Fostering Empathy in Undergraduate Nursing Students: Improving Simulation Design to Enhance Learning in the Affective Domain

Michele Livich Roberts

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Abstract

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Healthcare simulation is a teaching strategy rooted in cognitive, constructivist, and social learning theories. Simulation–based learning experiences offer a replacement for traditional clinical learning and are widely used across all levels of nursing education. Most simulation activities are focused on student application of cognitive knowledge to clinical situations or practicing psychomotor skills, with little attention paid to student development of core nursing values such as caring and compassion. In fact, few studies have empirically assessed the usefulness of simulation for helping student nurses develop affective characteristics such as empathy. A quasi–experimental control group study was conducted to evaluate affective learning in student nurses during a simulated clinical activity. Students randomized to the treatment condition watched a lesson on the importance of empathy as a professional nursing value along with a vignette in which an actor playing the simulated patient shared a narrative story that detailed aspects of his social, emotional, and physical well–being. Subjects who received the intervention had a greater and statistically significant increase in empathy score than those in the control condition. Students exposed to the intervention also had higher observed empathy scores, but differences between groups were not statistically significant. Since narratives can be useful for helping health profession students understand patient perspectives on their health and well–being, the concept of narrative transportation (i.e., immersion in narrative accounts or stories) was used to assess student engagement in the simulated learning activity. Students in the

treatment condition had higher but non–statistically significant engagement scores in response to the intervention. Last, associations between empathy, emotional intelligence, and nursing competence were assessed. Positive and statistically significant relationships between empathy and emotional intelligence, emotional intelligence and nursing competence, and empathy and nursing competence were observed. Further analysis indicated that emotional intelligence partially mediated the relationship between empathy and nursing competence in this sample. The findings of this study demonstrated that patient narratives were useful for facilitating affective learning during simulated clinical activities. The observed results also provide insight on the relationship between affective characteristics and competency development in student nurses.

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Chapter I

Introduction to the Dissertation

Empathy is integral to the therapeutic relationships that nurses form with patients (Percy & Richardson, 2018). Along with compassion, empathy in nurses and other health professionals is known to increase patient satisfaction with care and improve patient outcomes (Trzeciak & Mazzarelli, 2019; Yang et al., 2018). Despite it being an expected professional attribute, empathy development is not generally evidenced in nursing curricula. Reilly (1978), in noting this, explained that faculty refrained from teaching affective skills out of fear of "imposing [their] values on the student" (p. 33), and as a result, faculty became hesitant to formally teach core nursing values of caring and compassion. Reilly contended that educators preferred to think that students would "catch" these behaviors during their pre–licensure preparation and acknowledged this was a relatively new (at the time) paradigm in nursing education. In believing that students would learn by observation or imitation, faculty relegated the teaching of affective skills to the hidden curriculum. This strategy, however, did little to illustrate why such behaviors are important, or teach students to interpret patient cues to respond with empathy and compassion.

In lamenting on this approach, Reilly (1978) asserted that nursing decisions are made using cognitive and affective elements and that learning outcomes pertaining to each warranted inclusion in nursing education. The author believed, in essence, that the *what* and *how* of nursing practice was developed within the cognitive realm, but that the *why* of nursing was influenced by the values–based, or affective domain of learning. In emphasizing that all domains of learning are interrelated, Reilly insisted that there were opportunities for affective learning when teaching

cognitive and psychomotor skills and stressed the need to help students understand the complexities of the human condition, both within and outside the realm of healthcare.

In discussing the apparent exclusion of outcomes pertaining to affective learning, Reilly (1978) advocated for formal teaching activities that assist students to develop the values inherent to helping professions such as nursing. Although Reilly emphasized the need to expose students to a broad range of factors that influence a person's lived experiences, she asserted that exposure itself is not enough to facilitate learning. Instead, Reilly suggested that nursing values are developed following such exposures, when faculty engage students in critical conversations to help them reflect on and understand the ethical and moral imperatives of nursing care.

The importance of reflective learning is profound, especially given the degree to which Reilly's (1978) perspective relates to the value of simulation–based learning (SBL) as it is used in undergraduate curricula today. When applied as a teaching strategy, simulation is appropriate for providing the types of exposure that Reilly deemed important, and when combined with a structured debriefing, affords opportunities for reflective learning to help students understand the intricacies of nursing practice. In providing guidance to nurse educators of her time, Reilly offers direction to nursing faculty of today. Her certitude about the development of nursing values and need for affective learning remain relevant to contemporary nursing academe and nursing practice.

Background

The next sections provide context for the remaining dissertation chapters. An overview of attempts to develop empathy in student nurses through simulation is provided. An argument for using narratives to foster empathy and increase student engagement in simulation is presented.

Last, information pertaining to emotional intelligence (EI) and nursing competence as associated variables of interest is included.

Empathy in Nursing Simulation

Evidence of efforts to promote empathy in student nurses through simulation–based learning (SBL) experiences is limited. Several authors have employed standardized patients (Bas–Sarmiento et al., 2017; Bas–Sarmiento et al., 2019; Mennenga et al., 2016; Ward, 2016) to influence empathy in simulation, but only one study that included empirical assessment of empathy experienced in manikin–based simulation (Haley et al., 2017) has been identified. This is concerning as manikins are the most–often used modality for simulation in undergraduate nursing curricula. It is therefore important to investigate strategies that potentiate affective learning outcomes when manikin–based simulation is used to educate student nurses.

Narrative Learning, Empathy, and Student Engagement

Narrative pedagogy, as conceptualized by Diekelmann (1993), may be useful for promoting empathy during manikin–based simulation. Efforts to portray the patient as a unique individual with beliefs about his own health and wellness can provide context for the simulated learning experience. When a structured debriefing is used to encourage reflective thinking, simulation becomes an appropriate vehicle for narrative learning, as students and faculty can explore elements of patient care from the patient's and the nurse's perspective. By providing a mechanism to understand the patient's experience, narratives can also draw students into the scenario, which may influence learner engagement during the SBL experience. Furthermore, the degree to which students become emotionally involved in the simulation can impact learning and improve student ability to transfer learned skills to real–world environments (Naismith et al., 2020).

Empathy, Emotional Intelligence, and Nursing Competence

Empathy development, specifically the ability to recognize and understand emotions in others, influences emotional intelligence capabilities (Mayer & Salovey, 1997). Emotional intelligence has been shown to improve a nurse's interpersonal communication, ability to establish therapeutic patient relationships, and capacity for working as part of the larger healthcare team (Codier & Codier, 2017). The effect of EI on nurse competency may in fact contribute to improved patient outcomes through good clinical judgement (Kozlowski et al., 2017) and practicing patient–centered care (Sommaruga et al., 2017). As empathy, EI, and nursing competence are attributes that can influence patient care, examining the relationship among these variables in the present study was warranted.

Specific Aims

The purpose of this study was to investigate the usefulness of a unique pre–simulation activity to influence affective learning during manikin based SBL activities. Simulation, a teaching method that incorporates constructivist, cognitive, and social–learning theory principles to facilitate learning (Rutherford–Hemming, 2012), has had a major impact on modern nursing education. Its use has grown exponentially over the past several years in response to the seminal report that identified no differences in learning outcomes when SBL is used to replace up to 50% of traditional clinical experiences (Hayden et al., 2014). Additional factors that have contributed to its incorporation into nursing curricula include a lack of qualified clinical faculty (American Association of Colleges of Nursing, 2017), and restrictions placed on student activities by clinical agencies (Bauchat et al., 2016, McNelis et al., 2014).

Simulated clinical learning in nursing education is facilitated using low fidelity experiences with task–trainers and static manikins and high–fidelity activities that employ

technology–enhanced human–patient simulator (HPS) manikins or standardized patients (Jeffries et al., 2016). Virtual simulation is emerging as a valid learning strategy, although there is a lack of clarity on which types of virtual experiences are best suited for educating nurses (Cant et al., 2019; Foronda et al., 2020). The most often used modality in undergraduate nursing education, however, involves using HPS manikins to simulate patient interactions in clinical settings (Cant & Cooper, 2017; Smiley, 2019).

There has been a steady increase in scholarship pertaining to the usefulness of SBL in undergraduate nursing education (Cant & Cooper, 2017). However, most quantitative literature pertains to the development of clinical skills (e.g., obtaining vital signs, managing equipment, administering medications) and clinical decision making (e.g., interpreting assessment findings and recognizing signs of patient deterioration) with affective learning (e.g., empathy, caring, and ethics) identified as outcomes of qualitative research (Cant & Cooper, 2017). Quantitative assessments of affective attributes have generally been limited to evaluation of behavioral outcomes such as self–confidence, self–efficacy, and satisfaction (Lee & Oh, 2015; Oh et al., 2015). Empirical evidence to support teaching methods (inside and outside of simulation) that foster the development of values associated with nursing as a caring profession (e.g., empathy and compassion) exists in a relatively small number of studies published over the last decade (Levett–Jones et al., 2019). This underscores the need for additional research that identifies best practices for teaching empathy and core nursing values. Furthermore, some have suggested that manikin–based simulation devalues student nurse ability to engage in empathic or therapeutic communication with actual patients (Dean et al., 2015, 2016; Diener & Hobbs, 2012; Ward et al., 2012). Therefore, strategies that improve simulation design to facilitate the provision of true patient–centered care are warranted.

