995).

The social cognitive learning theory addresses social modeling. Most human behavior is learned observationally through modeling; from observing others, one forms an idea of how new behaviors are preformed and, on later occasions, this coded information serves as a guide for action (Bandura, 1995). People remember the sequence of events, the outcomes, and use the information to guide future events. Social modeling occurs when students see other people succeed and in turn believe they can accomplish the same task (Bandura, 1995). Faculty, staff, nurses, and fellow students demonstrate behavior that students can model, imitate, and copy in clinical settings. Developing self-efficacy through social modeling encourages students to believe they have what it takes to succeed. The impact of modeling on perceived self-efficacy is strongly influenced by perceived similarities to the social models (Bandura, 2017). As a teacher and nurse, providing behavioral examples that students observe as positive role models is an important aspect to ensure students' self-efficacy.

Social persuasion occurs when students are persuaded by teachers, students, or nurses to succeed by instilling in them the belief that they have what it takes to be successful by providing a temporary boost in perceived ability (Bandura, 1995). Teachers focus on positive aspects of learning by fostering success in the classroom through arranging lessons in a manner that enhances students' success and self-efficacy.

Psychological and emotional stress contributes to the amount of tension students' experience. A student's ability to cope with stress or anxiety during difficult situations influences their level of motivation (Beuk, 2014). Lower anxiety levels correlate with increased self-efficacy (Bandura, 1995). Students' emotional and physical states guide how students judge

their own capabilities. According to Bandura (1995), students who do not achieve higher levels of perceived self-efficacy in their ability to succeed under demanding circumstances may find a journey end just as it begins. For these students the threat of failure exists, and they may not possess the self-efficacy necessary to overcome this. According to Bandura (1995), students who develop a strong sense of self-efficacy may view the journey as challenges to learn from rather than hurdles to be avoided, thus success is achieved.

With the landscape of education changing, there are new opportunities for simulation to bolster self-efficacy among students by providing them with challenging, yet attainable circumstances and helping them reach mastery. With mastery experiences and social modeling being significant factors in instilling self-efficacy among students, the experiences nursing students obtain in simulation must be fairly demanding and require a combination of cognitive, behavioral, and self-regulatory tools in response to changing conditions to bolster self-efficacy (Pike & O'Donnell, 2010).

Self-efficacy is an important precondition to promote behavioral change in students, but it is only successful if the results are from perseverance in the face of obstacles and challenges (Pike & O'Donnell, 2010). Utilizing the social cognitive theory, if a student experiences simulation and achieves multiple successes, identifies appropriate social models, receives encouragement, and remains relatively stress-free, the student is likely to develop greater self-efficacy.

Self-efficacy links knowledge to action (Bandura, 1995), which may lead to perceived practice readiness. Self-efficacy in senior nursing students will assist them to feel competent in meeting the entry-level expectations in the clinical field. Simulation, when implemented as a form of modeling, is an excellent teaching and evaluation method for enhancing and evaluating

critical thinking and problem-solving skills (Aebersold & Tschannen, 2013; Rauen, 2004). Modeling is a powerful means of transmitting values, attitudes, and patterns of thought and behavior. Modeling allows students to learn not only simple behaviors, but also complex behaviors such as reasoning, problem solving, and making ethical judgements. Therefore, incorporating simulation into nursing curricula may enhance nursing students' critical thinking and problem-solving abilities, and may lead to perceived practice readiness.

Simulation is utilized for a variety of purposes with many professionals encouraging the development of critical decision-making skills that enhance clinical practice (Casey et al., 2011). If high self-efficacy equates to improved performance, developing pedagogical approaches that enhance learner self-efficacy should ultimately lead to improved perceived practice readiness (Pike & O'Donnell, 2010).

Students bring their unique personality traits, past experiences, and accomplishments to their nursing programs (Casey et al., 2011). The majority of studies demonstrated the relationship between simulation, self-efficacy, and practice readiness with BSN students. The literature review demonstrates a need to evaluate the relationship between simulation, self-efficacy, and practice readiness among ADN students. Due to the vastness of knowledge and competencies, nursing students bring to the practice setting, in regard to clinical problem solving, decision-making, team leadership, and cultural aspects of interpersonal relationships, these factors may influence student's self-efficacy, education, and practice readiness gap.

Statement of Research Questions

Based on the literature gap and the guiding theory for this study the effect of utilizing high-fidelity simulation on (1) perceptions of self-efficacy related to functioning in the clinical

setting, and (2) perceptions of perceived practice readiness will be evaluated. The following research questions will examine the two outcome variables.

1. What is the effect of high-fidelity simulation on students' perceived self-efficacy in the clinical setting?

2. What is the effect of high-fidelity simulation on students' perceived practice readiness?

Summary

Simulation has been used in a multitude of educational settings for decades. Simulation in healthcare enables students to practice in an environment that is safe, professional, and inter-professional in nature. The literature review demonstrates a positive relationship between high-fidelity simulation, self-efficacy, and perceived practice readiness among nursing students. The review did show a gap in the literature with regard to the use of simulation and the development of self-efficacy and practice readiness in ADN students. Chapter 3 will discuss the methodology of the study including participants, sample size, setting, instruments, and analysis plan.

CHAPTER 3:

METHODS

Chapter 3 will discuss the methods of the study. This includes selection of participants, sampling procedures, study setting, data collection instruments, outlines of high-fidelity clinical scenarios, and the analysis plan.

Methods

Quantitative research is the systematic empirical investigation of observable phenomena via statistical, mathematical, or computational techniques (Pallant, 2010). The goal of quantitative research is to develop and employ theories and hypotheses related to the phenomena (Pallant, 2010). This quasi-experimental research used two survey assessment tools to explore the effect of high-fidelity simulation on perceived self-efficacy in clinical settings, and perceived practice readiness among senior level ADN students. The study tested the directional hypothesis that utilizing high-fidelity simulation within nursing curriculums increases the two-outcome measure among senior level ADN students' (1) perceived self-efficacy and (2) perceived practice readiness.

After obtaining IRB permission from The University of Alabama and the community college in the Southeast, students were recruited and informed consent from participants who were senior level ADN students was obtained. Participants completed self-assessment surveys in conjunction with their simulation experiences. The data collection was comprised of two instruments: the Nurse Competence Self-Efficacy Scale (NCSES) and the Casey Fink Readiness for Practice Survey. The NCSES measures students' self-efficacy for nursing competence

Casey Fink Readiness for Practice Survey measures nursing student's self-reported preparedness for practice. NCSES will be administered to students immediately prior and at the culmination of each simulation, while the Casey Fink readiness for Practice Survey will be administered to students prior to the first simulation and at the culmination of each simulation. The high-fidelity simulation is a clinical scenario developed by two colleagues from the community college where the study took place. The two simulation scenarios utilized in the study were conducted two weeks apart, measuring Research Question 1, students' perceived self-efficacy and Research Questions 2, students' perceived practice readiness. Figure 1 demonstrates the flow for Research Question 1, while Figure 2 demonstrates the flow for Research Question 2.

Figure 1

Flow Chart for Research Questions 1 and 2

Clinical Scenarios

The clinical scenarios utilized were faculty developed representing course learning outcomes in the Adult II course in content areas that students are not meeting objectives. The intended course outcomes for the Adult II course is for students to provide safe, quality, evidence-based care, ability to critically think and formulate nursing interventions with complicated patients, improve patient care based on interventions, collaborate with multiple professions to provide care, and utilize ethical guidelines in practice. There were five faculty who teach the Adult II course with simulation delivered by three of the five faculty. Variability among the faculty is expected due to varying interest in simulation, guided debrief and their ability to sustain a decreased level of stress during simulation.

After reviewing the concepts of which students demonstrated weakness, two scenarios were chosen. The spring 2018 Health Educational Systems Incorporate (HESI) tests taken by 130 students noted a weakness in the concepts of inflammation, family dynamics, addiction, palliation, healthcare policy, and safety and infection control. The scenarios were chosen based on prior cohorts exit HESI results, which showed theses as areas needing improvement as well as the NCLEX blueprint. Taking this into consideration, the two scenarios that best represented those concepts were utilized. The first scenario was perinatal loss in which students received the mom post-delivery and care for the disposition of the baby. The purpose of this scenario was for students to deal with death and dying, empathy as well as postmortem care. The second scenario was failure to rescue in which students were caring for a heart failure patient who deteriorated. The purpose of this scenario was for students to identify when a patient has a change in condition and perform code blue.

Sample

Participants were recruited from a group of senior level ADN students at a community college in the Southeast. The sample included students in the Adult II course. All students in the course experienced the simulation, which was a requirement for the class; however, actual enrollment in the study was voluntary and limited to students who had not repeated any nursing course. There were no incentives for student participation. These students were recruited because they were senior level nursing students who were expected to have an understanding of the nursing process and clinical decision-making based upon previous coursework; thus, perceived self-efficacy was expected. Simulation was incorporated into the nursing curriculum each semester; therefore, students had three prior semesters of participating in high-fidelity simulation. In addition, students were about to graduate and therefore perceived practice readiness was a salient concept.

To be representative of the student body of the nursing program students were recruited from all racial and ethnic groups, all ages, and included both males and females. Inclusion criteria were as follows: students who had successfully completed all prior levels of the nursing program and held prior degrees. Exclusion criteria were as follows: students who had retaken any nursing course and data from those who did not participate in both simulations.

The sample size of 60 for this research design was established by means of G*Power (Faul, Erdfelder, Buchner, & Lang, 2009). A *t* test was utilized to measure the NCSES pre- and post-test, to compare the outcome variable. An Analysis of Variance (ANOVA), repeated measures within-between interactions were utilized to access outcome variables. The default settings of G*Power were as follows: Significance Level ($p < .05$); effect size ($R^2 = 0.25$); number of measurements (3); non-sphericity ($\varepsilon = 1.00$); critical *F* measure (3.105); degrees of

freedom (2, 84); power (0.95). These parameters calculated a minimum sample size of 44. The possible number of participants per semester group is 130. However, because participation was voluntary the sample size was smaller.

Setting

The setting will be in the simulation laboratory at a public community college in the Southeastern US. The simulation lab houses the high-fidelity mannequin equipment and is divided into sections to mimic private hospital rooms.

Ethical Considerations

Prior to data collection, permission to conduct research among a sample of volunteer ADN students was obtained from the IRB of The University of Alabama and the community college. The detailed informed consent form was made available to students online prior to beginning the survey and included information about the study. Students had the opportunity to ask questions during the recruitment session and before clicking the "I agree" option needed to move forward to the actual surveys (Appendix A). The researcher was a member of the nursing faculty at the community college but was not teaching participants. The data were collected online to allow the identities of participants to remain anonymous. The researcher obtained informed consent and provided the NCSES (Appendix B) prior to and at the culmination of both simulations, while the Casey Fink Readiness for Practice Survey (Appendix C) was administered via an online portal at the beginning of the first simulation and at the culmination of both high-fidelity simulation scenarios.

Data Collection

Instruments

The data collection was compromised of two instruments. Data were collected online utilizing NCSES (Appendix B), and the Casey Fink Readiness for Practice Survey (Appendix C). Students completed the NCSES survey immediately prior to the high-fidelity simulation and directly after each simulation, while Casey Fink Readiness for Practice survey was completed prior to simulation, time one and directly after each simulation. Higher scores on the instruments indicated higher perceived self-efficacy and greater perceived readiness for practice, respectively. One study evaluating high-fidelity simulation and its effect on self-efficacy in pre-licensure BSN students revealed a mean score of 4.08 pre simulation on the NCSES, a mean of 4.44 post simulation (Dunn, Osborne, & Link, (2014). A study completed by Casey Fink (2011), evaluating perceived practice readiness among BSN students enrolled in a senior practicum course, revealed an average perceived practice-readiness score of 2.9.

Nurse Competence Self-Efficacy Scale

The NCSES (Appendix B) evaluates senior level baccalaureate nursing students' self-efficacy related to their competence to begin clinical practice (Kennedy, 2013). The NCSES is a 32-item instrument with Likert-type response options (Kennedy, 2013). Total scores range from 1-9, with 9 indicating the highest possible score (Kennedy, 2013). The score on the scale reflects the strength of an individual's self-efficacy related to their competence to begin clinical practice. The higher the score, the greater the individual's sense of perceived self-efficacy.

The reliability and validity of the NCSES was tested using Cronbach's alpha, which was .919 to .947 (Kennedy, 2013). The alpha is based on a correlation matrix and is interpreted similarly to other measures of reliability; an alpha should be positive and greater than .70 to

provide good support for internal consistency reliability (Morgan, Leech, Gloeckner, & Barrett, 2011). The test versus retest stability reliability Pearson correlation coefficient was .831 (Kennedy, 2013).

Casey Fink Readiness for Practice Survey

The Casey Fink Readiness for Practice Survey (Appendix C) was developed to elicit the voice of nursing students, graduate nurses, and nursing staff to measure perceived readiness for practice (Casey et. al., 2011). The survey tool focuses on students' comfort and confidence, and relational skill performance in the clinical setting including their self-efficacy in managing multiple patients, and students' comfort/confidence in practice skills. The developers granted permission to utilize the survey for this study (Casey et al., 2011).

The survey consisted of 20 items and utilized a Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree), and two open-ended questions. There were three sections with the first section obtaining demographic data. The second section focused on participants' comfort with clinical and relational skill performance. Participants were presented with a list of 20 items asking for a self-report about level of comfort/confidence in performing key nursing activities. The third section consisted of two open-ended questions inquiring about reasons for choosing nursing as a profession and what they think could be done to help them feel more prepared to enter nursing practice (Casey et al., 2011).

The original tool was tested for content validity by expert nursing directors and experienced nurse educators (Casey, Fink, Krugman, & Propst, 2004). The Alpha coefficient of internal reliability of the original instrument was .78 (Casey et al., 2004). This is an expected outcome, indicated the tool was reliable, and provided internal consistency. A later study reported the

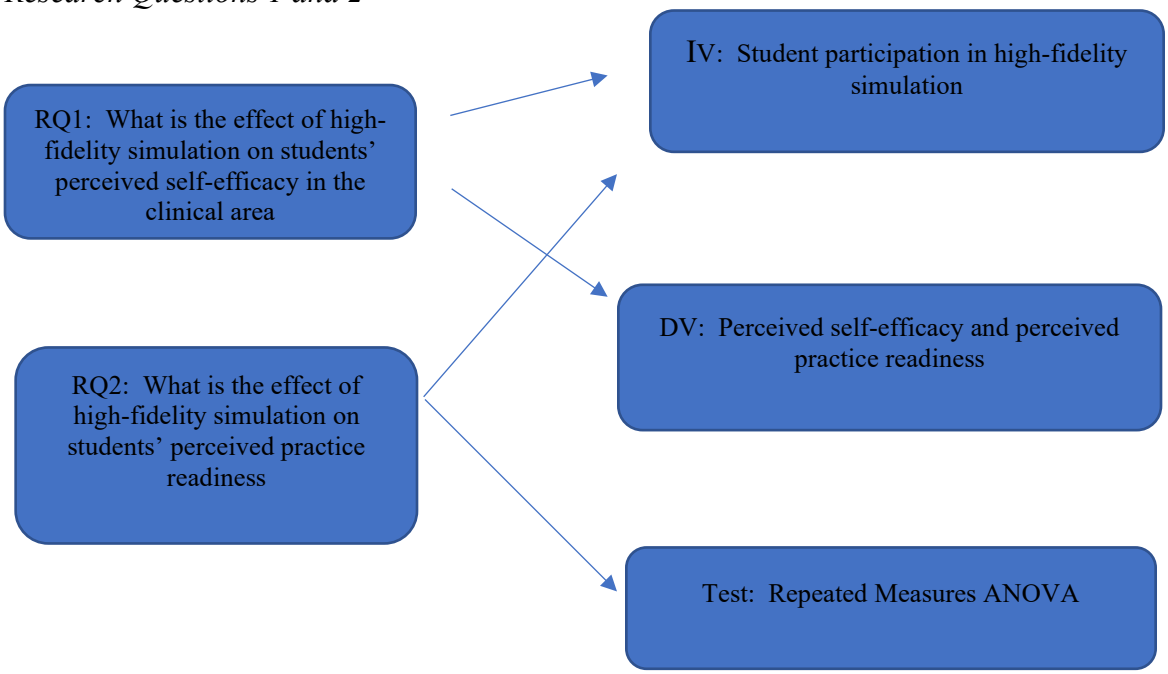
Cronbach alpha as 0.70 overall for the 20 items (Woods et al., 2015). A more current study reported the Cronbach alpha as 0.68 overall (Jamieson et al., 2019).

Data Analysis

Once surveys were collected, data were exported from the Qualtrics collection system to the Statistical Package of the Social Sciences (SPSS)/PC software version 20.0. The descriptive statistics, mean, median, mode, and standard deviation (as applicable), were computed to describe the sample. To answer RQ1 proposed in the study (what is the effect of high-fidelity simulation on students' perceived self-efficacy in the clinical setting), a *t* test determined the effect of high-fidelity simulation on perceived self-efficacy. To answer RQ2 proposed in the study (what is the effect of high-fidelity simulation on student's perceived practice readiness), a repeated measures ANOVA determined the effect of high-fidelity simulation on perceived practice readiness.

Figure 2

Research Questions 1 and 2



Threats to Reliability

An instrument's reliability is the consistency with which it measures the target attribute (Polit & Beck, 2004). The three aspects to assess reliability of an instrument are stability, internal consistency, and equivalence (Polit & Beck, 2004). The stability of the NCSES and The Casey Readiness for Practice survey were measured by the extent to which similar results were obtained on two separate occasions through test-retest reliability. The test-retest method is a relatively easy approach to estimating reliability, but one disadvantage is if the surveys are, administered too far apart, traits do change over time independently of the measure's ability (Polit & Beck, 2004). The students' attitudes, behaviors, knowledge, and physical condition may all be modified by experiences between testing, although as a whole reliability coefficients tend to be higher for short-term retests than for long-term retests due to the changes in the attribute

being measured (Polit & Beck, 2004). The surveys were administered on two separate occasions, two weeks apart and the scores were compared. To evaluate internal consistency the Cronbach alphas of previous studies that utilized the instruments were looked at. Equivalence was addressed by having two or more educators observing the simulation and monitoring the computer room where students completed the surveys.

Factors that may have affected the reliability included homogeneous of the sample including sex and ethnic background. This was addressed by conducting the study at our main campus of Hillsborough Community College, which has a high ethnic diversity, and evaluating as many students as possible who agreed and who met the criteria.

Threats to Validity

Validity is the degree to which an instrument measures what it is said to measure (Polit & Beck, 2004). There are multiple types of internal and external validity.

Internal

Internal validity is the extent to which it is possible to make an inference that the independent variable is causing or influencing the dependent variable as well as whether the study was designed, conducted, and analyzed properly (Polit & Beck, 2004). Threats to internal validity include the selection of participants, participant's history, maturation, test and retest, as well as biases resulting from preexisting differences between students. To address internal validity in the study, the selection of participants was a convenience sample limited to students who were taking the course for the first time. The students participating had never been exposed to the simulation scenario prior and students were educated regarding the study to address bias. Internal validity regarding testing was addressed by not manipulating the instruments so that they

were able to measure students' responses accurately, maturation was addressed by limiting the retest to no more than two weeks apart.

External

External validity refers to the degree in which the experimental results can be generalized across individuals, settings, and time (Polit & Beck, 2004). A study is valid in that the sample is representative of the broader population. Threats to external validity include participants' past experiences, their past work experiences, and prior degrees. This was addressed in the study by incorporating student responses from a multitude of students from different ethnic, gender, and age groups. The participants were limited to students who were currently enrolled in the Adult II course for the first time and who had not participated in the scenario prior. As associate degree students, traditionally they come from a multitude of backgrounds in regard to work or experiences as well as potential degrees. I feel this is what will make this study different than similar studies that focused on the BSN students.

Limitations

The conditions for the study were not ideal, in light of the COVID pandemic of 2020. This caused a significant disturbance with students being preoccupied with matters other than completing a survey; thus, low response rates were seen. In light of the COVID pandemic, students stated they were stressed regarding the simulations as well as outside stressors that prohibited them from having sufficient time to complete surveys. COVID precautions instituted during this time restricted the number of students who could be in the computer room to complete the survey at any given time due to social distancing. Simulation was an on-campus requirement; therefore, students may have had time constraints due to children being home schooled, personal or family illnesses, work, significant others working from home, and other

unknown issues with childcare. Other limitations encountered included students not being cognizant of the importance of timely and accurate data collection and the contribution research makes to the nursing profession.

Conclusion

Nursing students represent a large investment in our future healthcare workforce and require in-depth knowledge, judgement, and skills to be ready to practice safely and effectively in dynamic settings where nurses' roles are continuously changing. High-fidelity simulation is an effective educational strategy that can replicate traditional learning experiences while improving patient safety.

The review of literature supports the assumption that high-fidelity simulation training is a valuable tool for increasing student nurses' self-efficacy related to the clinical setting and may be valuable in creating a perception of practice readiness. Most studies have focused on the BSN student, while very few have focused on the ADN student. Students at community colleges come with varied past experiences, time constraints due to outside commitments, prior degrees, and life experiences. This study assessed whether the ADN students perceived themselves to be practice ready.

Upon graduation, nursing students must be practice ready and have the ability to make sound clinical decisions. The goal of nursing education is to produce nurses who are practice ready and have the self-efficacy to practice nursing in a fast paced, stressful healthcare environment.

The purpose of this study is to evaluate the effect of high-fidelity simulation on senior level student's perceived self-efficacy and perceived practice readiness. A brief description of the tool utilized to collect data was described as well as a detailed description of the participant

sample used in the study, including a demographic section, number of participants invited, actual response rate, and the number of participants who withdrew.

Chapter 4 will present the results obtained from the analysis of data. The statistics utilized to test the hypothesis for each research question will be included as well as a summary of the hypothesis testing. Grids or charts will be utilized to report the findings.

CHAPTER 4:

RESULTS

The purpose of this research study was to assess the effect of high-fidelity simulation on student's perceived self-efficacy and perceived practice readiness. The students' participated in two high-fidelity simulations for this study, perinatal loss (simulation one) and code blue (simulation two). Through survey instrumentation, the researcher investigated students' perceived self-efficacy and perceived practice readiness prior to and after high-fidelity simulation at a community college in the southeastern United States. This chapter presents the results of the study, with each research question stated and the descriptive and/or statistical analysis. A description of the study participants is presented as well as the statistical data analysis of two research questions that will be described and presented. The results are presented in six sections designated as procedures. The research questions sought to answer the following questions.

1. What is the effect of high-fidelity simulation on students' perceived self-efficacy in the clinical setting?

2. What is the effect of high-fidelity simulation on students' perceived practice readiness?

Profile of the Participants

Demographics

The participants for this study were senior level pre-licensure nursing students who were enrolled in the Adult II nursing course at a community college in the southeast United States. Of

the 48 participates, 14 indicated their gender and age. Males accounted for 28.6% of the sample, while female participants accounted for 71.4%. Ages of participants ranged from 22 to 47 years of age.

Analysis of Participant Data

Statistical analyses were carried out using IBM SPSS Statistics 20 software. Upon completion of data collection, statistical data were downloaded from Qualtrics into the SPSS software system.

Results

Several statistical tests were used to analyze data for each RQ. The results are presented per research question.

Research Question 1

What is the effect of high-fidelity simulation on students perceived self-efficacy in the clinical setting? The first research question was addressed by means of two statistical tests. First a paired samples *t* test compared scores before and after each simulation. The NCSES-32 item survey measured perceived self-efficacy at four time periods: T1 (pre-test one), T2 (post-test one), T3 (pre-test two) and T4 (post-test two).

Paired Samples *t* test for Measuring Perceived Self-Efficacy T1 and T2

In an effort to determine the effect of high-fidelity simulation on students' perceived self-efficacy data were analyzed at four time points using paired samples *t* tests to determine if there were significant differences in students' perceived self-efficacy. The variables were students' perceived self-efficacy. The NCSES was a 32- item survey with a 1-9 scale. The descriptive statistics for this test are listed in Table 1.

Table 1

Results of Paired Samples t test NCSES T1 and T2

		NCSES T1	NCSES T2
N	Valid	41	21
	Missing	2	22
Mean		7.6608	8.1563
Median		7.8438	8.2188
Mode		7.84	9.00
Std. Deviation		.94764	.64386
Skewness		-.575	-.471
Std. Error of Skewness		.369	.501

Assumptions for Dichotomous Paired Independent Variables

In this administration, there were two students who did not take the survey at T1 and 22 students who did not take it at T2. Therefore, the assumption of paired variables was not met. However, the paired samples *t* test is a robust test, which indicates that even if not all the assumptions are met the findings can be considered reliable for the sample that was tested (Morgan, Leech, Gloeckner & Barrett, 2018).

Assumption of Normality of the Dependent Variable

The dependent variable was normally distributed within each population. Two histograms, Figures 3 and 4 illustrate the normal curve embedded to reveal a graphic depiction of the data.

Figure 3

Data Paired Samples NCSES T1

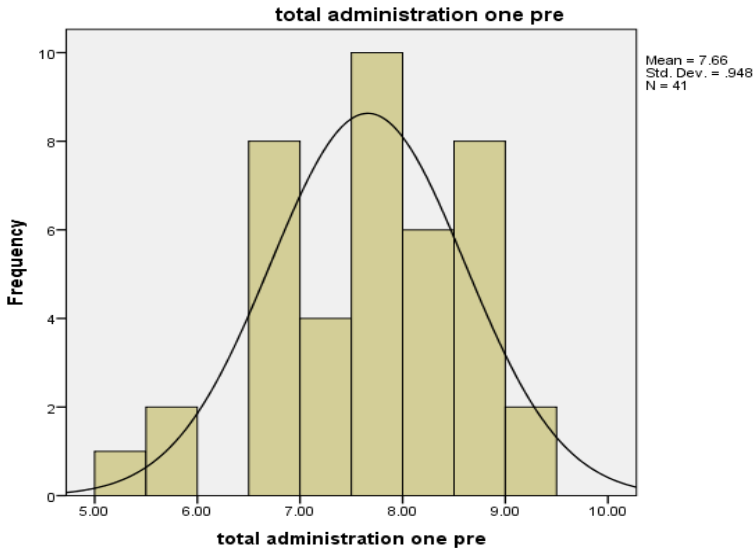
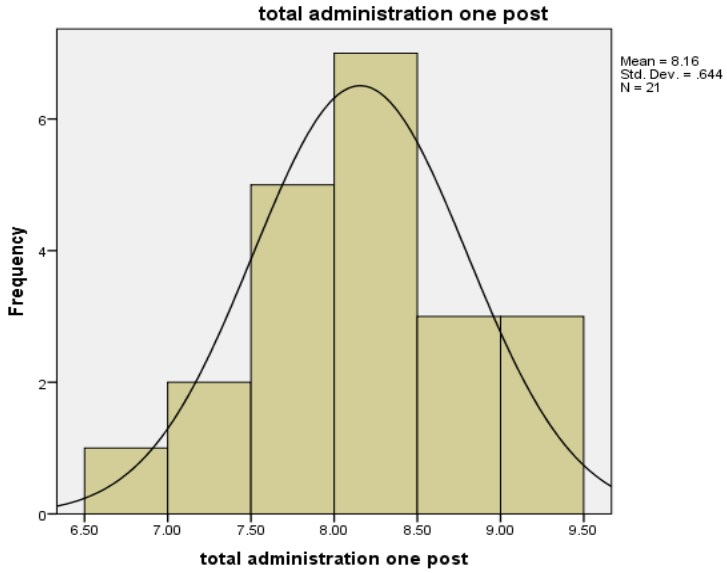


Figure 4

Data Paired Samples NCSES T2



Interpretation of the Test

As shown in Table 2, the NCSES paired samples *t* test comparing T1 and T2 was statistically significant ($p = .037$). The high-fidelity simulation produced a statistically significant positive effect on students' perceived self-efficacy. The Cohens *d* was .73, which indicated a large effect size on students perceived self-efficacy (Cohen, 1988).