The specific aims of this research are to:

1. Assess the impact of an innovative pre–simulation activity, designed to present the patient's perspective and provide empathy training, on student–nurse self–perceived empathy and engagement during simulated clinical learning.
2. Examine the relationship between student self–perceived empathic ability and empathy demonstrated toward a manikin assessed by a standardized patient during simulated clinical learning.
3. Explore the relationships among self–perceived empathy and emotional intelligence, self–perceived competence, and student engagement in manikin–based simulation activities.

The hypotheses generated by these aims are that undergraduate nurses who view a fictional audio–visual narrative and participate in empathy training as an addition to their usual pre–simulation activities will:

1. Have an increase in pre/posttest empathy score on the Kiersma–Chen Empathy Scale (KCES) when compared with students who complete the usual pre–simulation activities alone.
2. Demonstrate increased engagement in the simulation experience as measured by Transportation Scale (TS) score when compared with students who complete the usual pre–simulation activities alone.
3. Demonstrate increased empathic behavior toward a manikin as assessed by a trained standardized patient using the Consultation and Relational Empathy (CARE) measure when compared with students who complete the usual pre–simulation activities alone.

The following research questions are also explored:

1. What is the relationship between student perception of their own empathic ability as measured using the KCES and students' empathic behavior demonstrated toward a manikin as assessed by a standardized patient using the Consultation and Relational Empathy (CARE) measure?
2. What is the relationship between nursing student perception of empathic ability as measured using the KCES and engagement in simulated learning experiences as measured using the TS?
3. What is the relationship between student perception of empathic ability as measured using the KCES and student emotional intelligence as measured using the Modified Schutte Emotional Intelligence Scale (MSEIS)?
4. What is the relationship between student perception of empathic ability as measured using the KCES and student perception of clinical competence as measured using the Short Nursing Competencies Questionnaire (SNCQ)?

Changes Made Since Proposal

Modifications to Study Protocol

The proposed study was accepted by the institutional review boards (IRB) of Teachers College Columbia University (Protocol 20–150) under expedited review for the period of January 5, 2020 through January 4, 2021 and of Rutgers, the State University of New Jersey (Study ID PRO2019002999) under administrative review for the period of January 6, 2020 through January 5, 2021. Four modifications were made to the original protocol. The first two modifications were requested by the IRB of Rutgers University (Rutgers eIRB) and only required modification to the Teachers College Columbia University protocol. These involved: (a)

adding the names of two individuals who served in the capacity of research staff to the original protocol, approved by the Teachers College Columbia University IRB on January 15, 2020; and (b) naming a full–time faculty of Rutgers University School of Nursing as the principal investigator on all Rutgers eIRB documents, approved by the Teachers College Columbia University IRB on January 25, 2020.

The 3rd and 4th modifications were necessitated by restrictions on in–person contact caused by the COVID–19 global pandemic. The third modification added web–conferencing platforms as remote study sites and was approved by the Teachers College Columbia University IRB on April 8, 2020 and Rutgers eIRB on April 13, 2020. The fourth modification was made to provide an avenue for obtaining electronic consent, which was approved by the Teachers College Columbia University IRB on April 28, 2020 and Rutgers eIRB on April 30, 2020.

Modifications to the Study Implementation

Aside from changes to the IRB protocols, modifications were made to the way in which the study was implemented. The intervention was planned around an existing simulated clinical learning activity that was part of the curriculum of the nursing program at the study site. Students were to participate in the SBL experience at the simulation labs of both campus locations, which are outfitted much in the way a typical hospital room would be (e.g., motorized beds, cardiac monitoring equipment, oxygen regulators, medication carts, intravenous infusion pumps, wound care supplies) to enhance the realism of the learning activity. These in–person experiences were also planned to provide opportunities for students to interact with the patient, in this case a high–fidelity manikin. The manikin provided additional avenues for realism as it included technology enhanced features (e.g., palpable pulses, audible breath sounds, blinking eyes, and the ability to "speak" as voiced by a facilitator) that helped students perceive the simulator as a real patient

they could direct nursing care toward. Once the pandemic occurred, however, the implementation of the learning activity was revised to be used in a remote environment.

Although the existing scenario was retained and progressed much in the same way it had when conducted in person, the physical environment was now limited to a web–based video–conferencing platform and the student's computer monitor on which pictures were presented to depict student activities during the simulation. Images of the manikin, the room and equipment, medications, oxygen delivery devices, and wound care supplies were presented in response to students' verbal actions, and an on–screen cardiac monitor showed real–time variability in the patient's vital signs. While this helped to provide context for the learning activity, much of the realism for the experience was dependent on the imagination of each participant. While the limitations of the learning environment were unavoidable, the degree to which this change in implementation altered the intended outcome of the intervention (i.e., to feel greater empathy for the simulated patient and become more engaged in the learning experience) is unknown.

Modifications to Subject Recruitment

When the study commenced, the researcher had previously interacted with eligible subjects on multiple occasions as part of her faculty role at each study site. The researcher also visited the classroom locations of the target course on the first day of the spring 2020 semester to explain the protocol and generate interest for the study. This in–person contact likely influenced the large response rate (approximately 50% of eligible students) during the initial recruitment phase. Unfortunately, only one–third of the students who had enrolled during this time were able to complete all parts of the study before the pandemic occurred.

Recruitment took place online during the summer 2020 semester, with the researcher contacting students on the first day of class via a web–conferencing platform. These students had

not had prior in–person contact with the researcher because of restrictions created by the pandemic. Whereas in–person recruitment generated a large study enrollment, the remote response rate was poor (approximately 15%). Email flyers were used to garner student interest and recruit a sample size large enough to achieve power. This extended the enrollment period until about 10 days before the intervention was scheduled to be delivered, and the response rate increased to 26%. A similar approach was used during the fall 2020 term and resulted in a 28% response rate. Despite a good faith effort to recruit subjects that continued for an entire academic year, the overall response rate was only 23% and the final sample size resulted in an underpowered study. Furthermore, the degree to which extending the enrollment period may have influenced any study outcomes is unknown.

Organization of the Dissertation

This dissertation has been organized into five chapters. Chapter I provided an overview of the specific aims for the study. Information pertaining to the importance of affective learning in nursing education and use of SBL to effect empathy in student nurses, and context for the inclusion of emotional intelligence and nursing competence as related variables of interest was presented. Narrative pedagogy, as a method for increasing learner engagement and learning transfer, was discussed.

Chapter II, written in manuscript form, addresses Specific Aims I and II. It details the study design, sample characteristics, methodology and results of an experimental study aimed at fostering empathy in undergraduate nursing students and exploring the relationship between self–perceived and observed empathy. A discussion of the results of the study in comparison to findings of other authors, and implications for nursing education research is provided.

Chapter III, the second manuscript, addresses Specific Aim II and details observed relationships among empathy, emotional intelligence, and nursing competence. Information about the study design and sample characteristics, along with an overview of the methodology and results is presented. The results are analyzed in relation to the need to teach affective skills in nursing education and the development of competence in student nurses. Implications for future research are provided.

The final manuscript, Chapter IV, pertains to specific aims I and III. An argument for improving learner engagement in simulation is presented, along with the design, sample, methodology, and results of an experimental study on assessing learner engagement during manikin–based simulated clinical activities. A review of the results in comparison with existing literature and directions for future research is provided.

A general summary of the dissertation is provided in Chapter V. The Appendix contains the study instruments and supporting documentation.

Dissemination

A poster for the proposed study was accepted by the executive board of the Teachers College Nursing Education Alumni Association for presentation at the 57th Annual Isabel Stewart Conference that was scheduled for May 1, 2020 in New York City but cancelled due to the COVID–19 pandemic. The completed research results were accepted for a poster presentation at the 57th Annual Isabel Stewart Conference to be held virtually on May 14th, 2021. Poster and/or oral presentation abstracts will be submitted to the Eastern Nursing Research Society, the National League for Nursing, and American Association of Colleges of Nursing for future conferences pertinent to nursing education once calls for abstracts open.

The three manuscripts presented in this dissertation will be submitted to peer–reviewed journals. The first, based on Chapter II, will be titled "Narratives and simulated clinical learning: A quasi–experiment combining two pedagogies to improve affective learning outcomes in nursing students." This article will be submitted to the *Journal of Professional Nursing*, the official publication of the American Association of Colleges of Nursing. The efficacy of incorporating patient narratives into structured simulation–based learning to influence empathy development and patient–centered care in nursing students will be discussed. Future avenues for research on narrative pedagogy as a cross–curricular teaching strategy will be presented.

The second article will be submitted to *Nursing Education Perspectives*, the journal of the National League for Nursing. The manuscript, based on Chapter III of this dissertation will be entitled "Competency development in student nurses: The influence of empathy and emotional intelligence on student–perceived nursing abilities." In it, the relationships among empathy, emotional intelligence, and nursing competence will be discussed. The partial mediating effect of EI on the relationship between empathy and nursing competence observed in this study, and the impact of EI on skills lacking in newly graduated nurses, will be presented as an area in need of research to address new nurse transition to practice.

The third article will be entitled "Using video vignettes to increase suspension of disbelief in manikin–based simulation: Results of a quasi–experimental study." This paper will be submitted to *Clinical Simulation in Nursing*, the journal of the International Nursing Association for Clinical Simulation and Learning. In it, the application of the transportation scale to assess learner engagement during simulation–based learning will be discussed. An argument for future research aimed at assessing engagement to improve simulation design and simulation use in nursing curricula will be presented.