Table 2

Results of Paired Samples t test NCSES T1 and T2

Variable	*M*	*SD*	*t*	*df*	*p*	*d*
Administration NCSES Test one and Test two	-.5559	1.0770	-2.250	18	.037	.73
Test one	7.648	.8711				
Test two	8.204	.6598				

Paired Samples *t* test for Measuring Perceived Self-Efficacy T2 and T3

Descriptive Statistics

The mean, median, mode, standard deviation (SD), and skewness of both the test two and the test three are listed in column form in Table 3 for NCSES T2 and T3.

Table 3

Results of Paired Samples t test NCSES T2 and T3

		NCSES T2	NCSES T3
N	Valid	21	21
	Missing	22	22
Mean		8.1563	7.4288
Median		8.2188	7.9100
Mode		9.00	5.31
Std. Deviation		.64386	1.1872
Skewness		-.471	-.483
Std. Error of Skewness		.501	.501

Assumption of Normality of the Dependent Variable

The dependent variable was normally distributed as demonstrated in Figures 5 and 6.

Figure 5

Data Paired Samples NCSES T2

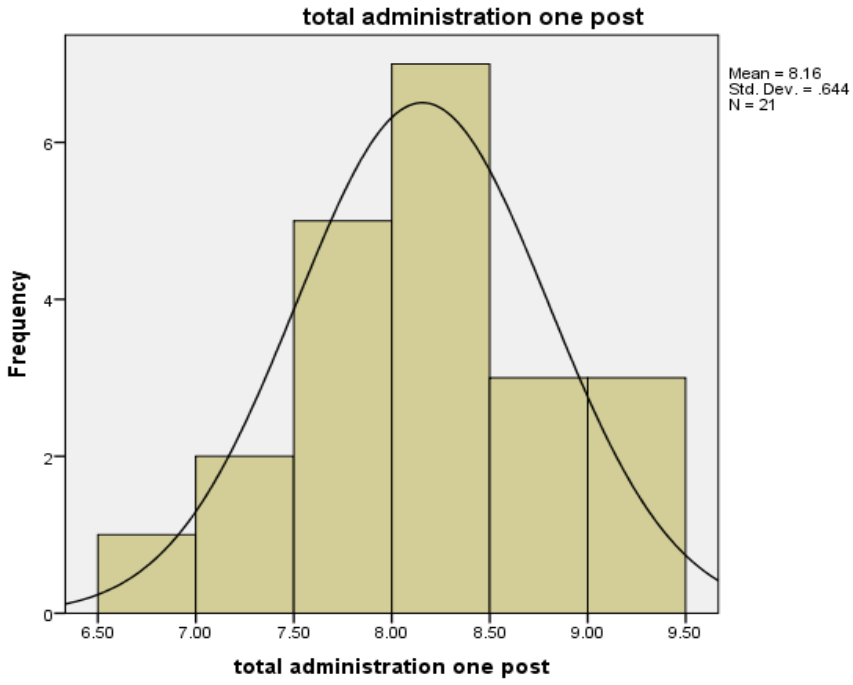
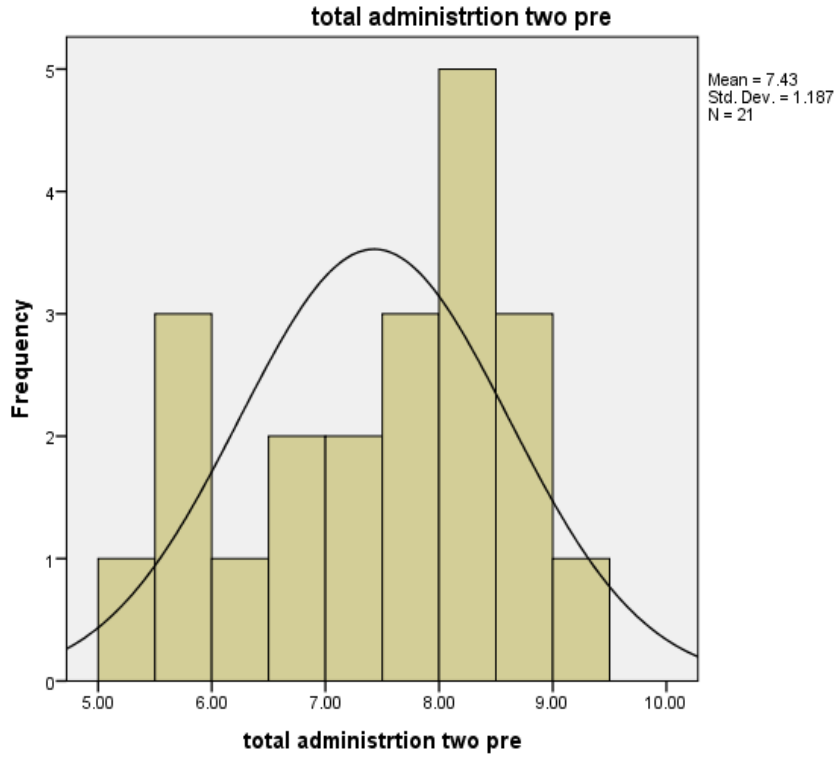


Figure 6

Data Paired Samples NCSES T3



Interpretation of the Test

The NCSES paired samples *t* test comparing the mean of T2 and T3 was statistically significant ($p = .040$). Table 4 illustrates those results. The high-fidelity simulation produced a statistically significant negative effect on participants' perceived self-efficacy. Cohens *d* was .71 indicating a medium to large effect on students perceived self-efficacy (Cohen, 1988).

Table 4

Results of Paired Samples t test NCSES T2 and T3

Variable	*M*	*SD*	*t*	*df*	*p*	*d*
Administration NCSES			2.202	19	.040	.71
Test two	8.114	.6301				
Test three	7.461	1.209				

Paired Samples *t* test for Measuring Perceived Self-Efficacy T3 and T4

Descriptive Statistics

The mean, median, mode, standard deviation (SD), and skewness of both the T3 and T4 are listed in column form in Table 5.

Table 5

Results of Paired Samples t test NCSES T3 and T4

		NCSES T3	NCSES T4
N	Valid	21	10
	Missing	22	33
Mean		7.4288	8.0524
Median		7.9100	8.1719
Mode		5.31	9.00
Std. Deviation		1.1872	.85073
Skewness		-.483	-.087
Std. Error of Skewness		.501	.687

Assumptions for Dichotomous Paired Independent Variables

In this administration, there were 22 students who did not respond to T3 and 33 students who did not respond to T4. Therefore, the assumption of paired variables was not met (Morgan, Leech, Gloeckner, & Barrett, 2018).

Assumption of Normality of the Dependent Variable

The dependent variable was normally distributed as demonstrated in Figures 7 and 8.

Figure 7

Data Paired Samples NCSES T3

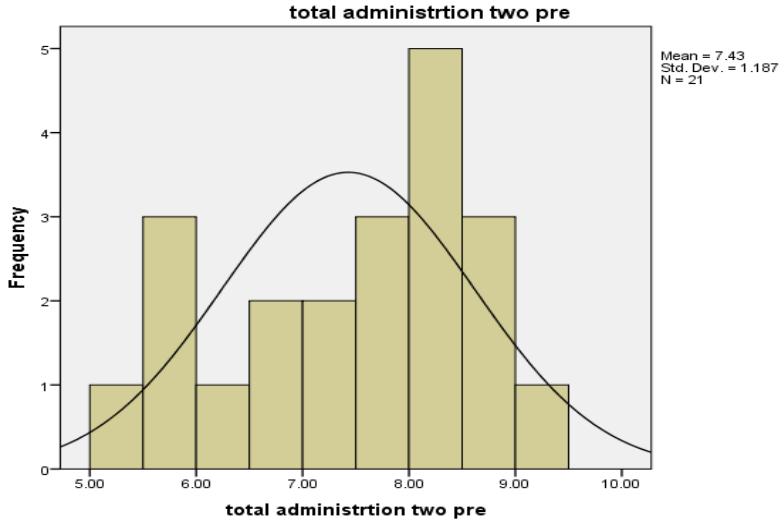
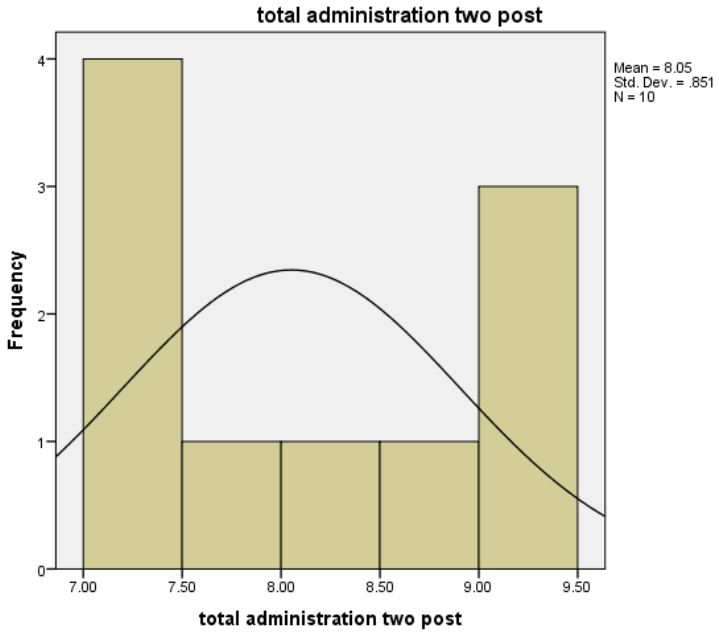


Figure 8

Data Paired Samples NCSES T4



Interpretation of the Test

The NCSES paired samples *t* test comparing the mean of T3 and T4 was statistically significant ($p = .024$). Table 6 illustrates those results. The high-fidelity simulation produced a statistically positive effect on participants perceived self-efficacy. Cohen's *d* was .89 indicating a large effect on students perceived self-efficacy (Cohen, 1988).

Table 6

Results of Paired Samples t test NCSES T3 and T4

Variable	*M*	*SD*	*t*	*df*	*p*	*d*
Administration NCSES			-2.777	8	.024	.89
Test three	7.083	1.299				
Test four	8.062	.9018				

Repeated Measures ANOVA for Measuring Perceived Self-Efficacy

In an effort to determine the effect of high-fidelity simulation on students' perceived self-efficacy RQ 1 was also analyzed using a repeated measures ANOVA to determine if there was a significant difference in students perceived self-efficacy prior to and after high-fidelity simulation. As noted previously the variable was students' perceived self-efficacy. The NCSES measured perceived self-efficacy and the repeated measures ANOVA examined perceived self-efficacy over four time periods: T1 (pre-test one), T2 (post-test one), T3 (pre-test two) and T4 (post-test two). The statistical results of the repeated measures ANOVA were not significant ($p = .201$). Using this approach to examine data, there were no significant differences between any of time points with respect to perceived self-efficacy.

Descriptive Statistics

A descriptive analysis of the data obtained from participants' responses to the items in the NCSES was conducted. The mean, median, mode, and standard deviation (SD) of T1 and T3 pre-test, T2 and T4 post-test are illustrated in column form in Table 7.

Table 7

Statistics Repeated Measures ANOVA for NCSES T 1-4

Statistics					
		T1: Pretest One Total for all four groups	T2: Posttest One Total for all four groups	T3: Pretest Two Total for all four groups	T4: Posttest Two Total for all four groups
N	Valid	38	21	21	10
	Missing	1	18	18	29
Mean		7.6036	8.1563	7.4288	8.0524
Median		7.7656	8.2188	7.9100	8.1719
Mode		7.84	9.00	5.31[a]	9.00
Std. Deviation		.96012	.64386	1.18721	.85073
Skewness		-.460	-.471	-.483	-.087
Std. Error of Skewness		.383	.501	.501	.687

a. Multiple modes exist. The smallest value is shown.

Assumption of Normality of the Dependent Variable

The dependent variable is normally distributed as demonstrated in figures 9, 10, 11, and 12 within each population.