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Chapter II

Fostering Empathy Through Simulation: Using Narratives to Enhance Student Attainment of Affective Learning Outcomes

Advances in medical therapeutics and patient care technologies have greatly improved nursing practice over the past several decades. The contemporary nursing workforce is more highly educated (Smiley et al., 2018) and operates in a technology–driven healthcare environment (Peirce et al., 2019). Curricular elements are continuously reviewed and revised to ensure that student nurses develop competencies needed for practice (Lowenstein–Moffett & Ruchala, 2018). Even though present–day nursing practices may appear far removed from the expectations placed on nurses of the past, traditional nursing behaviors such as caring and compassion are still considered essential attributes of the profession (Adams, 2016). Efforts to promote the development of affective skills such as caring and compassion, however, are often overlooked in nursing curricula (Brown, 2011; Ondrejka, 2013; Valiga, 2014; Younas & Maddigan, 2019).

A lack of evidence–based approaches for developing caring behaviors in student nurses may be attributed to faculty beliefs that they are best influenced through role modeling (Fahrenwald et al., 2005; Nelms et al., 1993; Tanner, 1990). The American Association of Colleges of Nursing (AACN) offered that caring "encompasses the nurse's empathy for, connection to, and being with the patient, as well as the ability to translate these affective characteristics into compassionate, sensitive, and patient–centered care" (AACN, 2008, p. 26). This AACN perspective on caring provides guidance on the components of a caring relationship

that should be apparent in nursing curricula and identifies learning outcomes that may be achieved using evidence–based teaching strategies.

The aim of this study was to test the use of a first–person narrative and empathy training to influence affective learning during simulated clinical learning experiences for undergraduate student nurses. It was hypothesized that participants who viewed the narrative and received training would have greater pre to posttest changes in empathy score and demonstrate greater empathy toward the simulated patient. The relationship between self–perceived and observed empathy was also explored.

Conceptual Frameworks

Fernandez and Zahavi (2020) recognized the importance of empathy in nursing but noted that a lack of a theory specific to nursing practice has impaired research on empathy development or evaluation of empathic patient care. Much of the discourse on empathy in nursing involves differences between affective (i.e., feeling) and cognitive (i.e., understanding) concepts of empathy, and debate as to which type is needed when caring for patients (Fernandez & Zahavi, 2020). A holistic model that integrates what Fernandez and Zahavi termed basic empathy (i.e., an ability to perceive another's emotions) into nursing practice was proposed by the authors, who suggested that basic empathy, along with other cognitive abilities, guides nursing care decisions. Fernandez and Zahavi also cautioned against applying theories from other disciplines to explain nursing phenomena, echoing the sentiments of Walker and Alligood (2001).

While there is a lack of clarity on the kind of empathy that is best suited to nursing, a model that included the affective and cognitive types was applied in this study as the researcher believes both are used by nurses to plan and implement care. Davis's (1996) framework is

congruent with the concept of basic empathy proposed by Fernandez and Zahavi (2020), as it includes what Davis termed "simple cognitive empathy" or the ability to recognize emotions that others are experiencing. Davis suggested that simple empathy is a precursor for developing the more sophisticated forms of empathy that motivate helping behaviors, which makes it suited to exploring empathy in caring professions such as nursing. I also selected the NLN/Jeffries Simulation Theory (Jeffries, 2016) to guide this study. The application of a theory specific to simulation in nursing education provides an opportunity to test the propositions of the model and helps to strengthen research design. Jeffries (2016) emphasized the importance of simulation design in influencing outcomes of simulation–based learning. A goal of the present study was to investigate the use of a pre–simulation activity to influence nursing behaviors toward simulated patients, and to foster affective learning outcomes.

Davis's Model of Empathy

Davis's Organizational Model contains four constructs that explain how a person identifies and responds to another's unique situation. Davis (1996) termed the first construct *antecedents* of empathy, which are inherent characteristics that permit empathic capacity as well as the degree to which the situation or encounter evokes an empathic response within an individual. Next are empathy *processes* which include non–cognitive elements (e.g., crying in response to seeing someone cry), simple cognitive activities (i.e., perceiving cues to identify emotions experienced by another), and advanced cognitive actions (i.e., the ability to consider or imagine another person's experience). The antecedents and processes yield *intrapersonal outcomes* which involve affective behaviors (i.e., emotions that are congruent with or reactive to another's emotions) and cognitive behaviors, such as making accurate determinations about actions to take in response to another person's situation. The final construct involves

interpersonal outcomes that result from affective and cognitive intrapersonal behaviors. and which are evidenced by tendency toward helping others and an ability to engage in social relationships (Davis, 1996). The intervention for the present study incorporated a narrative that was designed to foster intrapersonal outcomes and enhance interpersonal outcomes that are explained in Davis's model.

Simulation Theory

The NLN/Jeffries Simulation Theory (Jeffries, 2016) provided a framework for research aimed at augmenting simulation–based learning. Major concepts (identified using italics) in this theory include the *context* (i.e., the purpose for the activity), which is used to develop the *background* (i.e., goals of the experience) and *design* of the simulation, the *simulation experience* in which simulation facilitators and participants interact to achieve specified *outcomes* that impact the learner, patient/care recipient, or health system (Jeffries et al., 2016). Jeffries et al. (2016) emphasized the importance of considering the desired outcomes of simulation–based learning when determining the simulation equipment, content, activities, and roles that are included in the simulation design. The intervention for this study used a pre–simulation activity, specifically a patient narrative and empathy training, to influence empathy development in student nurses, and therefore reflects the design concept explained by this theory.

Empathy in Nursing and Nursing Education

Empathy is integral to the caring relationship nurses develop with their patients (Williams & Stickley, 2010). While empathy is broadly defined, most agree that it is comprised of affective and cognitive elements that influence behavior (Cuff et al., 2014; Mercer & Reynolds, 2002). As a professional value, empathy is articulated by the American Nurses Association (ANA) as part of the art of nursing, an element of culturally competent care, and an attribute of effective nurse–

patient communication (ANA, 2015). Empathy influences a nurse's ability to provide patient–centered care (McKinnon, 2018), and improves psychologic and physiologic outcomes in patients (Trzeciak & Mazzarelli, 2019). Empathic care may present a greater benefit to patients than previously realized. For example, a recent study in China demonstrated a positive relationship between cancer patients' immune response and levels of empathy exhibited by nurses (Yang et al., 2018). Although others have cautioned against using theories of other disciplines to illustrate or evidence empathy in practice (Fernandez & Zahavi, 2020; Walker & Alligood, 2001), there is a need to use theory–based models to help students understand or recognize the importance of empathy for providing patient–centered care. Failing to ground expectations of nursing practice in extant theory only serves to widen the knowledge–practice gap. The National League for Nursing (NLN) identified empathy as a component of relationship–centered care and a behavior that should be fostered in nursing education (NLN, 2012). A recent review of literature specific to quantitative assessment of empathy teaching interventions in undergraduate nursing curricula included 23 studies published within the past 20 years; of these only eight used a control group to assess effectiveness of the intervention (Levett–Jones et al., 2019). As nurses are expected to exhibit and employ empathy while caring for patients there is a need to identify evidence–based strategies that assist its development in student nurses.

Simulation and Nursing Education

Simulation has been validated as an effective teaching method that can be used to replace up to 50% of traditional clinical learning with no significant differences in student attainment of learning outcomes or National Council Licensure Exam (NCLEX) pass rates (Hayden et al., 2014). Simulation–based learning is evident in curricula of undergraduate and graduate nursing

education programs alike (Gore & Thomson, 2016; Smiley, 2019). Learning activities that incorporate simulated clinical experiences are better suited for developing clinical competencies in student nurses as they expose them to patient interactions that aren't always possible (or practical) in traditional clinical environments (Bauchat et al., 2016). Furthermore, simulation is a more efficient and useful method for providing students with opportunities to apply learned concepts to clinical situations (Sullivan et al., 2019).

While many researchers have assessed simulation outcomes on student self–confidence, self–efficacy, and satisfaction with the learning experience (Mariani & Doolen, 2016), there is a lack of research that evaluated the usefulness of this learning strategy for meeting specific curricular objectives (Cantrell & Mariani, 2016). Exploring methods to support affective learning during high–fidelity manikin–based simulation is warranted because this modality is used in undergraduate curricula more often than computer–based and low–fidelity simulation techniques (Smiley, 2019). Dean et al. (2016) questioned the authenticity of manikin–based simulation and expressed concern about student ability to exhibit caring behavior toward "plastic" (p. 758) patients. In response, Bornias et al. (2016) asserted that simulation is an excellent place to practice empathic communication because in–person clinical settings do not guarantee opportunities for empathic patient interactions. Moreover, Bauchat et al. (2016) emphasized that well–designed simulation is better suited for practicing therapeutic patient interactions as such simulation provides a controlled learning environment where students can reflect on their behavior and improve communication skills.

The purpose of this study was to determine if viewing a first–person narrative of the patient's holistic perspectives on health and wellness combined with empathy training influenced

self–perceived and observed empathy in student nurses during simulated clinical experiences. The following hypotheses are tested:

1. Students who view a first–person narrative and receive empathy training in addition to the standard pre–simulation activities will have a greater increase in self–perceived empathy as measured using the Modified Kiersma Chen Empathy Scale (MKCES) than students who complete the standard pre–simulation activities alone.
2. Students who view a first–person narrative and receive empathy training will demonstrate greater empathic behavior toward the simulated patient as measured using the Consultation and Relational Empathy (CARE) measure than students who complete the standard pre–simulation activities alone.