Figure 9

Data Repeated Measures ANOVA for NCSES T1 Results for All 4 Groups

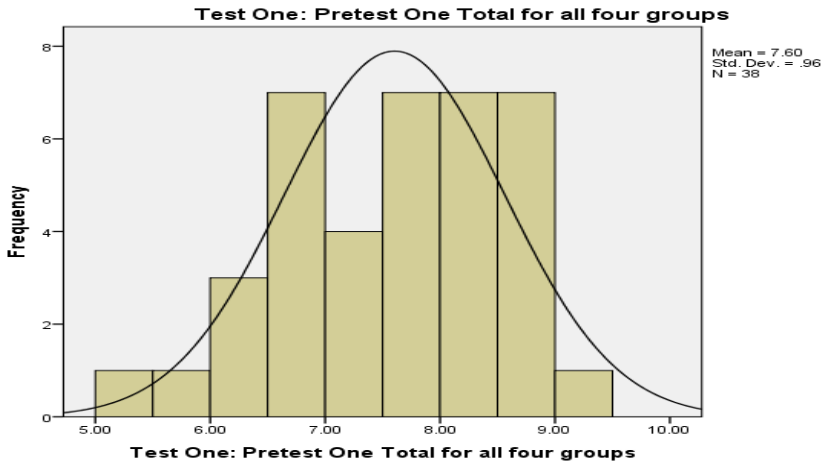


Figure 10

Data Repeated Measures ANOVA for NCSES T2 Results for All 4 Groups

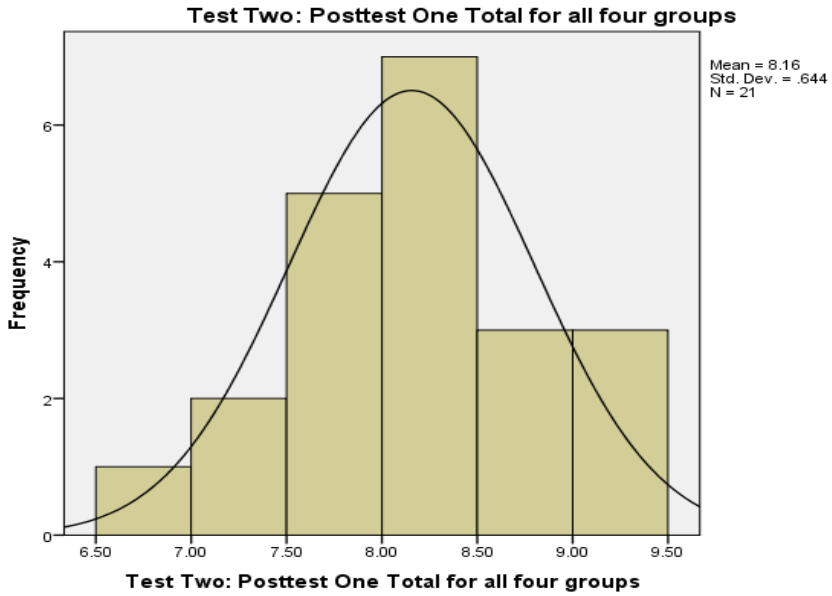


Figure 11

Data Repeated Measures ANOVA for NCSES T3 Results for All 4 Groups

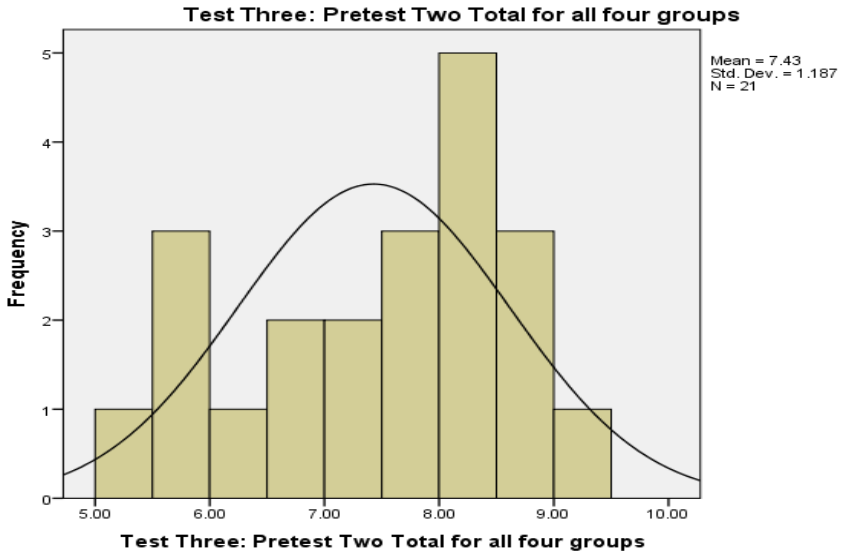
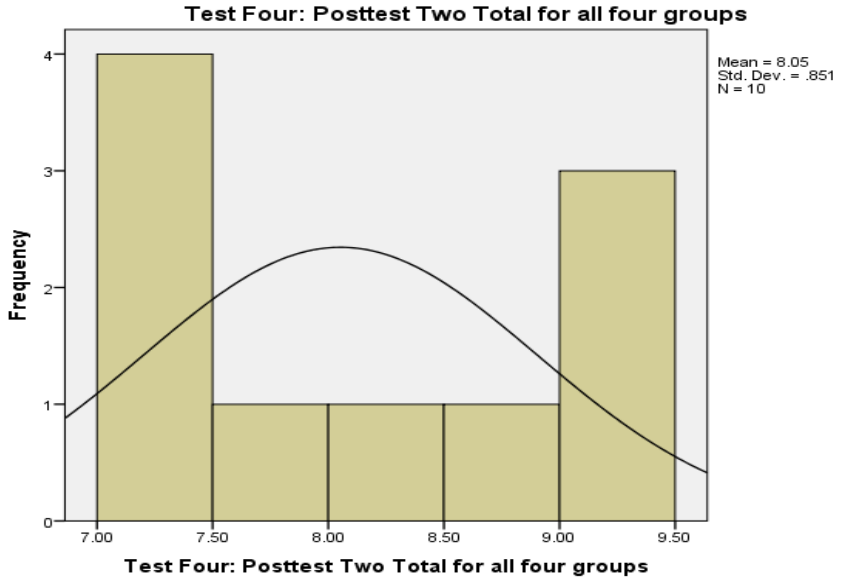


Figure 12

Data Repeated Measures ANOVA for NCSES T4 Results for All 4 Groups



For Assumption of Normality NCSES for T1, T2, T3, and T4

Table 8 illustrates that the assumption of normality was met for all four time periods in which students' perceived self-efficacy was measured.

Table 8

Assumption of Normality for NCSES for All 4 Groups

Variable	Skewness	Decision
T1	-.460	Assumption met
T2	-.471	Assumption met
T3	-.483	Assumption met
T4	-.087	Assumption met

Assumption of Homogeneity of Variances

In order to test the assumption of homogeneity of variances, the repeated measures ANOVA was conducted. Both Epsilons were below.750. Therefore, the Greenhouse-Geyser coefficient was utilized (Leech, Barrett, & Morgan, 2014).

Results of the Repeated Measures ANOVA

The results of the repeated measures ANOVA, as presented in Table 9, illustrates there were no statistically significant differences between any of the time periods with respect to perceived self-efficacy (p = .201).

Table 9

Results of Repeated Measures ANOVA for NCSES for All 4 Groups

Variable	*M*	*SD*	*F*	*Df*	*P*	*d*
T1	7.48	.99	1.905	1.4169	.201	N/A
T2	7.95	.75				
T3	6.97	31.34				
T4	8.19	.88				

Research Question 2

What is the effect of high-fidelity simulation on students' perceived practice readiness in the clinical setting?

Paired Sample *t* test for Practice Readiness: T1 Paired with T2

In an effort to determine the effect of high-fidelity simulation on students' perceived practice readiness, Research Question 2 was analyzed using a paired samples *t* test to determine if there was a significant difference in students' perceived practice readiness between T1 and T2. The instrument used to measure students' perceived practice readiness was the Casey Fink Readiness for Practice survey, a 20- item survey with a 1-4-point scale. The statistical results of the paired samples *t* test were statistically significant ($p = .040$) and the effect size was large ($d = .93$).

Descriptive Statistics

A descriptive analysis of the data obtained from participants' responses to the items in the Casey Fink Survey was conducted. The mean, median, mode, standard deviation (SD) and range of T1 and T2 are illustrated in column form in Table 10.

Table 10

Results of Paired Samples t test Casey Fink Readiness for Practice Survey

		Casey Fink T1	Casey Fink T2
N	Valid	44	22
	Missing	0	22
Mean		1.8750	1.6341
Median		1.9000	1.7500
Std. Deviation		.34693	.39713
Skewness		-.536	-.272
Std. Error of Skewness		.357	.491
Range		1.35	1.25

Assumption of Dichotomous Paired Independent Variables

In this administration, 22 students did not respond to the post-test. Therefore, the assumption of paired variables was not met.

Assumption of Normality of the Dependent Variable

The dependent variable is normally distributed as demonstrated in Figures 13 and 14 within each population.

Figure 13

Data Paired Samples t test for Casey Fink Readiness for Practice Survey T1

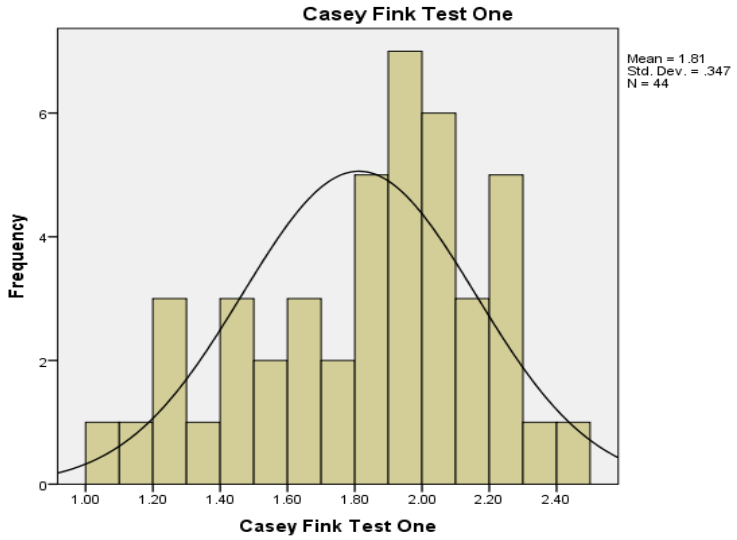
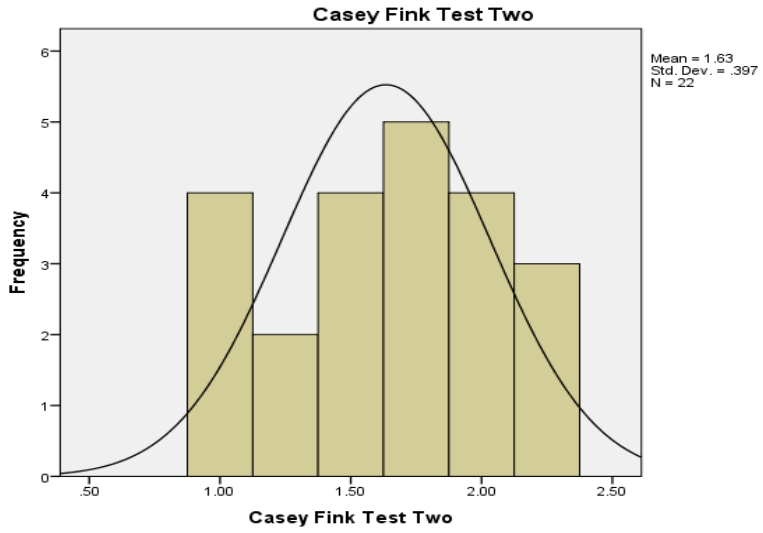


Figure 14

Data Paired Samples t test for Casey Fink Readiness for Practice Survey T2



Results of the Paired Sample t Test

The paired samples *t* test found a statistically significant as presented in Table 11, with the difference between T1 and T2 ($p = .040$). The high-fidelity simulation produced a positive effect in participants perceived practice-readiness. The Cohen *d* was .93, indicating a large effect size.

Table 11

Results of Paired Samples t test Casey Fink Readiness for Practice Survey T1, T2, T3

	M	*SD*	*t*	*df*	*p*	*d*
Administration Casey Fink Survey						.93
T1	1.88	.276				
T2	1.63	.397				
T3			2.190	21	.040	

Tables 12 and 13 illustrate a significant difference between T1 and T2 with respect to perceived practice readiness ($p = .040$). Inspection of the two times indicated that perceived practice readiness decreased from T1 to T2. The difference between the mean was .25 on a 4-point scale. The effect size was considered to be large ($d = .93$), according to Cohen's (1988) guidelines for effect sizes in the human sciences.

Table 12

Statistics Paired Samples t test Casey Fink Readiness for Practice Survey T1 and T2

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Casey Fink T1	1.8750	22	.27635	.05892
	Casey Fink T2	1.6341	22	.39713	.08467

Table 13

Statistics Paired Samples t test Casey Fink Readiness for Practice Survey T1 and T2

Paired Samples Test									
					95% Confidence Internal of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Casey Fink T1	.24091	.51585	.10998	.01219	.46963	2.190	21	.040
	Casey Fink T2								

Paired Sample *t* test for Practice Readiness: T1 Paired with T3

In an effort to determine the effect of high-fidelity simulation on students' perceived practice readiness, Research Question 2 was analyzed using a paired samples *t* test to determine if there was a significant difference in students' perceived practice readiness between test one and test three. The variables were students' perceived practice readiness T1 pre-test and T3 post-test. The instrument used to measure students' perceived practice readiness was the Casey Fink Readiness for Practice Survey, a 20-item survey with a 4-point scale. The statistical test run was

the paired sample *t* test, one paired samples *t* test prior to perinatal loss T1, (simulation one) and T3, directly after code blue (simulation two). The statistical results of the paired samples *t* test was not statistically significant ($p = .208$).