In addition, the following research question is addressed: What is the relationship between self–perceived and observed empathy?

Methods

Study Design

A quasi–experimental control group pre/post–test design was used. All data were collected electronically using a secure web–based survey platform. Participation was voluntary and students were informed that they could withdraw from the study at any time.

Intervention

Narrative pedagogy, or the process of sharing stories and reflecting on their meaning in the context of personal and professional experiences, has been widely used in nursing education (Ironside, 2015), and is useful for fostering affective learning outcomes such as caring and empathy in nursing education (Brady & Asselin, 2016; Brown et al., 2008; Ironside, 2006). Fernandez and Zahavi (2020) suggested that empathic ability is influenced by understanding the

context of the patient's experience. They recommended using patient narratives to teach empathy. Patient–perspective sharing has been a successful strategy for promoting student empathy toward diverse populations such as elderly patients (Haley et al., 2017), patients receiving palliative care (Sheehan et al., 2013), pediatric patients (Ward, 2016), mental health patients (Mennenga et al., 2016), and culturally diverse individuals (Everson et al., 2015; Heidke et al., 2018). Simulation modalities were used to provide students a chance to engage in empathic patient interactions in several of these studies (Everson et al., 2015; Haley et al., 2017; Mennenga et al., 2016; Ward, 2016).

The intervention included two short (4–5 minutes each) videos that were created by the researcher and added to the standard pre–simulation activities used for an existing simulation scenario that was part of the school's curriculum. The first, a video vignette in which an actor delivered a first–person narrative (Appendix A) of the simulated patient's physical, social, and emotional well–being, was constructed to provide students with an understanding of the patient's perspective. The video portrayed a Caucasian man in his mid–40s (the existing simulated patients demographic characteristics), who was sitting in front of a plain background that could be interpreted as being in someone's home or any non–clinical setting. The choice of setting was influenced by the researcher's desire to portray the patient in an out of hospital environment to help students understand his unique personal story and not view him as a patient being treated for medical problem. Holistic representations of patients' lived experiences are used in the NLN Advancing Care Excellence (ACE) evolving case studies for vulnerable populations (NLN, 2021). These cases include first–person monologues in which patients discuss their social, emotional, physical, and economic well–being to encourage student competency with integrating NLN core values (i.e., caring, integrity, diversity, and excellence) when planning and

implementing nursing care (Tagliareni et al., 2012). An image of the actor was added to the landing page of the electronic health record that students could access before and during the simulation, and the actor's physical characteristics (e.g., height, weight, race, age) were incorporated into the patient's chart.

The second video was used to educate students about the importance of empathy in patient care. The main elements of the empathy training included a video produced by the Cleveland Clinic (2013) entitled *Empathy: The Human Connection to Patient Care* that was embedded into the training session, and an overview of how patients perceive empathic providers. Additional content about empathy as a value in nursing, and how empathy has been articulated by various professional nursing organizations was incorporated into the short lesson. This training was added to the intervention since these concepts were not apparent in the formal curriculum of the nursing program, although they might have been evidenced by faculty behaviors as part of the hidden curriculum.

Sample and Setting

Three a priori power analyses were performed in G*Power 3.1.9.2 for repeated measures analysis of variance (ANOVA) within–between interaction, for differences in means between two independent groups, and for Pearson's correlation using an alpha probability of 0.05, power of 0.8 and medium effect size for each test. Of these, the largest sample size indicated was 128. Recruitment continued for a full academic year in an effort to obtain a sample size sufficient to achieve power.

A convenience sample of student nurses were recruited from a baccalaureate degree (BSN) granting school of nursing at a large northeastern university. Students were enrolled in either the traditional (i.e., 4 year) or second degree (i.e., 14–month) BSN program during the

spring, summer, and fall 2020 terms. Inclusion criteria were students who were able to provide legal consent, who were taking a course entitled “Health and Illness of Adults and Older Adults I” (the first medical/surgical nursing course in the curriculum of both programs), and who were enrolled at either of the two campus locations where the simulation activity was integrated into the course.

Procedure

Approval from the institutional review boards of the researcher’s university and the study site (where the researcher also worked) were obtained. Initial recruitment efforts included visiting the classrooms for the target course on the first day of each semester. During the spring term students were recruited in person, however, students enrolled in the summer and fall courses were recruited virtually due to the COVID–19 pandemic restrictions and use of a remote learning environment. The purpose and procedures of the study were explained by the researcher using a script (Appendix B) to ensure consistency in recruitment processes. Spring semester students provided informed consent by signing a hard copy of the consent document and the remainder of the participants consented electronically. Recruitment continued via email up until 10 days before the students’ scheduled simulation to attempt to enroll a large enough sample to achieve power.

A link to access the pre–study instruments was sent to participants via email. The instruments could be completed at a time and place of participant choosing, however, individual access to the pre–study surveys was disabled the day before the intervention was scheduled to be delivered, approximately one week prior to the student’s scheduled simulation day to allow time for the intervention to be delivered and viewed ahead of the simulation experience. Batch randomization was used to assign clinical sections to the control and treatment conditions at the

beginning of the study, and the researcher was blinded as to which students were allocated to each group to avoid influencing any study outcomes due to the potential that she might interact with students during the simulation. The Assistant Dean for clinical learning served as research staff and was responsible for ensuring that the intervention was delivered to students who were selected to receive it. Students assigned to the control group completed the usual pre–simulation activities which included a review of the patient's electronic health record and content specific to the scenario (e.g., relevant pathophysiology, medications, and procedural skills such as wound care). Participants selected to get the intervention received a YouTube link prior to their scheduled simulation and were instructed to view the videos in addition to the usual pre–simulation activities. Students could watch the videos at a time and place of their choosing. The researcher had no knowledge of which students were watching the videos but could determine the frequency with which the videos were viewed using analytics built into YouTube.

Simulation sessions were facilitated in person for most of the spring 2020 data collection period, and the researcher did not engage in any of these activities. Once the COVID–19 global pandemic forced a transition to remote learning the researcher and a colleague devised a virtual simulation method (Roberts & Mazurak, in press). Due to the complexity of the storyboard technique and need to ensure consistency of the learning experiences that were part of the study, the researcher facilitated each remote simulation. These learning activities were implemented using one of three web–conferencing platforms depending on the technology that was available to faculty at the study site during different timepoints of the study. Each of the web–conferencing systems had similar functionality, there were no differences in the method used to facilitate the scenario, and all simulations ran for approximately 2 hours.

Images that depicted key aspects of the scenario were revealed to students on their home computer screen in response to their verbalized nursing interventions. The patient was voiced by the researcher, who responded to student interventions using the existing simulation script (Appendix C) and prompts that had been used for in–person student activities. Students also received visual and audio feedback from an on–screen patient monitor that displayed real–time variability in the patient's vital signs in response to student actions.

A structured debriefing that was approximately twice the length of each segment of the simulation scenario (e.g., 10 minutes of patient interaction followed by 20 minutes of debriefing) followed each simulation. This, too, was facilitated by the researcher with the students' clinical instructor serving as a content expert. The Advocacy/Inquiry technique (Rudolph et al., 2006) was used for debriefing. This model encourages reflective appraisal of nursing activities and decision–making exhibited during simulation. To illustrate, the facilitator might open the discussion by stating:

> I noticed that you performed a complete focused physical assessment of the patient's injury after speaking with the patient's visitor and obtaining the pain meds. I think I would have completed the focused assessment first. I am wondering if you would share what influenced your prioritization of these events.

Students then reflect on their actions in an ongoing dialogue with the facilitator to develop a shared model of the context and meaning of the situation that can be applied to future clinical activities. The researcher deliberately avoided making comments specific to empathy during the debriefing to not inadvertently influence the study outcomes. However, student–led questions or concerns regarding any affective behaviors they utilized or noted in peers were entertained.

Links to the post–study surveys were sent to students 30 minutes before the simulation was scheduled to end. All participants were provided with time to complete the instruments during the last 15 minutes of their simulation day. Students who finished all study components were afforded the opportunity to enter a lottery to win one of six Amazon gift cards valued at $50 each.

Measures

Permission to use the Kiersma Chen Empathy Scale (KCES) and the Consultation and Relational Empathy (CARE) measure was obtained from the authors of each instrument (Appendix D). Demographic data was collected using a researcher designed survey. Students completed the KCES as a pre and post–test measure of empathy, however, the shortened Modified Kiersma–Chen Empathy Scale (MKCES) which contains eight items from the original 15–item instrument was used in the data analysis. The CARE measure was employed to assess patient–perceived empathic behaviors by a standardized patient (SP) actor who was hired to view video–recorded simulation sessions and rate student interactions with the manikin as if she were the patient being cared for.

SP Training

Video–recorded simulation sessions that were archived from previous semesters were used to train the SP to assess and score student behaviors on the CARE measure. This training took place on three occasions and involved reviewing approximately 18 simulated activities. The researcher and SP completed separate assessments and then discussed their individual evaluations to reach consensus on types of student activities that constituted levels of performance for each item on the CARE measure. The SP had over 10 years of simulation experience that included facilitating graded objective structured clinical evaluations (OSCE) for

undergraduate and graduate nursing, and medical students. The researcher deferred to the SP's expert option in almost all instances, therefore no measure of inter–rater reliability was performed.

Kiersma–Chen Empathy Scale (KCES)

Developed for use in nursing and pharmacy students, the KCES (Appendix E) is a 15–item measure of self–perceived empathy during patient interactions (Kiersma et al., 2013). The instrument was developed as an alternative to the Jefferson Scale of Empathy–Health Professions Students (JSE–HPS) (Fjortoft et al., 2011) and designed to assess both affective and cognitive empathy. A 7–point Likert–type scale (1=strongly disagree; 7=strongly agree) is used and scores range from 15–105 (with higher scores indicating greater empathy). The instrument contains four negatively worded items. Cronbach's alpha coefficient for the original scale was reported as 0.86, and concurrent validity was demonstrated by correlating the scale with the previously validated JSE–HPS. The instrument was selected as it reflected Davis's empathy framework, was previously used with student nurses, and was freely available.

The 15–item KCES had a reliability of $\alpha = .87$ when used by Haley et al. (2017) and a range of $\alpha = .66–.81$ when used by Thomas et al. (2020), with both studies evaluating empathy in student nurses. In the present study, however, the Cronbach's alpha coefficient for the 15–item measure was .67 (pre–test) and .66 (post–test), indicating poor instrument reliability when used with this sample. Everson et al. (2015) evaluated the psychometric properties of the KCES with a sample of student nurses in Australia ($n = 460$) and demonstrated, through a series of confirmatory factor analyses, that a shorter 8–item scale was more appropriate for measuring cognitive and affective empathy. The authors applied the modified Kiersma Chen Empathy Scale

(MKCES) to evaluate changes in cultural empathy of student nurses in response to a 3–D simulation experience and reported a Cronbach's alpha of .73 for the MKCES with their sample.

Considering the poor reliability of the original KCES when used in the present study, the researcher retained items 1, 2, 3, 7, 8, 12, 13, and 14 as Everson et al. (2015) had done to develop the MKCES and assessed the reliability of the shortened instrument. The Cronbach's alpha coefficient for the 8–item measure was .73 (pre–test) and .81 (post–test) when used with this sample. This improved reliability supported a decision to use the MKCES as a measure of self–perceived empathy in the present study and all analyses were performed using the 8–item instrument.

Consultation and Relational Empathy (CARE) Measure

Mercer et al. (2004) developed the 10–item CARE measure (Appendix F) to assess patient perceptions of provider empathy. The instrument uses a 5–point Likert–type scale (1 = poor; 5 = excellent) and has a range of scores from 10–50, with higher scores indicating a greater degree of empathic patient–provider interaction. Reliability for the measure was reported as α = .93, and concurrent validity was established by correlating the CARE measure with the previously validated Reynolds Empathy Scale (Reynolds, 2000) and empathy subscale of the Barrett–Lennard Relationship Inventory (Mercer et al., 2004). The instrument was used as a measure of observed empathy in this study. Participant behaviors toward the simulated patient were assessed by a standardized patient (SP) actor with more than 10 years of experience working with healthcare students during simulated learning activities.

Bas–Sarmiento et al. (2017) evaluated the effect of empathy training on student role–play behaviors with SPs using the CARE measure, observing a positive and statistically significant relationship in a sample of student nurses in Spain. Similarly, Bas–Sarmiento et al. (2019)

observed a positive and statistically significant relationship between training on interpersonal communication skills and SP perception of student empathy assessed using the CARE measure in another group of student nurses in Spain. Reliability for the instrument when used by these authors was not reported. The Cronbach's alpha coefficient for the instrument when used in this study was .88.

Demographic Questionnaire

Developed by the researcher, this 7–item survey (Appendix G) was used to collect demographic data on participant age, gender, race/ethnicity, program of study, and campus location. To ascertain if previous patient–provider interactions influenced participant empathy, prior employment in a healthcare setting and having previously experienced being treated as a patient in a clinical setting were also assessed.

Other Measures

The present investigation was part of a larger dissertation study that included six instruments. While not considered here, all subjects also completed a measure of emotional intelligence as part of the pre–study surveys and assessments of self–perceived nursing competence and simulation engagement as part of the post–study questionnaires.

Analysis

Data were analyzed using IBM SPSS Statistics Version 26. Demographic variables were analyzed using descriptive statistics (i.e., frequencies, percentages and means with standard deviations). Two–way mixed ANOVA was used to assess for within and between group differences in MKCES score in response to the intervention. Independent samples *t* tests were used to assess for differences in observed empathy between groups. Pearson's product moment correlation was used to assess for a relationship between self–perceived and observed empathy.

Results

A total of 318 students were enrolled in the target course during the three semesters that data were collected. During the spring 2020 term 61 students had provided consent to participate, but only 18 had completed the simulation activity and post–study instruments before the pandemic forced a transition to remote learning. One additional participant from the spring term completed the intervention and post–study instruments once the remote storyboard simulation technique was implemented. During the summer and fall 2020 terms an additional 55 students consented to participate. One student withdrew from the study during the fall term and two students were deleted from the analysis due to inattentive responding patterns (e.g., selecting "strongly agree" for every item) that were noted on their pre and post–study surveys, resulting in a final sample size of 71, with 33 subjects being allocated to the control condition and 38 subjects assigned to the treatment condition.

Demographic Variables

Participant age ranged from 20 to 52 years (mean = 21.54 years), most students (67.6%) were aged 25 or younger, and the sample was overwhelmingly female (87.3%). Many subjects (56.4%) indicated belonging to a minority group and identified as being of Asian (32.4%), African American/Black (12.7%), or Hispanic/Latino (11.3%) descent. This is consistent with the population of the school of nursing which is known for being racially and ethnically diverse. Most participants were enrolled in the 2nd degree BSN program (73.2%) and the distribution of participants across campuses was essentially equal (n = 36 at one and n = 35 at the other). Those who acknowledged previous or current employment in a healthcare setting (38%) most frequently reported working as a patient care technician/nurses' aide (n = 7), emergency medical technician (n = 5), or having combined experience as both a patient care technician and medical

office assistant (n = 5). Other healthcare experience reflected in the sample included pharmacy technician, licensed practical/vocational nurse, and dental assistant. Many students (56.3%) indicated having previously been a hospitalized patient in a clinical setting. There were no statistically significant differences between subjects in the control and treatment groups on any demographic variables. The characteristics of each group and statistical reporting for between group differences on age, race/ethnicity, program of study, and previous hospitalization are provided in Table 2.1. Between group differences on individual categories of previous work in healthcare settings were assessed using Fisher's exact tests and are provided in Table 2.2.

Self–Perceived Empathy

A two–way mixed ANOVA (Table 2.3) was used to assess for differences in MKCES score between the control (CG) and intervention (IG) groups over time (Hypothesis 1). Although non–normal distributions were noted for the CG and IG MKCES scores at T2, parametric analysis was performed as ANOVA is considered robust to deviations from normality (Blanca et al., 2017). A total of 71 paired responses (CG n = 33, IG n = 38) were included in the analysis. There was one outlier in the data that was retained in the analysis as removing it did not change the statistical conclusions. Shapiro–Wilk's tests for T1 MKCES scores indicated normal distribution of CG and IG data (p = .662 and p = .348, respectively). Shapiro–Wilk's tests for T2 MKCES data suggested non–normal distributions for both groups (CG p = .017 and IG p = .020), however, visual assessment of the Q–Q plot indicated the distribution was approximately normal. Levene's test of equality of error variances confirmed homogeneity of variances (MKCES T1 score p = .068, MKCES T2 score p = .392). Box's test of equality of covariance matrices was not statistically significant (p = .218), confirming homogeneity of covariance. The two–way mixed

ANOVA revealed a statistically significant interaction between group and time ($F(1,69) = 6.06$, $p = .016$, partial $\eta^2 = .08$).

Univariate analyses were used to evaluate the simple main effect for group (between–subjects factor) at T1 and T2. The mean MKCES score at T1 for the CG = 50.15 (95% CI 48.99–51.31) and for the IG = 48.29 (95% CI = 46.77–49.81) a difference that was not statistically significant ($F(1,69) = 3.73$, $p = .057$, partial $\eta^2 = .05$). At T2, the mean MKCES score for the CG = 50.46 (95% CI = 49.01–51.90) and IG = 50.55 (95% CI = 49.15–51.96), a difference that was not statistically significant ($F(1,69) = 0.01$, $p = .922$, partial $\eta^2 = .0001$). Repeated measures ANOVA was used to assess the simple main effect for time (within–subjects factor) for each group. A non–statistically significant increase of 0.31 points from T1 ($M = 50.15 \pm 3.27$) to T2 ($M = 50.46 \pm 4.08$) was observed in the CG ($F(1,32) = 0.30$, $p = .589$, partial $\eta^2 = .01$). MKCES score increased by 2.26 points from time T1 ($M = 48.29 \pm 4.62$) to T2 ($M = 50.55 \pm 4.28$) in the IG, with this difference being statistically significant ($F(1,37) = 16.10$, $p < .001$, partial $\eta^2 = .30$).

Observed Empathy

Independent–samples *t* tests were used to assess for differences in CARE measure scores between groups (Hypothesis 2). Ten participant interactions were lost due to technical issues with the recording capacity of a specific web–conferencing platform. A total of 61 videos were available for SP review (CG $n = 29$, IG $n = 32$) There were no outliers observed using boxplot inspection and Shapiro–Wilk's tests (CG $p = .361$, IG $p = .221$) indicated that the data were normally distributed. Levene's test of equality of error variances was not statistically significant ($p = .325$) thus homogeneity of variance was confirmed. CARE scores were 1.55 points (95% CI –1.39–4.49) higher in the IG ($M = 27.30 \pm 6.37$) than the CG ($M = 25.75 \pm 4.94$), however, this difference was not statistically significant ($t(59) = 1.05$, $p = .297$).