Descriptive Statistics

A descriptive analysis of the data obtained from participants' responses to the items in the Casey Fink Survey was conducted. The mean, median, mode, standard deviation (SD) and range of T1 and T3 are illustrated in column form in Table 14.

Table 14

Statistics for Paired Samples t test Casey Fink Readiness for Practice Survey T1 and T3

		Casey Fink T1	Casey Fink T3
N	*Valid*	44	14
	Missing	0	30
Mean		1.8125	1.7500
Median		1.9000	1.8000
Std. Deviation		.34693	.32933
Skewness		-.536	-.398
Std. Error of Skewness		.357	.597
Range		1.35	1.05

Assumption of Dichotomous Paired Independent Variables

In this administration, 30 students did not complete T3. Therefore, the assumption of paired variables was not met.

Assumption of Normality of the Dependent Variable

The dependent variable was normally distributed, as demonstrated in Figures 15 and 16, within each population.

Figure 15

Data Paired Samples t test for Casey Fink Readiness for Practice Survey T1

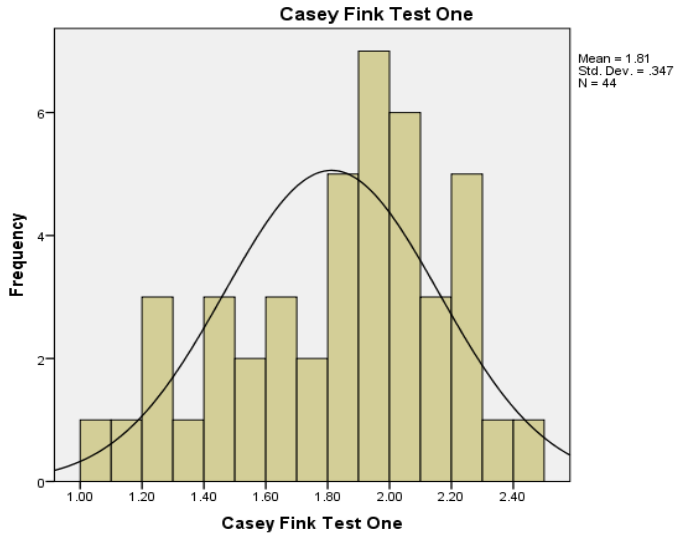
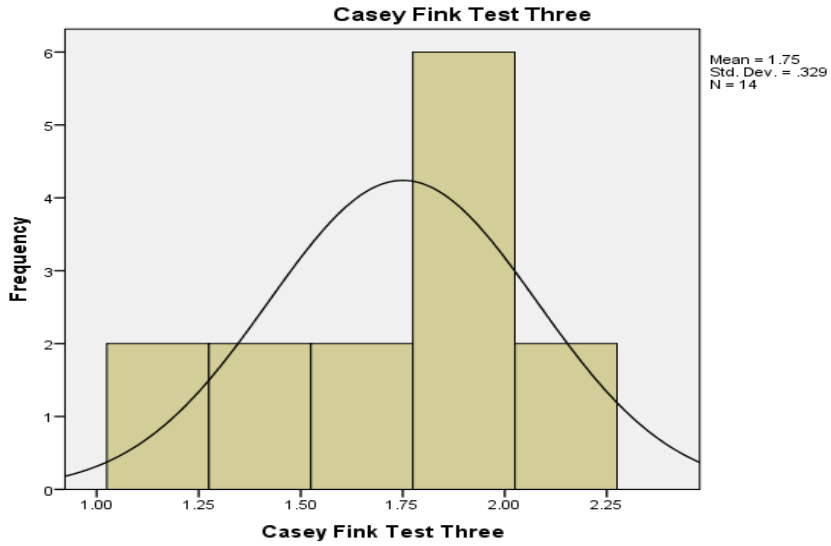


Figure 16

Data Paired Samples t test for Casey Fink Readiness for Practice Survey T3



Results of the Test

The results of the paired sample *t* test did not find a significant difference between T1 and T3 as presented in Table 15 and illustrates there is not a statistically significant difference

between T1 and T3 with respect to perceived self-efficacy (p = .208). Therefore, it was concluded the intervention was not effective.

Table 15

Results of Paired Samples t test Casey Fink Readiness for Practice Survey T1 and T3

	M	*SD*	*t*	*df*	*p*	*d*
Administration Casey Fink Survey						N/A
T1	1.88	.347				
T3	1.75	.329				
T1/T3			1.324	13	.208	

Tables 16 and 17 illustrate there is not a significant difference between T1 and T3 with respect to perceived practice readiness (p = .208). Inspection of the two times indicated that perceived practice readiness decreased from T1 to T3. The difference between the mean was .13 on a 4-point scale.

Table 16

Statistics for Paired Samples t test Casey Fink Readiness for Practice Survey T1 and T3

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Casey Fink T1	1.8821	14	.22922	.06126
	Casey Fink T3	1.7500	14	.32933	.08802

Table 17

Statistics for Paired Samples t test Casey Fink Readiness for Practice Survey T1 and T3

Paired Samples Test									
					95% Confidence Internal of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Casey Fink T1	.13214	.37345	.09981	-.08348	.34777.	1.324	13	.208
	Casey Fink T3								

Paired Sample *t* test for Practice Readiness: T2 Paired with T3

In an effort to determine the effect of high-fidelity simulation on students' perceived practice readiness, RQ2 was analyzed using a paired samples *t* test to determine if there was a significant difference in students' perceived practice readiness between T2 and T3. The instrument used to measure the variable of students' perceived practice readiness was the Casey Fink Readiness for Practice survey, a 20-item survey with a 4-point scale. The statistical test was the paired sample *t* test comparing T2 and T3. The statistical results of the paired samples *t* test were not statistically significant ($p = .594$).

Descriptive Statistics

A descriptive analysis of the data obtained from participants' responses to the items in the Casey Fink Survey was conducted. The mean, median, mode, standard deviation (SD), and range of T2 and T3 are illustrated in column form in Table 18.

Table 18

Results of Paired Samples t test Casey Fink Readiness for Practice Survey T2 and T3

		Casey Fink T2	Casey Fink T3
N	Valid	22	14
	Missing	22	30
Mean		1.6341	1.7500
Median		1.7500	1.8000
Std. Deviation		.39713	.32933
Skewness		-.272	-.398
Std. Error of Skewness		.491	.597
Range		1.25	1.05

Assumption of Dichotomous Paired Independent Variables

In this administration, 22 students did not complete T2, and 30 students did not complete T3. Therefore, the assumption of paired variables was not met.

Assumption of Normality of the Dependent Variable

The dependent variable was normally distributed, as demonstrated in Figures 17 and 18, within each population

Figure 17

Data Paired Samples t test for Casey Fink Readiness for Practice Survey T2

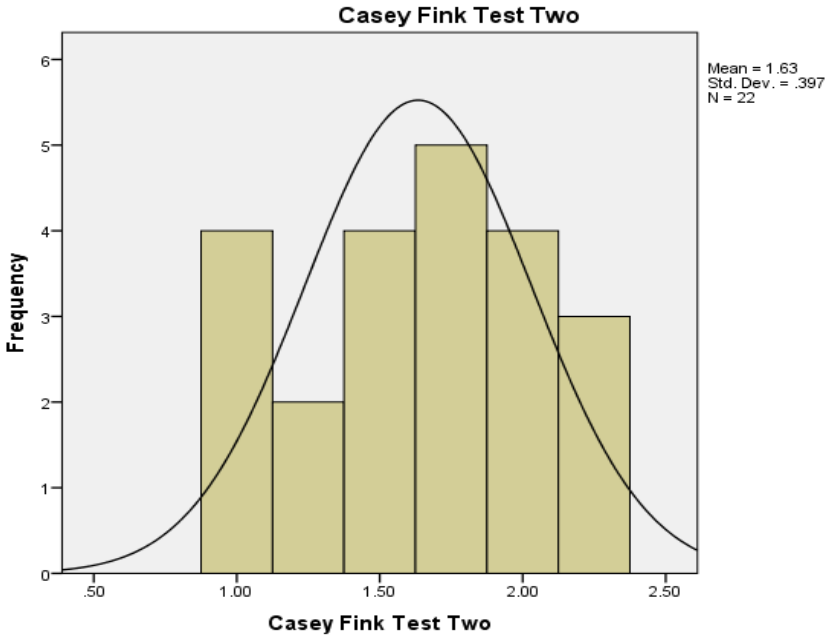
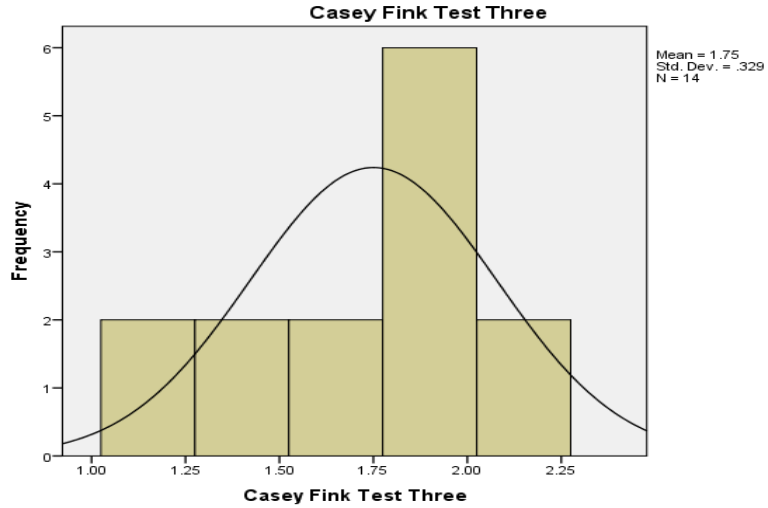


Figure 18

Data Paired Samples t test for Casey Fink Readiness for Practice Survey T3



Results of the Test

The paired sample *t* test analysis did not find a significant difference between T2 and T3 as presented in Table 19, illustrating that there was not a statistically significant difference between T2 and T3 with respect to perceived self-efficacy ($p = .594$). Therefore, it was concluded the intervention was not effective.

Table 19

Results of Paired Samples t test Casey Fink Readiness for Practice Survey T2 and T3

	M	*SD*	*t*	*df*	*p*	*d*
Administration Casey Fink Survey						N/A
T2	1.68	.352				
T3	1.75	.329				
T2/T3			-.547	13	.594	

Tables 20 and 21 illustrate there was not a significant difference between T2 and T3 with respect to perceived practice readiness ($p = .594$). Inspection of the two times indicated that perceived practice readiness decreased from T2 to T3. The difference between the mean was .075 on a 4-point scale.

Table 20

Statistics for Paired Samples t test Casey Fink Readiness for Practice Survey T2 and T3

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Casey Fink T2	1.6750	14	.35233	.09416
	Casey Fink T3	1.7500	14	.32933	.08802

Table 21

Statistics for Paired Samples t test Casey Fink Readiness for Practice Survey T2 and T3

Paired Samples Test									
Paired Differences									
					95% Confidence Internal of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Casey Fink T2	.07500	.51319	.13716	-.37131	.22131	-.547	13	.594
	Casey Fink T3								

Repeated Measures ANOVA for Measuring Perceived Practice Readiness

In an effort to determine the effect of high-fidelity simulation on students' perceived practice readiness, RQ2 was analyzed using a repeated measures ANOVA to determine if there was a significant difference in students' perceived practice readiness prior and after high-fidelity simulation. The instrument utilized to measure the variable of students' perceived practice

readiness was the Casey Fink Readiness for Practice Survey, a 20-item survey with a 4-point scale. A repeated measures ANOVA was conducted to measure perceived practice readiness over three time periods: T1 (pre-test one), T2 (post-test one), and T3 (post-test two). The statistical results of the repeated measures ANOVA were not significant ($p = .202$). There were no significant differences among any of the time periods with respect to perceived practice readiness.

Descriptive Statistics

A descriptive analysis of the data obtained from participants' responses to the items in the Casey Fink Survey was conducted. The mean, median, mode, standard deviation (SD), and range of T1, T2, and T3 are illustrated in column form in Table 22.

Table 22

Results of Repeated Measures ANOVA Casey Fink Readiness for Practice Survey T1, T2, and T3

Statistics				
		Casey Fink T1	Casey Fink T2	Casey Fink T3
N	Valid	44	22	14
	Missing	0	22	30
Mean		1.8125	1.6341	1.7500
Median		1.9000	1.7500	1.8000
Std. Deviation		.34693	.39713	.32933
Skewness		-.536	-.272	-.398
Std. Error of Skewness		.357	.491	.597
Range		1.35	1.25	1.05

Assumption of Normality of the Dependent Variable

The dependent variable was normally distributed, as demonstrated in Figures 19, 20, and 21, within each population.

Figure 19

Data Repeated Measures ANOVA for Casey Fink Readiness for Practice Survey T1

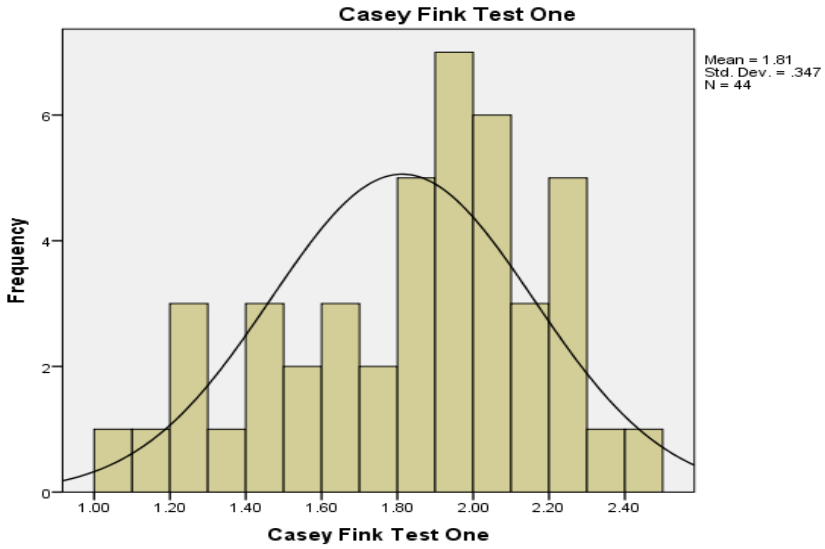


Figure 20

Data Repeated Measures ANOVA for Casey Fink Readiness for Practice Survey T2

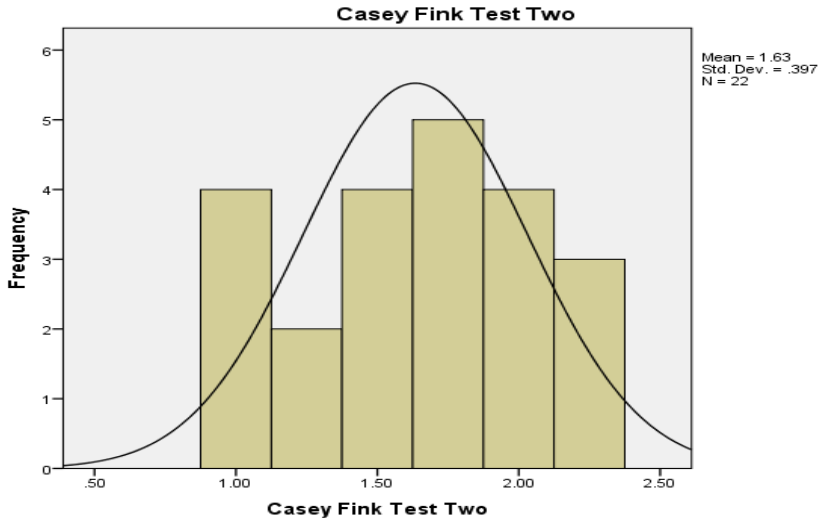


Figure 21

Data Repeated Measures ANOVA for Casey Fink Readiness for Practice Survey T3

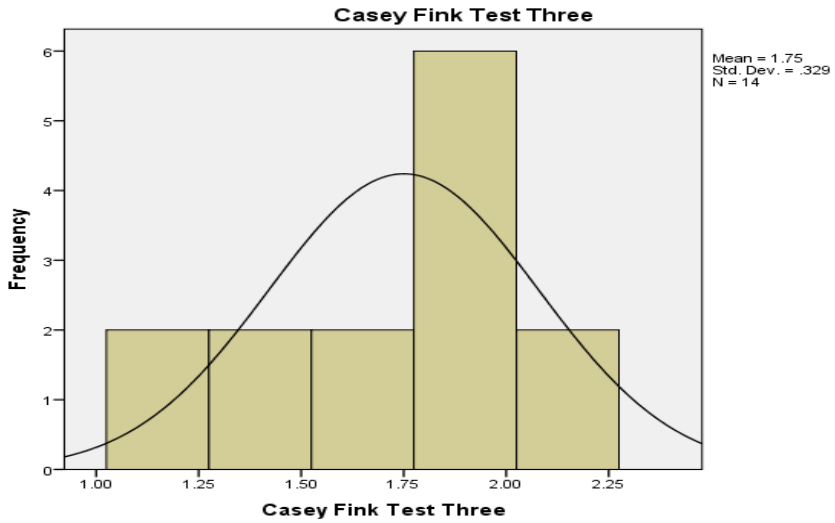


Table 23 illustrates the assumption of normality was met for all four time periods in which students' perceived practice readiness was measured by the survey administered.

Table 23

Assumption of Normality Casey Fink Readiness for Practice All T1, T2, and T3

Variable	Skewness	Decision
T1	-.536	Assumption met
T2	-.272	Assumption met
T3	-.398	Assumption met

Assumption of Homogeneity of Variances

In order to test the homogeneity of variances the repeated measures ANOVA was conducted. When the epsilons are greater than .75 the Huynh-Feldt coefficient is employed to test for sphericity (Leech et al., 2014).

Results of the Repeated Measures ANOVA

The results of the repeated measures ANOVA, as illustrated in Table 24, indicated that there were no statistically significant differences between any time periods with respect to perceived practice readiness (p = .202).

Table 24

Results of Repeated Measures ANOVA Casey Fink Readiness for Practice Survey for T1, T2, and T3

Variable	M	SD	F	Df	P	d
T1	1.8821	.2292	1.717	1.845	.202	N/A
T2	1.6750	.35233				
T3	1.7500	.32933				

Summary

The research questions answered during this study were as follows: (1) what are the effects of high-fidelity simulation on students' perceived self-efficacy and (2) what are the effects of high-fidelity simulation on students' perceived practice readiness? Overall, students perceived self-efficacy increased, although not consistently with the intervention of the high-fidelity simulation. In regard to students perceived practice readiness, although not consistently, students perceived practice readiness did increase also after the intervention of high-fidelity simulation. Chapter 5 will discuss the results, conclusions, and recommendations as well as the rationale as to why the results were not consistent.

CHAPTER 5

RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

Simulation is an educational strategy that is based on experimental learning, engaging learners in realistic learning environments where they can practice skills and care for patients in a safe environment. Nursing education today is influenced by rapid changes in health care technology, social, cultural, technological, economic forces, and complexity in health care demand (Saied, 2017). Nursing students must be prepared to enter the practice environment ready to competently care for patients (Casey, Fink, Jaynes, Campbell, Cook, & Wilson, 2011). Several advantages regarding using simulation in teaching undergraduate nursing students include increasing the nursing student's ability to manage a simulated situation when it actually occurs in real life and to help the students gain and improve their skills in a safe, non-threatening environment (Woods et al., 2015). According to research over the past two decades, using simulation as a teaching strategy increases learner's satisfaction with learning (Alfes, 2011; Bhum et al., 2010; Mould et al., 2011; Omar, 2016; Prescott & Garside, 2009) and improves students' critical thinking skills, knowledge level, and clinical performance (Bearnson & Wiker 2005; Liaw et al, 2011; Omar, 2016; Sullivan-Mann, 2009). This chapter provides a study overview, summary of findings and results, limitations of the study, and recommendations.

Study Overview

The primary purpose of this study was to examine the effect of high-fidelity simulation on senior nursing students' perceived self-efficacy and perceived practice readiness.

Self-efficacy has an important implication for the nurses to be confident in their ability to take action when caring for their patients. Graduate nurses are expected to be ready to practice upon graduation as they enter the nursing profession and care for patients. According to the research, upon graduation new nurses find they do not have either the expertise or confidence they need to feel practice ready (Casey, Fink, Jaynes, Campbell, & Cook, 2011; Jung et al., 2017). Self-efficacy is a person's perception of capability, influencing events, and enabling individuals to take a hand in shaping the course their lives take, while giving them the ability to control that life (Bandura, 1995). This study emerged due to an increased use of high-fidelity simulation within nursing education due to the lack of hospital based clinical sites.

A review of literature revealed simulation has been utilized in many professions outside of healthcare and within healthcare including respiratory therapy, social work, and nursing education. The review of literature also revealed gaps in the literature with regard to the influence of high-fidelity simulation and to student nurses perceived self-efficacy and perceived practice readiness yet has been studied primarily among baccalaureate nursing students. Studies utilizing baccalaureate nursing students reported increased self-efficacy after the use of high-fidelity simulation (Aggar et al., 2018; Casey et al., 2011; Hsin-Hsin, 2016; Kameg, 2010; Lasater, 2007; Woods et al., 2015). Although the effective use of simulation at all levels of nursing education creates an innovative strategy to supplement clinical experiences, little research has evaluated the effect of high-fidelity simulation among ADN students (Curl et al., 2016).

The ADN student is considered a non-traditional learner, high-risk student who tends to be enrolled part-time, works full-time, typically older, and tends to be financially independent while supporting dependents (Diamond, 2016; Martin et al., 2014). The ADN student also comes

with prior work experience as well as having previous real-life knowledge and skills. The review of literature revealed a study that evaluated cognitive skills and self-confidence levels of ADN students who participated in traditional didactic lecture verses those who participated in simulation (Curl et al., 2016). Findings revealed students' self-confidence and cognitive scores were significantly higher in those who participated in simulation leading to overall better confidence in students' perceived ability to care for patients. However, with most studies conducted among BSN students as participants, acknowledging the link between high-fidelity simulation and self-efficacy related health teaching, structural empowerment, and clinical reasoning among ADN students is lacking (Babenko-Mould et al., 2014; Goldenberg et al., 2005; Kameg et al., 2010; Lin, 2016; Roh & Lim, 2016; Tuttle, 2009; Zhu & Wu, 2015).

Summary of Findings

The convenience sample included 56 senior level associate degree nursing students. All students participated in two high-fidelity simulations over a two-week period. This study was guided by two research questions. First, what is the effect of high-fidelity simulation on students' perceived self-efficacy in the clinical setting? Second, what is the effect of high-fidelity simulation on students' perceived practice readiness?

The first research question addressed the effect of high-fidelity simulation on students' perceived self-efficacy prior to and directly after each high-fidelity simulation. Findings from the *t* test demonstrated a positive effect on students" perceived self-efficacy after each high-fidelity simulation. However, the repeated measures ANOVA did not find an overall effect on students' perceived self-efficacy over the course of the four time periods.

The second research question addressed the effect of high-fidelity simulation on students' perceived practice-readiness prior to (T1) and directly after (T2) the first high-fidelity simulation

and again after the second simulation (T3). A paired samples *t* test utilizing data from the Casey Fink Readiness for Practice Survey compared scores of perceived practice readiness related to those times. The findings demonstrated that there was an increase in between time one and time two, but not at any other compared times.

The second research question also addressed the effect of high-fidelity simulation on students' perceived practice readiness at the three times by utilizing a repeated measures ANOVA. This did not find a change in students' perceived practice readiness.

Discussion of Results

The first research question addressed perceived self-efficacy in senior level ADN nursing students. This outcome demonstrated an effect in regard to high-fidelity simulation and increasing students perceived self-efficacy.

The results of this study support the position that high-fidelity simulation increased nursing students perceived self-efficacy, but that this was not consistent over time. Zakar et al. (2017) determined the value of simulation and its impact on student learning outcomes such as self-confidence and practice readiness. A study by Curl et al. (2016) noted similar findings in students' self-confidence and cognitive scores of those who utilized simulation were significantly higher leading to overall better confidence in students' ability to care for the patient. The current study, evaluating the effects of high fidelity simulation on students perceived self-efficacy and perceived practice readiness of ADN students, supports studies examining the effect of simulation on the self-efficacy and practice readiness of BSN students' and newly graduated nurses demonstrate similar findings in that high-fidelity simulation influenced students' perceived self-efficacy and perceived practice readiness (Aggar et al., 2018; Casey et al., 2011; Hsin-Hsin, 2016; Kameg et al., 2010; Lasater, 2007; Woods et al., 2015).

Unfortunately, the current study did not find a steady increase in perceived self-efficacy over the entire study. Even though data demonstrated a large effect size from T1 to T2 (pre- and post-simulation one), there was a decrease in scores from T2 to T3 (the period of two weeks between the simulations). There was also a large effect size from T3 to T4 (pre- and post-simulation two). Although the repeated measures ANOVA was not statistically significant, the increase in perceived self-efficacy scores directly after simulation (when taken alone) demonstrated that the intervention had at least a temporary positive effect on nursing students' perceived self-efficacy.

One explanation for the outcome of decreased perceived self-efficacy scores between T2 and T3 was that simulation two (code blue) may have been seen as a higher stake simulation; therefore, students' anxiety may have been higher coming into the second simulation. Another explanation is the second simulation was completed two weeks after simulation one (perinatal loss) and students may not have felt they mastered the learning curve from simulation one, or they may not have felt prepared coming into simulation two.

A final rationale that may have attributed to the lack of positive findings is that mean scores were relatively high on a scale of 1-9; therefore, achieving significance was difficult. The study did not reach the number needed to avoid a Type II error or false negative (not finding a significant result when there might have been one). The relatively small number of participants may have exerted a negative effect on the test for significance. The data sets were later multiplied by five to reach the threshold of 50 cases in each variable. When the repeated measures ANOVA was run on this manufactured data set the result was significant at the .05 level. This may indicate that the lack of significance was due to small sample size.

The second research question addressed perceived practice readiness in senior ADN nursing students based on scores from the Casey Fink Readiness for Practice Survey. The findings showed that there was a difference in students' mean perceived practice readiness scores between T1 and T2, as well as between T1 and T3, but the findings indicated a decrease in students' mean practice readiness score between T1 and T2 as well as T3. Students' perceived practice readiness was greater prior to the T1 high-fidelity simulation. The results are similar to a study done by Cardoza and Hood (2012), but contraindicated other studies which found that perceived practice readiness increased after the intervention of high-fidelity simulation.