Relationship Between Self–Perceived and Observed Empathy

Pearson's product moment correlation was used to assess for a relationship between T2 MKCES and CARE scores for the 61 paired observations. Scatterplot examination suggested a linear relationship between the variables. Shapiro–Wilk's test indicated a non–normal distribution for the T2 MKCES data ($p = 0.004$). However, skew and kurtosis values (–0.68 and 0.40, respectively) were between ± 2 which is appropriate for parametric analyses requiring normal distributions according to guidelines suggested by George and Mallery (2016) and Pituch and Stevens (2016). Visual inspection of the Q–Q plot indicated the distribution was approximately normal, supporting the use of parametric analysis. Shapiro–Wilk's test identified a normal distribution of CARE scores ($p = .188$). No statistically significant relationship between self–perceived and observed empathy was noted in this study ($r(59) = .100$, $p = .444$).

Discussion

Differences in Self–Perceived Empathy

The purpose of this study was to determine if adding a first–person patient narrative and empathy training to existing pre–simulation activities improved self–perceived empathy of undergraduate student nurses during a simulated clinical learning experience. Hypothesis 1 stated that students who viewed a fictional audio–visual narrative and participated in empathy training as an addition to their usual pre–simulation activities would have an increase in pre/posttest empathy score as measured by the MKCES when compared with students who complete the usual pre–simulation activities alone. A statistically significant interaction between time and group was observed, and the findings demonstrated that self–perceived empathy was statistically significantly improved for students who received the intervention, thus supporting the first hypothesis of this study.

Several authors have previously demonstrated improved empathy in student nurses in response to sharing patient perspectives during simulated learning experiences with SPs (Mennenga et al., 2016; Ward, 2016) and immersive 3–D scenarios (Everson et al., 2015). One study that utilized manikin–based simulation was identified in the literature (Haley et al., 2017), with the intervention being an audio recording of the simulated patient. It is unknown if others have attempted to utilize video–based patient narratives for scenarios that are already used within their nursing curricula. Creating a backstory for a simulated patient is a relatively easy way to help students perceive the manikin as a unique individual with specific concerns about his health and well–being. The use of a patient narrative combined with empathy training may help students understand the importance of empathy to patient care. Opportunities to practice affective skills during simulated clinical patient encounters are expanded when nursing care can be organized around a holistic (as opposed to diagnosis–driven) model.

Differences in Observed Empathy

Hypothesis 2 stated that students who viewed a fictional audio–visual narrative and participated in empathy training would demonstrate increased empathic behavior toward a manikin (as assessed by a trained standardized patient using the CARE measure) than students who complete the usual pre–simulation activities alone. The findings of the present study did not support the 2nd hypothesis as no difference in SP assessment of empathic behaviors toward the manikin were observed between groups.

Explicit descriptions of patient perceptions of provider empathy, taken directly from the questions on the CARE measure, were incorporated into the empathy training portion of the intervention. This did not seem to influence the way students responded to the patient during the learning activity. Student behaviors may have been inhibited by the virtual learning environment

that was used to facilitate most of the simulation sessions. For example, one item on the CARE measure pertains to the position of the provider in relation to the patient they are caring for. It is difficult to assess this kind of non–verbal behavior when students appear on–screen in "boxes" via a web–conferencing platform.

Although every attempt was made to only have one subject in each phase of the scenario, there were several instances where two study participants interacted with the simulated patient at the same time. This influenced the way the SP scored some items as one participant might not have expressed empathy as strongly as the other relative to the other subject's behavior. To illustrate, if subject "A" acted highly empathic on CARE measure item number five "Fully understanding your concern." and subject "B" also expressed empathy, but to a slightly lesser extent because of what subject "A" had just said, the subject "B" score was modified to reflect an average between both participants' scores. This method of scoring was influenced by the virtual environment as the SP could not consider non-verbal empathic behaviors (e.g., facing the patient, maintaining eye contact, actively listening, and appearing engaged) when evaluating observed empathy and did not want to penalize participants for avoiding redundant empathic statements.

The remote facilitation also presented challenges for verbal communication as students sometimes appeared hesitant to respond to concerns verbalized by the patient for fear of speaking out of turn or over one another. The sequencing of the learning activity in the curriculum may have influenced CARE scores as well. Recently, Levett–Jones and Cant (2020) conceived a framework termed "The Empathy Continuum*"* to describe how empathy is evidenced through nursing education. This 3–stage model (i.e., *perceiving*, *processing*, and *responding*) suggests that empathic ability is a process in which an individual's empathic qualities are enhanced over time and develop into behavioral skills that are exhibited when interacting with patients (Levett–

Jones & Cant, 2020). While not based on this framework, the motivation for the present study was the belief that empathy (both affective and cognitive) can be influenced over time and should be fostered during the prelicensure period. The findings on observed empathy may indicate that this sample of students had not yet progressed to the responding stage of the continuum, which may be attributable to the sequencing of this simulation activity in the second semester of the curricula of both nursing programs.

Utilizing the CARE measure to assess empathy in student nurses during manikin–based simulation was a novel application of the instrument. The measure, however, had been used in two studies that evaluated empathy in student nurses during interactions with SPs with statistically significant findings (Bas–Sarmiento et al., 2017, Bas–Sarmiento et al., 2019). As Smiley (2019) reported, most simulation in undergraduate nursing programs is facilitated using high–fidelity manikins. The ways in which SPs have been incorporated in nursing curricula vary, and there has been limited investigation on best practices for their use (Rutherford–Hemming et al., 2019).

Relationship Between Self–Perceived and Observed Empathy

The researcher sought to explore the relationship between student self–perceived empathy measured using the MKCES and observed empathic behavior toward a manikin as assessed by an SP using the CARE measure. No relationship between self–perceived and observed empathy was found in this sample.

Objective assessments of empathy in student nurses in response to educational interventions are not well–evidenced in the literature (Levett–Jones et al., 2019) and relationships between observed and self–perceived empathy in this population are limited. Bas–Sarmiento et al. (2019) used the CARE measure along with the JSE–HPS to evaluate changes in

empathy in student nurses after 14 hours of empathy training in a multi–site study and reported a statistically significant correlation between subjective and objective empathy in their sample. Lee et al. (2018) used an objective structured clinical examination (OSCE) along with the JSE–HPS to assess student nurse empathy in response to a situated learning activity conducted over four months, however, no relationship between self–perceived and observed empathy was observed. Similar efforts to assess this relationship were undertaken with medical students with no statistically significant findings (McTighe et al., 2016; Ogle et al., 2013). Incorporating objective measures of empathy into future research on its development is important, as empathic behaviors perceived by patients influence satisfaction with care and may also improve health outcomes.

Limitations

The study had several limitations. The use of a convenience sample limits the generalizability of any observed findings to other populations. All participants were recruited from a single school of nursing with campuses located in two urban areas of the northeastern United States. This may have impacted participant self–perceptions of empathy and behaviors demonstrated toward the simulated patient as empathy is developed and expressed differently between geographic regions (Bach et al., 2017). Furthermore, Baez et al. (2017) acknowledged gender–based differences in self–perceived empathy, and the use of a self–report measure with an overwhelmingly female sample may have affected the findings of this study.

Additionally, as clinical sections could not be modified, a true randomized design was not possible. Although the researcher attempted to ensure homogeneity of subjects between conditions using batch randomization, differences in student empathy observed within clinical groups may have been attributable to their common experiences during clinical rotations or the role–modeled behaviors of their clinical instructors. The use of batch randomization, therefore,

may have created sub-conditions within the control and treatment groups where influences outside of the protocol impacted the study findings.

The use of a self–report measure also limits interpretation of the reliability or validity of observed research findings (Polit & Beck, 2016). Participants in the present study were aware that empathy was being assessed and exposure to the items on the pre–test created a potential for response bias influencing post–test scores. While the researcher attempted to address this by adding a measure of observed empathy, there were conflicting findings between measures. It is possible that the virtual environment influenced observed empathy scores as it created barriers and limited opportunities for students to exhibit nonverbal and verbal empathic behaviors. A major issue was the lack of an actual manikin to interact with, which influenced SP interpretation of student behaviors in the virtual environment. Another factor that may have impacted the findings was that two students were assigned to the role of nurse during each scenario. This prevented the SP from observing a true dyadic nurse–patient relationship and may have influenced CARE measure scores. Educators who wish to evaluate observed empathy during simulated clinical learning should consider facilitation methods that afford each participant ample and individual opportunities to engage in empathic behaviors with the patient. The complexities of evaluating observed empathy based solely on participant statements during simulations facilitated using web-conferencing software were unanticipated and may have impacted study findings.

Differences in pre to post–test scores can be impacted by the time interval between assessments or by the timing of the intervention in relation to the post–test measurement. In this study the time between assessments ranged anywhere from 7–62 days. Students were given access to the pre–study measures upon consenting to participate. Students who consented during

the initial recruitment period at the beginning of the semester had the potential for a wider interval between completing the pre–study instruments and receiving the intervention, which was delivered a week before their scheduled simulation day. The scheduling of the simulation experience was beyond the researchers control as simulation is integrated across the nursing curriculum and the simulation schedule encompasses the entire semester. Furthermore, the decision to deliver the intervention within a week of the scheduled simulation was made to ensure that students who received it would remember to view it prior to participating in the clinical learning activity.