One explanation for the lower mean perceived practice readiness scores after the intervention may be attributed to students' unrealistic evaluation of their own clinical abilities prior to engaging in a simulated scenario and the knowledge base students acquired in previous courses did not transfer into the clinical situation regarding the subject matter of perinatal loss and code blue. Another explanation could be attributed to the measurement tool utilized to measure students perceived practice readiness, which was not specific to either simulation. Other explanations are that students may have felt better prepared going into simulation one (perinatal loss), and then realizing they were not. In addition, the ADN nursing curriculum is concept based. Perhaps the concept of grieving and loss was not delivered adequately throughout the program.

Nursing students perceived practice readiness scores between time two and time three were not different. There was a two-week lag between simulation one (perinatal loss) and simulation two (code blue). One explanation for a lack of a significant finding may be that simulation two (code blue) was a higher stakes simulation; therefore, perceived practice readiness scores decreased at time three. Another explanation was that students felt better

prepared going into simulation two (code blue), but that they were not as prepared as they originally thought.

The repeated measures ANOVA also found no difference at any time period tested. As noted above the study did not reach the number needed to avoid a Type II error, or false negative (not finding a significant result when there might have been one). These data were also multiplied by five and a significant finding at the .05 level was found. Although there was no in practice readiness scores, the numbers did demonstrate a decrease from T1 to T2 and an improvement from T2 to T3. Even though the improvement did not reach statistical significance, there may have been an improvement in students perceived practice readiness over time. Two explanations for the increase in mean perceived practice readiness are that students felt better prepared after simulation one (perinatal loss), and that the additional experience acquired in the hospital clinical setting between simulation one (perinatal loss) and simulation two (code blue) increased their perceived practice readiness.

Relationship to Theory

The learning theory of Bandura was utilized in this study to correlate the development of students' perceived self-efficacy and the use of simulation-based learning, ultimately building a path to enhance self-efficacy (Lin, 2016). The paired samples *t* test results for RQ1 demonstrate how Bandura's concept of self-efficacy related to students' perception of their ability to produce a desired result based on their actions. The statistically significant finding that the high-fidelity simulation affected perceived self-efficacy indicated that the intervention enhanced students perceived self-efficacy. The results of the study are in agreement with Bandura's theory that instruction, modeling, persuasion, and performance feedback allows for self-development (Bandura, 2003).

Bandura's theory proposes the belief that students acquire knowledge by observing others, participation, persistence and achieving mastery of skills (Bandura, 1995). To facilitate perceived self-efficacy, students must face challenges, and properly resolve those challenges, which builds self-efficacy. Nursing faculty play a role in students' development of perceived self-efficacy through social modeling, social persuasion, and keeping psychological/emotional stress to a reasonable level. With new graduates needing to be practice ready, nursing education is key in developing new opportunities within simulation to bolster self-efficacy among students and assist them in attaining mastery. Through the use of Bandura's social learning theory increased self-efficacy links knowledge to action (Bandura, 1995), which leads to perceived practice readiness. The study demonstrated that high-fidelity simulation, experiences for graduating nursing students will feel more self-efficacious in the practice setting.

Limitations of the Study

There were several limitations of this study. The sample was limited to ADN nursing students from one nursing school in the southeast US and therefore may not be representative of all ADN nursing students. The sample of one nursing school in a specific geographical area limits the generalizability of the study findings.

The small number of nursing students in the study also limits the results. Although 56 nursing students participated at some point during the data collection, post-test participants decreased dramatically throughout the study. The decrease in participants limited the ability to meet the G-power.

The COVID pandemic, occurring during data collection probably limited the number of participants. Due to quarantine expectations during COVID, students may have had unknown and unexpected time constraints due to family obligations, children at home due to daycare

closures, children being home-schooled, significant others working from home, and work obligations after simulation. At the time of the data collection, classes were held online, and students only came to campus for their simulation experience. Due to the overwhelming anxiety associated with the COVID pandemic and fear of the unknown, students' time may have been limited, making participation more challenging.

Another explanation regarding students not completing the post-test was that the computers were located on a floor above the simulation room, with social distancing maintained due to COVID restrictions limiting the availability of computers; therefore, students had longer wait times. Even under normal conditions there are greater limitations associated with working with ADN nursing students as they fall into the category of non-traditional learners, and are considered high-risk students (Diamond, 2016; Martin et al., 2014). Those students typically have multiple obligations outside of the educational environment competing for their time. With the data collection process occurring during the COVID pandemic, these limitations were exacerbated.

A final limitation is that a solely quantitative measure of perceived self-efficacy and perceived practice readiness does not give respondents the opportunity to offer additional information regarding the overall effect of simulation on perceived self-efficacy and perceived practice readiness.

Recommendations

Theory

This study found that high fidelity simulation did affect perceived self-efficacy and perceived practice readiness among ADN nursing students, but not consistently. According to

Zakari et al. (2017) the value of simulation and its impact on student learning outcomes, such as self-confidence and practice readiness, is well recognized.

When the data were multiplied by 5 to reach the threshold of 50 cases in each variable the repeated measures ANOVA was statistically significant. Many variables affected the results of this study, replicating this study with more students might demonstrate a consistent correlation between high-fidelity simulation and perceived self-efficacy and perceived practice readiness. Larger studies found that high-fidelity simulation had a positive impact on students' practice readiness and their ability to demonstrate self-efficacy in their nursing skills (Aggar et al., 2018; Casey et al., 2011; Lasater, 2007; Woods et al., 2015). Studies that utilized the Casey Fink Readiness for Practice survey demonstrated that the use of high-fidelity simulation among BSN students increased students' confidence in caring for multiple patients as well as perceived practice readiness (Casey et al., 2011; Woods et al., 2015).

Practice

New graduates must be able to transfer knowledge and skills, and critically apply them to the professional practice. Practice readiness is defined as a generalist foundation with some job-specific capabilities involving the provision of safe client care, an understanding of current realities and future possibilities, and a balance of doing, knowing, and thinking (Wolff et al., 2010). Practice readiness in nursing students is important for several reasons. First, patient outcomes are likely to improve as well as students can benefit from educational methods that promote practice readiness and success. Many entities play a role in nursing students perceived practice readiness, including maturity, life experiences, prior health care experiences, clinical practice, and socialization to the discipline (Mirza, Mananki-Rankin, Prentice, Hageman, & Draenos, 2019). The ADN nursing student exhibits many of the entities needed to be practice

ready. As educators developing a curriculum, clinical experiences, and simulations that aid in the development of practice readiness is important to ready the new graduate for entry into the workforce.

Nursing students should develop increasing confidence in their clinical skills, and therefore their self-efficacy. Based on this study, students perceived self-efficacy increased after the majority of high-fidelity simulations. Strategies to increase students' self-efficacy include formulating clear and specific goals, providing realistic feedback in the form of reinforcement or verbal persuasion, and offering students good teaching models both in the classroom and during clinical training (Bulfone et al, 2021). The results of this study support that high-fidelity simulation increases student perceived self-efficacy but not perceived practice readiness. Based on the results of this study, previous clinical experiences, teamwork, and high-fidelity simulations can increase self-efficacy in the beginning practitioner.

Future Research

This study demonstrated that there were differences in perceived self-efficacy scores but not perceived practice readiness scores of senior ADN nursing students. Future research should include a larger sample size of ADN nursing students. The duplication of this study with a larger number of participants will allow for a better analysis of the effect of high-fidelity simulation and students perceived self-efficacy and perceived practice readiness. A larger and more diverse sample may also provide insight regarding the effect of simulation on students' perceived self-efficacy and perceived practice readiness among specific groups of students.

Future studies should also include a comparison between BSN and ADN nursing students' perceived self-efficacy and perceived practice readiness among those who have experienced the same number and types of simulations.

Another study may include nursing students' perceived self-efficacy and perceived practice readiness scores comparing those who participated in high-fidelity simulation and those who experienced traditional clinical experiences. Data could be collected prior to simulation or clinical experiences and then again after. This type of study would allow nurse educators to validate and develop differing teaching strategies. A comparison of new graduates who participated in high-fidelity simulation and new graduates who did not participate in simulation may provide insight into sustained self-efficacy.

Another recommendation for further research is a longitudinal study of ADN nursing students perceived self-efficacy and perceived practice readiness during a nursing program. Perceived self-efficacy and perceived practice readiness could be assessed after each simulation, then again after the last simulation of the program. This type of study will help define the number and type of simulations that would increase self-efficacy and practice readiness in nursing students.

A final recommendation for further research would be to gather quantitative and qualitative data. This would allow students to express their thoughts, and the researcher to analyze themes that aided in increasing students perceived self-efficacy and perceived practice readiness.

In future studies, adding incentives may increase the overall number of participants. Another approach may be to allow students to complete surveys at home or on their own computer prior to and after simulation experiences. Many students did not participate due to time constraints; thus, allowing them the flexibility to complete the survey within a specific time frame may increase completion rates.

Conclusion and Summary

Bandura (1995) stated that self-efficacy was influenced by modeling, experiences, verbal encouragement, and psychological factors, such as anxiety. Self-efficacy has been reported to play a significant role in the successful transition from student to practitioner (Lungberg, 2008). Nurse educators are continually making changes to curriculum and clinical experiences, including simulation, to increase students' self-efficacy and practice readiness, thus making the transition to a graduate nurse smooth. Simulation is a teaching strategy that increases students' self-efficacy and practice readiness. This study demonstrated that high-fidelity simulation can increase students' perceived self-efficacy. The knowledge obtained will aid in future research regarding the effect of high-fidelity simulation and perceived practice readiness.

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APPENDIX A:

INFORMED CONSENT FORM

1/12/2020

Adult Health 2 senior nursing students,

My name is Kristina Nappi EdD-c MSN, APRN, a full-time faculty member at Hillsborough Community College, as well as a graduate student at the University of Alabama. I am conducting research for my dissertation on how high-fidelity simulation may effect student's perceived self-efficacy and perceived practice readiness. I am inviting you to participate in this research as you meet the requirements of being a senior level associate degree-nursing student enrolled in the Adult II course.

Participation in this research is voluntary and it includes you completing 2 surveys prior to and after the first high-fidelity simulation, and again after the second simulation two weeks later. The simulations are part of the Adult II nursing course requirements, completing the surveys prior and directly after simulation, is voluntary and will take approximately 30 minutes.

I will be passing out the consent form, you do not have to decide right now. You will be given an opportunity to read the consent form again prior to completing any surveys. If you have any questions, I can be reached at knappi@hccfl.edu or 7274525521

Thank you for your assistance,

Kristina Nappi EdD-c, MSN, ARNP
knappi@hccfl.edu
727-452-552

Project Title:
The Effects of High-Fidelity Simulation on Associate Degree Nursing Students Perceived Self-Efficacy and Perceived Practice-Readiness

Informed Consent

Please read this informed consent carefully before you decide to participate in the study. I will speak about the consent form, you do not have to decide right now.
Consent Form Key Information:

 Take 2 surveys including Nurse Competence Self-Efficacy Scale and the Casey Fink Readiness for Practice Scale. The Nurse Competence Self-Efficacy will be completed four times and the Casey Fink Readiness for Practice scale three times.

 During the study, there will be no information collected that will connect your identity with your responses to the surveys.

Purpose of the research study: The purpose of the study is to assess the effect of highfidelity simulation on senior level ADN students' perception of self-efficacy and perceived practice readiness.

What you will do in the study: I will be obtaining participant consent for the purpose of this research study. Only those who consent to participate will have data collected. You will sign an informed consent on the day of simulation via the computer to participate in two surveys. You will complete the Nursing Competence Self-Efficacy Scale prior to and after the first simulation, and again after the second simulation (approximately two weeks later) to determine your degree of perceived self-efficacy. You will also complete the Casey Fink Readiness for Practice Scale prior to and after the first simulation and again following the second simulation to determine your perceived practice readiness. The surveys will be completed online. If you become uncomfortable at any point when filling out the surveys you may skip a question or stop the survey.

Time required: Approximately 30 minutes each time to complete both surveys. Surveys will be completed at three different intervals. Total time to participate will be 2 hours.

Risks: No anticipated risks to the study.

Benefits: Potential benefits to you include changes in perceived self-efficacy and perceived practice readiness.

Confidentiality:
Data linked with identifying information:
The information that you give in the study will be handled confidentially. Your information will be collected anonymously through a secure network. As a participant, you will develop a code that you will utilize to complete each of the surveys. The data will be uploaded and stored in the University of Alabama Box system. When the study is completed, and the data has been analyzed, the data will be destroyed. Your name will not be collected, nor used in any report.

Data not linked to identifying information:
The information that you give in the study will be handled confidentially. Because of the nature of the data, it may be possible to deduce your identity; however, there will be no attempt to do so and your data will be reported in a way that will not identify you.

Confidentiality cannot be guaranteed:
Although confidentiality cannot be guaranteed, data will be collected with the unique identifier that you create; and therefore should not be linked to you unless you release your identifier to others.

Voluntary participation: Your participation in the study is voluntary. Your course grade will not be affected by whether or not you participate in the study, and your grade will not be affected if you decide to withdraw. You must be over the age of 18 to participate.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty.

How to withdraw from the study: If you want to withdraw from the study, please notify me via email, phone, or in person and any data provided will not be utilized. If you would like to withdraw after your material has been submitted, please contact Kristina Nappi EdD-c, MSN, APRN at knappi@hccfl.edu or 727-452-5521.

Compensation/Reimbursement: You will receive no payment for participating in the study.
If you have questions about the study or need to report study, related issues please contact:

The Principal Investigator: Kristina Nappi EdD-c student, MSN, APRN
Title: Graduate student, University of Alabama
Department Name: College of Education
Telephone: 727-452-5521
Email address: knappi@hccfl.edu

You may also contact Dr. Alisa Zujovic,
Title: Chair of the Hillsborough Community College Institutional Review Board
Telephone: 813.253.7193
Email address: azujovic@hccfl.edu

Faculty Advisor's Name: Dr. Alice L. March PhD, RN, FNP, CNE
Department Name: Capstone College of Nursing
Telephone: 205-723-6243
Email address: almarch@ua.edu

If you have questions about your rights as a participant in a research study, would like to make suggestions or file complaints and concerns about the research study, please contact:

Ms. Tanta Myles, the University of Alabama Research Compliance Officer at (205)-348-8461 or

toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach Website at http://ovpred.ua.edu/researchcompliance/prco/. You may email the Office for Research Compliance at rscompliance@research.ua.edu.

Agreement (via toggle on computer screen):

€ I agree to participate in the research study described above, and verify I am over the age of 18 years.

€ I do not agree to participate in the research study described above.

By choosing the option yes to continue, I am indicating my voluntary participation in this study.

APPENDIX B:

NCSES

Please rate how confident you are that you can do them as of now. Rate your degree of confidence by recording a number from 1 to 9 using the scale provided below each question.

As of today, how confident are you that:

1. You can use the Code of Ethics to maximize collaboration interactions within the healthcare team.

1	2	3	4	5	6	7	8	9
Certain								Certain
You cannot do								You can do

2. You can make good practice decisions in the absence of agency policies and procedures

1	2	3	4	5	6	7	8	9
Certain								Certain
You cannot do								You can do

3. You can use conflict resolution strategies when necessary

1	2	3	4	5	6	7	8	9
Certain								Certain
You cannot do								You can do

4. You can challenge questionable orders, decisions or actions of other healthcare team members

1	2	3	4	5	6	7	8	9
Certain								Certain
You cannot do								You can do

5. You can report a near miss in care (a narrow escape from a serious complication)

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

As of today, how confident are you that:

6. You can demonstrate the broad knowledge base required for nursing practice

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

7. You can demonstrate awareness about the emerging global health issues

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

8. You can take part in nursing or health research by identifying research opportunities

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

9. You can use the appropriate assessment tools and techniques for each body system (eg. Neurological system) in consultation with clients and other healthcare team members

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

10. You can interpret assessment data to draw correct conclusions about clients health status

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

As of today, how confident are you that:

11. You can demonstrate awareness of the health inequities of people who are affected by various kinds of discrimination

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

12. You can complete your assessments in a timely manner following agency protocols

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

13. You can use critical thinking to make decisions when developing healthcare plans

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

14. You can anticipate potential health problems and their consequences for the clients

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

15. You can independently determine when consultation with other team members is required

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

As of today, how confident are you that:

16. You can manage multiple nursing interventions for clients with complex co-morbidities, seeking appropriate consultation when needed

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

17. You can recognize and seek immedient assistance in rapidly changing client conditions that could affect the client's health or safety (eg. Myocardial infarction, surgery complications)

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

18. You can assist clients to understand the link between health promotion strategies and health outcome (eg. Dietary methods to lower cholesterol)

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

19. You can provide appropriate care to clients with chronic ongoing health challenges

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

20. You can apply nursing knowledge to meet the clients psychological needs and to prevent the development of potential complications

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

As of today, how confident are you that:

21. You can apply safety principals to prevent injury to clients, self, other healthcare workers, and the public

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

22. You can imagine therapeutic interventions safely (eg. Drainage tubes)

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

23. You can prepare clients for diagnostic procedure and treatments (eg. Colonoscopy)

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

24. You can provide nursing care to meet hospice, palliative, or end of life care needs

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

25. You can make evidence informed decisions to adjust client care-plans based on changing priorities, in collaboration with clients and health care team members

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

As of today, how confident are you that:

26. You can document and report an accurate ongoing evaluation of client care

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

27. You can demonstrate a good understanding of informed consent

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

28. You can apply the code of ethics to address ethical dilemmas

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

29. You can advocate for clients especially when they are unable to advocate for themselves

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

30. You can demonstrate respect and knowledge of the unique and shared competencies of various members of the health care team

1 2 3 4 5 6 7 8 9

Certain Certain

You can not do You can do

As of today, how confident are you that:

31. You can take action in potentially abusive situations to protect self, clients and colleagues from injury (eg. Bullying, nurse to nurse violence)

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

32. You can define "fitness to practice" in relation to self-regulation and pubic protection

1 2 3 4 5 6 7 8 9

Certain Certain

You cannot do You can do

APPENDIX C:

CASEY FINK READINESS FOR PRACTICE SURVEY

Casey Fink Readiness for Practice Survey

1. Strongly Disagree
2. Disagree
3. Agree
4. Strongly Agree

1. _____ I feel confident in my ability to problem solve.
2. _____ I feel comfortable communicating with doctors.
3. _____ My clinical preceptor provided feedback about my readiness to assume an RN role.
4. _____ I am confident in my ability to problem solve.
5. _____ I have had opportunities to practice skills and procedures more than once.
6. _____ I am comfortable communicating and coordinating care with interdisciplinary team members.
7. _____ I use current evidence in my clinical decisions
8. _____ I feel comfortable knowing what to do for a patient with dehydration
9. _____ I feel comfortable taking actions to solve problems
10. _____ I feel comfortable identifying actual or potential safety risks to my patients.
11. _____ Clinical simulation has helped me feel prepared for clinical practice
12. _____ I am satisfied with choosing nursing as a career.
13. _____ I feel ready for the professional nursing role.
14. _____ I am comfortable delegating tasks to the nursing assistant

15. _____ I feel overwhelmed by ethical issues in my patient care responsibilities.

16. _____ I am comfortable communicating with patients from diverse backgrounds.

17. _____ Writing reflective journals/logs provided insights into my own clinical decision- making skills.

18. _____ I have difficulty documenting care.

19. _____ I have difficulty prioritizing patient care needs.

20. _____ I have difficulty recognizing a significant change in my patient's condition.

APPENDIX D:

PERMSSION TO USE THE CASEY-FINK READINESS
FOR PRACTICE SURVEY

Casey-Fink Readiness for Practice Survey

Home Health care professionals Professional development Casey-Fink surveys Casey-Fink Readiness for Practice Survey

Thank you for completing the information form. The survey tool and related documents are available for download via the links below.

You have permission to use the survey tool to assess students' readiness to enter the professional nursing practice setting. Please note that this tool is copyrighted and should not be changed in any way.

We hope that our tool will be useful in your efforts to understand students' perceptions of readiness and preparedness for the professional nursing role.

Kathy Casey RN, MSN
Regina Fink RN, PhD, AOCN, FAAN

APPENDIX E:

IRB APPROVAL

THE UNIVERSITY OF ALABAMA | *Office of the Vice President for* Research & Economic Development
Office for Research Compliance

February 28, 2020

Kristina Nappi
Capstone College of Nursing
The University of Alabama
Box 870358

Re: IRB # EX-20-CM-069: "The Effects of High-Fidelity Simulation on Associate Degree Nursing Students' Perceived Self-Efficacy and Perceived Practice Readiness"

Dear Ms. Nappi,

The University of Alabama Institutional Review Board has granted approval for your proposed research. Your application has been given exempt approval according to 45 CFR part 46. Approval has been given under exempt review category 2 as outlined below:

(2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

(i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects

The approval for your application will lapse on February 27, 2021. If your research will continue beyond this date, please submit the annual report to the IRB as required by University policy before the lapse. Please note, any modifications made in research design, methodology, or procedures must be submitted to and approved by the IRB before implementation. Please submit a final report form when the study is complete.

Please use reproductions of the IRB approved informed consent form to obtain consent from your participants.

Sincerely,

[redacted]

Carpantato T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer

Jessup Building | Box 870127 | Tuscaloosa, AL 35487-0127
205-348-8461 | Fax 205-348-7189 | Toll Free 1-877-820-3066

Informed Consent

Please read this informed consent carefully before you decide to participate in the study. I will speak about the consent form, you do not have to decide right now.

Consent Form Key Information:

- Take 2 surveys including Nurse Competence Self-Efficacy Scale and the Casey Fink Readiness for Practice Scale three times each.
- During the study, there will be no information collected that will connect your identity with your responses to the surveys.

Purpose of the research study: The purpose of the study is to assess the effect of high-fidelity simulation on senior level ADN students' perception of self-efficacy and perceived practice readiness.

What you will do in the study: I will be obtaining participant consent for the purpose of this research study. Only those who consent to participate will have data collected. You will sign an informed consent on the day of simulation via the computer to participate in two surveys. You will complete the Nursing Competence Self-Efficacy Scale prior to and after the first simulation, and again after the second simulation (approximately two weeks later) to determine your degree of perceived self-efficacy. You will also complete the Casey Fink Readiness for Practice Scale prior to and after the first simulation and again following the second simulation to determine your perceived practice readiness. The surveys will be completed online. If you become uncomfortable at any point when filling out the surveys you may skip a question or stop the survey.

Time required: Approximately 30 minutes each time to complete both surveys. Surveys will be completed at three different intervals. Total time to participate will be 1.5 hours.

Risks: No anticipated risks to the study.

Benefits: Potential benefits to you include changes in perceived self-efficacy and perceived practice readiness.

Confidentiality:

Data linked with identifying information:

The information that you give in the study will be handled confidentially. Your information will be collected anonymously through a secure network. As a participant, you will develop a code that you will utilize to complete each of the surveys. The data will be uploaded and stored in the University of Alabama Box system. When the study is completed, and the data has been analyzed, the data will be destroyed. Your name will not be collected, nor used in any report.

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 2-28-20
EXPIRATION DATE: 2-27-21

Data not linked to identifying information:

The information that you give in the study will be handled confidentially. Because of the nature of the data, it may be possible to deduce your identity; however, there will be no attempt to do so and your data will be reported in a way that will not identify you.

Confidentiality cannot be guaranteed:

Although confidentiality cannot be guaranteed, data will be collected with the unique identifier that you create; and therefore should not be linked to you unless you release your identifier to others.

Voluntary participation: Your participation in the study is voluntary. Your course grade will not be affected by whether or not you participate in the study, and your grade will not be affected if you decide to withdraw. You must be over the age of 18 to participate.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty.

How to withdraw from the study: If you want to withdraw from the study, please notify me via email, phone, or in person and any data provided will not be utilized. If you would like to withdraw after your material has been submitted, please contact Kristina Nappi EdD-c, MSN, APRN at knappi@hccfl.edu or 727-452-5521.

Compensation/Reimbursement: You will receive no payment for participating in the study.

If you have questions about the study or need to report study, related issues please contact:
The Principal Investigator: Kristina Nappi EdD-c student, MSN, APRN
Title: Graduate student, University of Alabama
Department Name: College of Education
Telephone: 727-452-5521
Email address: knappi@hccfl.edu

You may also contact Dr. Alisa Zujovic,
Title: Chair of the Hillsborough Community College Institutional Review Board
Telephone: 813.253.7193
Email address: azujovic@hccfl.edu

Faculty Advisor's Name: Dr. Alice L. March PhD, RN, FNP, CNE
Department Name: Capstone College of Nursing
Telephone: 205-723-6243
Email address: almarch@ua.edu

If you have questions about your rights as a participant in a research study, would like to make suggestions or file complaints and concerns about the research study, please contact:
Ms. Tanta Myles, the University of Alabama Research Compliance Officer at (205)-348-8461 or toll-free

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 2-28-20
EXPIRATION DATE: 2-27-21

at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach Website at http://ovpred.ua.edu/research-compliance/prco/. You may email the Office for Research Compliance at rscompliance@research.ua.edu.

Agreement (via toggle on computer screen):

☐ I agree to participate in the research study described above, and verify I am over the age of 18 years.

☐ I do not agree to participate in the research study described above.

By choosing the option yes to continue, I am indicating my voluntary participation in this study.

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 2-28-20
EXPIRATION DATE: 2-27-21

Hillsborough Community College

www.hccfl.edu
877.736.2575

HCC INSTITUTIONAL REVIEW BOARD
39 Columbia Drive #415 • Tampa, FL 33606-3584
(813) 253-7193

January 21, 2020

Kristina Nappi, MSN, APRN
10705 Gooseberry Ct.
Trinity, FL 34655

RE: HCC IRB #2020_001
TITLE: The Effects of High-Fidelity Simulation on Associate Degree Nursing Students' Perceived Self-Efficacy and Perceived Practice Readiness

Dear Ms. Nappi:

On January 21, 2020, the HCC Institutional Review Board (IRB) determined that your research meets Hillsborough Community College's requirements and federal criteria for exempt status which includes activities that (1) present no more than minimal risk to human subjects [21 CFR 56.110], and (2) involve only procedures listed in one or more of the categories listed below:

(1) Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods. [45 CFR 46.101(b)(1)

As the Principal Investigator for this project at HCC, it is your responsibility to ensure that this research is conducted as detailed in your Hillsborough Community College IRB application and supporting documents and consistent with the ethical principles outlined in the Belmont Report and with HCC policies and procedures.

The HCC IRB will maintain your research proposal and expedited status approval for a period of one year from the date of this letter. If you wish to continue this research beyond one year, you must submit a request for continuing review at least 60 days prior to the expiration date. If you complete the research prior to the end of the one-year period, you must submit a request to close

the study. Please note that it is your responsibility to notify the IRB of the status of this study no later than one year from the date of this letter, or upon completion of the research, whichever is sooner.

If you have any questions concerning this information, please contact me at (813) 253-7193 or by email at azujovic@hccfl.edu.

Wishing you all the best.

Sincerely,

[redacted]

Alisa M. Zujović, Ph.D., Chairperson
HCC Institutional Review Board