Students who were selected to receive the video–based interventions accessed them using a YouTube link so there is no way to be certain of the timeframe between the intervention and post–test assessment. While students were given access to the intervention videos a week before their simulation day, it is possible that some could have waited to view it up until the day of their simulation. Therefore, the time interval between the intervention and posttest measures could have ranged from 0–6 days. YouTube analytics suggested an appropriate amount of hits relative to the numbers of students in the intervention group during the spring and summer 2020 terms, but the videos were viewed fewer times than the number of people in the intervention group during the fall 2020 semester, suggesting that some students in the intervention group did not actually get the intervention.

Last, the timing of this study coincided with the arrival of the novel coronavirus in the United States. While the spring 2020 term started uneventfully, students were displaced from the college environment within a few weeks of participant recruitment. Learning was disrupted by limitations of students' home environments (e.g., students did not always have sufficient resources in their homes to allow for full or meaningful academic engagement), by individual

concerns regarding the health and wellness of their immediate and extended families, and by the economic impact of statewide restrictions and lockdowns. These issues continued for the duration of the data collection period and may have contributed to insufficient study enrollment and possible non–adherence to the study protocol (i.e., completing all pre–simulation activities and viewing the intervention videos if assigned to do so).

Conclusions

This research helps to address concerns surrounding affective learning in simulation and supports the notion that empathic capacity can be influenced in student nurses using a video–based intervention that employed a patient narrative. Diekelmann (1993) was one of the first nursing scholars to promote the use of narrative pedagogy as a mechanism to reform nursing education and encouraged its adoption as an alternate teaching strategy. The author provided a theoretical basis for its use and emphasized the value of using narrative accounts to encourage collaborative and reflective discussions that foster a community of learning (Diekelmann, 1993). The addition of a first–person story that tells students about a simulated patient's lived experience is an application of Diekelmann's concept of narrative pedagogy, as simulation is a rich learning environment that, when facilitated as a teaching method, encourages reflection and collaborative discussions that enhance learning outcomes.

Moreover, nursing curricula are content–heavy and behavioral learning is often deferred to the clinical environment. Traditional clinical experiences may constrain student ability to practice affective skills. However, simulation affords a safe and controlled setting where these competencies can be achieved. Using narratives to provide holistic representations of fictional patients may help students integrate affective and cognitive empathic attributes that facilitate the provision of patient–centered care.

The findings of the present study indicated that patient narratives and empathy training were useful for improving self–perceived empathy in student nurses. The intervention, however, did not influence observed empathic behaviors. This may be attributable to the use of a virtual environment to facilitate the patient encounter, a factor that was beyond the control of the researcher. Future investigation as to the efficacy of this technique for fostering observed empathic attributes in nursing students during manikin–based simulation is warranted, as manikin–based simulation is the most often used simulation technique in undergraduate programs. Furthermore, simulation–based learning is intended to develop skills that will transfer to actual clinical practice; if nurses are expected to convey empathy during actual clinical encounters students should be expected to behave similarly in simulation.

A promising model put forth by Levett–Jones and Cant (2020) suggested a continuum of empathy development that has the potential to be influenced through education. Although a relationship between self–perceived and observed empathy was not found in this sample, future research aimed at exploring how one type might influence the other can help nurse educators develop evidenced–based models for teaching empathic behaviors to nursing students. This may improve student capacity to recognize and respond to patient–specific needs in such a way as to optimize long–term patient outcomes.

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Table 2.1

Demographic Characteristics of Study Participants

Demographic Characteristic	Control		Intervention		Sample	
	n	%	*n*	%	*n*	%
Gender						
Male	4	12.1	5	13.2	9	12.7
Female	29	87.9	33	86.8	62	87.3
Age						
20-25	24	72.7	24	63.2	48	67.6
> 25	9	27.3	14	36.8	23	32.4
Race/Ethnicity [a]						
African American/Black	4	12.1	5	13.2	9	12.7
Asian	7	21.2	16	42.1	23	32.4
Hispanic/Latino	5	15.2	3	7.9	8	11.3
White	14	42.4	13	34.2	27	38.0
More than one race	3	9.1	1	2.6	4	5.6
Program of Study [b]						
Traditional BSN	10	20.3	9	23.7	19	26.8
2nd Degree BSN	23	69.7	29	76.3	52	73.2
Previous Healthcare Experience						
Yes	13	39.4	14	36.8	27	38.0
No	20	60.6	24	63.2	44	62.0
Previous Hospitalization [c]						
Yes	19	57.6	21	55.3	40	56.3
No	14	42.4	17	44.7	31	43.7

Note: N = 71 (control group *n* = 33, intervention group *n* = 38). Participants were on average 21.54 years old (SD ± 5.61), and participant age did not differ by group (*U* = 739.50, *z* = 1.30, *p* = .192).

[a] Participant race/ethnicity did not differ by group. Fisher's exact test was performed due to an inadequate sample size for chi-square test of homogeneity, with the two multinomial probability distributions being equal (*p* = .319).

[b] There were no statistically significant differences in proportions between groups on program of study as assessed using chi-square test of homogeneity (χ^2 = .395, *p* = .530).

[c] There were no statistically significant differences in proportion between groups on rate of previous hospitalization as assessed using chi-square test of homogeneity (χ^2 = .038, *p* = .845).

Table 2.2

Crosstabulation of Group and Prior Healthcare Experience

Type of Healthcare Experience	Group	
	Control (n = 13)	Intervention (n = 14)
EMT/Paramedic	3 (23.1)	2 (14.3)
Licensed practical/vocational nurse		1 (7.1)
Medical office assistant	1 (7.1)	1 (7.1)
Patient care tech/nurses' aide	5 (38.5)	2 (14.3)
Pharmacy tech		1 (7.1)
Medical office assistant and patient care tech/nurses' aide	2 (15.4)	3 (21.4)
EMT/Paramedic and medical office assistant		1 (7.1)
Dental assistant/hygienist and patient care tech/nurses' aide		1 (7.1)
Patient care tech/nurses' aide and social worker/counselor	1 (7.1)	
EMT/paramedic and pharmacy tech	1 (7.1)	
Declined to specify		2 (14.3)

Note: Fisher's exact test was performed due to an inadequate sample size for chi-square test of homogeneity, with the two multinomial probability distributions being equal (p = .612).

Table 2.3

Means, Standard Deviations, and Two–Way Mixed ANOVA Statistics for Self-Perceived Empathy

Variable	Control (n = 33)		Intervention (n = 38)		ANOVA			
	M	*SD*	*M*	*SD*	Effect	*F* ratio	*df*	$\eta^2_{partial}$
Empathy								
Interaction					G x T	6.06*	1,69	.08
MKCES T1 [a]	50.15	3.27	48.29	4.62	G	3.73	1,69	.05
MKCES T2 [a]	50.46	4.08	50.55	4.28	G	0.01	1,69	.0001
MKCES Δ [b]	0.31				T	0.30	1,32	.01
MCKES Δ [b]			2.26		T	16.10**	1,37	.30

Note: N = 71. ANOVA = analysis of variance; G = group; T = time; MKCES T1 = empathy pretest; MKCES T2 = empathy posttest; MKCES Δ = within–group mean difference.

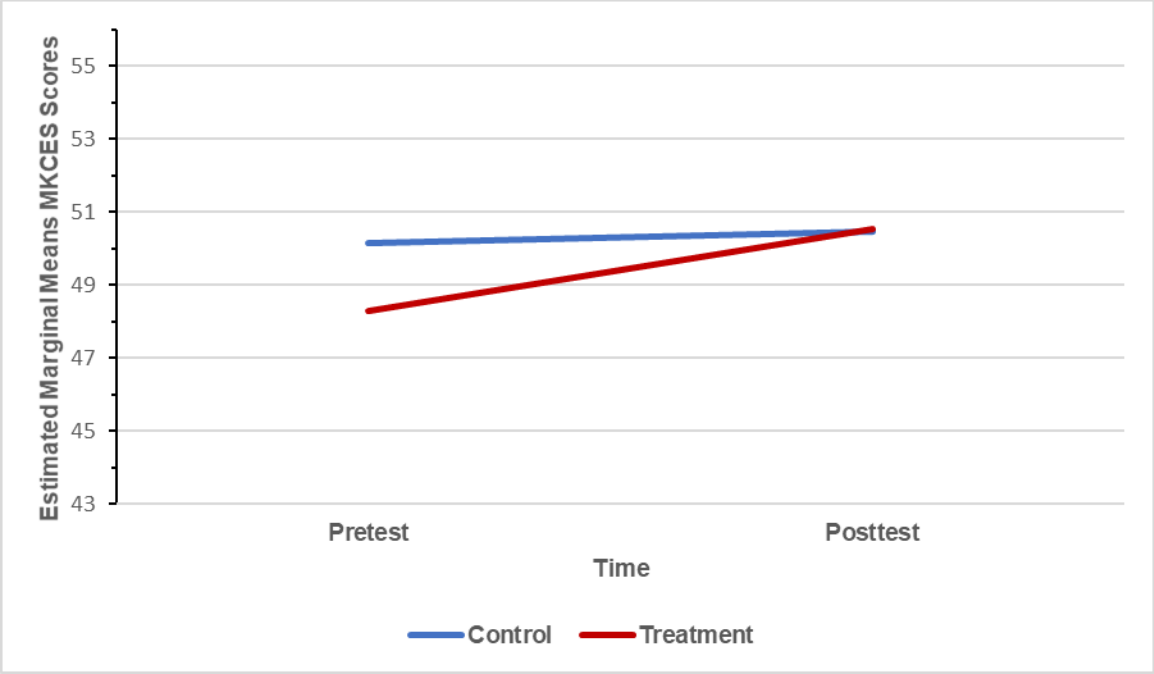
[a] Reflects the simple main effect for group.

[b] Reflects the simple main effect for time.

*p < .05. **p < .001.

Figure 2.1

Interaction of Group and Time (Two–Way Mixed ANOVA)



Chapter III

Student Self–Perceptions of Nursing Competency:

The Effects of Empathy and Emotional Intelligence

As workforce stakeholders find that new graduates require additional (and sometimes extensive) support to become competent in practice it may be helpful to examine influences that enhance attainment of the skills new nurses are lacking. Many of the competencies identified by Huston et al. (2018) and Theisen and Sandau (2013) as needing additional development (e.g., communication, collaboration, teamwork, and organization) have been linked to emotional intelligence (EI). For example, research indicates that higher levels of EI are associated with effective interpersonal communication skills (Amini et al., 2019; Meng & Qi, 2018), and with increased ability to manage emotions, which is necessary for working as part of a team (Quoidbach & Hansenne, 2009). Additionally, Codier and Codier (2017) stated that emotional intelligence is an essential characteristic of therapeutic communication, which influences patient perceptions of compassion and caring in nurses. In fact, Rego et al. (2010) demonstrated that effective use of emotion (a component of EI) positively and statistically significantly predicted patient perceptions of caring behaviors.

The fact that nursing care is continuously evolving has made it difficult to find an agreed–upon definition of competence in nursing. Moreover, expectancies for competent behaviors change over time and across practice settings. To illustrate, a student's perception of competence might be task–specific (e.g., competent performance during wound care) while a nurse educator might equate competence with the attainment of multiple skills that facilitate the safe delivery of patient care. An entirely different opinion may be held by stakeholders in

practice settings who have expectations for minimal levels of competence that are likely to differ from those of students and faculty.

Additional confusion is created by the subtle difference between the words *competent* and *competency*. In fact, Moghabghab et al. (2018) found it necessary to distinguish between these terms to address inconsistencies in the language used in regulatory documents for nursing practice in Ontario, Canada. Using a structured concept analysis, the authors determined that competencies are individual components of nursing knowledge, skill, or judgement that are utilized in practice, while competence is a capacity to integrate these abilities effectively and consistently when providing nursing care (Moghabghab et al., 2018).

In reflecting upon the definitions offered by Moghabghab et al. (2018), it might be more appropriate to use the word competency to describe student nurse behaviors relative to end of program outcomes. In fact, if competence is viewed using Benner's (1984) framework, it is acknowledged that it takes several years before individual competencies are integrated into competent nursing practice. Therefore, it would be helpful to explore factors that potentiate competency development in student nurses to better prepare them for entry to practice and to facilitate their progression along Benner's (1984) continuum.

Outside of academic settings, insight on employer beliefs surrounding nursing competence is found in literature pertaining to transition to practice programs for newly graduated nurses. Competencies found to be lacking in new to practice nurses are centered on communication skills, organization, professionalism, and teamwork (Huston et al., 2018). This is in line with earlier findings of Theisen and Sandau (2013) who determined that new nurses lacked ability in areas of communication, organization, collaborative teamwork, and stress

management. Furthermore, Kavanagh and Szweda (2017) noted that roughly 75% of newly graduated nurses lack competencies necessary for practice.

Whereas educators endeavor to foster competency development by providing students with cognitive knowledge and by teaching technical skills (e.g., dressing changes, gastric tube management, documentation), it could be that an emphasis on cognitive knowledge and psychomotor skills development has hampered the development of affective attributes in student nurses (Valiga, 2014). Pedagogical approaches used in nursing programs may influence competency development as well. Faculty have been asked to encourage knowledge application (as opposed to knowledge acquisition), however, a shift toward knowledge integration might prove useful for optimizing competency development in new nurses to better prepare them to become competent practitioners. Knowledge integration involves making sense of the ways that knowledge is applied in situational contexts using reflection to explore outcomes and create mental models (Clark & Linn, 2003). In nursing academe, knowledge integration might involve not only applying knowledge to clinical situations but reflecting on knowledge application and associated patient outcomes through the lens of core nursing values (e.g., altruism, caring, ethics, integrity, social justice) to better understand nursing phenomena. This might assist students to better utilize emotional and other non–cognitive attributes to develop nursing competence.

Although the development of affective characteristics is often overlooked in nursing curricula, Freshwater and Stickley (2004) stressed the need to foster the emotional development of student nurses. The authors stated that neglecting to do so does little to promote the "heart and the art of nursing practice" (Freshwater & Stickley, 2004, p. 93). This paper provides an examination of the influences of emotional attributes, specifically empathy and EI, on student self–perception of competency with nursing skills. A richer understanding of the relationships

between these variables may guide development of educational interventions that potentiate competency development in student nurses, enhance readiness for practice, and ultimately improve nursing care.

Conceptual Framework

Emotional intelligence is a relatively new idea within the social and behavioral sciences. First proposed by Salovey and Mayer (1990), the authors revised their original concept and later defined EI as the ". . . ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth" (Mayer & Salovey, 1997, p. 10). In healthcare workers, EI has been demonstrated to influence burnout (Lindeman et al., 2017), stress (Foster et al., 2018), and self–perceived ability with patient–centered care (Sommaruga et al., 2017). Because previous research has identified a relationship between EI and self–perceived competence in nursing students (Beauvais et al., 2011) a framework centered on EI was chosen for this study.

Salovey and Mayer's Emotional Intelligence Framework

Salovey and Mayer (1990) introduced a third intelligence believed to be distinct from the verbal–propositional and spatial–performance concepts of intelligence that had been previously recognized by social–behavioral scientists. Mayer and Salovey (1997) argued that EI was a genuine intelligence and not an inherent trait, as it required a degree of reasoning, reflection on meaning, and decision making to be used effectively. The authors developed a four–branch model to explain how emotion influences intellectual capacities, with lower branches representing basic abilities developed during childhood and the upper branches reflecting more complex thought patterns that are influenced by age and experience. The lower two branches

involve (a) perceiving/recognizing emotion, and (b) using emotions to guide thought, while the upper two branches concern (c) understanding/interpreting meaning of emotion, and (d) the ability to manage or regulate emotional responses in oneself and in others (Mayer & Salovey, 1997). Emotional intelligence can be used as a framework to explore interactions between the cognitive and affective domains and, according to Salovey and Pizarro (2003), to better understand relationships between seemingly dissimilar constructs. Empathy is a precursor to lower branch behaviors that facilitate the ability to appraise emotion in others (Mayer & Salovey, 1997; Salovey & Mayer, 1990).

Empathy in Nursing

Theories of empathy specific to nursing have yet to be formalized (Fernandez & Zahavi, 2020), and many have noted that there is much confusion as to what the concept should include (Alligood, 2005; Fernandez & Zahavi, 2020; Kunyk & Olsen, 2001; Sutherland, 1993; Walker & Alligood, 2001; Wiseman, 2007). While some have criticized the use of "borrowed" theory to investigate empathy in nursing (Fernandez & Zahavi, 2020; Walker & Alligood, 2001), no formal theory exists. However, there are relevant theories outside of nursing that are useful for research. A model proposed by Davis (1996) offers a holistic perspective on the development and use of empathy and is therefore suited for exploring how empathy influences nursing practice and patient care. In short, Davis (1996) suggested that empathic outcomes result from an ability to identify and respond to another person's unique situation by integrating cognitive and affective mental processes to invoke emotions in oneself that guide actions demonstrated toward others.

Despite ambiguities surrounding the concept of empathy in nursing, it has been formally (and explicitly) included in tenets of practice endorsed by professional nursing organizations.

The American Nurses Association's (ANA) *Nursing: Scope and standards of practice* identified empathy as an aspect of the art of nursing, an important element of culturally competent care, and necessary for engaging in therapeutic communication (ANA, 2015). The National League for Nursing (NLN) included empathy as part of the ethical comportment of relationship–centered care, a required competency for graduates of all levels of nursing program (NLN, 2012). The American Association of Colleges of Nursing (AACN) described caring attributes of the profession as including "[a] nurse's empathy for, connection to, and being with the patient, as well as the ability to translate these affective characteristics into compassionate, sensitive, and patient–centered care" (AACN, 2008, p. 26). Moreover, the organization has retained language pertaining to empathy in two domains (i.e., person–centered care and professionalism) of the new *Essential Core Competencies for Professional Nursing Education* (AACN, 2021), thus supporting the continued inclusion of this concept in nursing academe.

Emotional Intelligence in Nursing

In nursing, EI contributes to effective interpersonal communication and facilitates the provision of patient–centered care (Sommaruga et al., 2017). Raghubir (2018) suggested that EI is an attribute of reflective practice that guides nurse decision making. The idea that emotion contributes to clinical decision making is not new. Benner and colleagues (1996) acknowledged the role of emotions in the nurse's ability to perceive and respond to problems to make accurate clinical judgments, and that the capacity to do so is consistent with the competent stage of Benner's (1984) framework.

Kozlowski et al. (2017) validated the notion that clinical judgement is impacted by emotion and found that nurses and other healthcare workers use emotion to guide clinical decisions even when unaware of its influence. The tacit influence of EI on clinical decision

making is evidenced in a qualitative study that analyzed nurse recollections of patient care experiences (Kooker et al., 2007). Although the nurses were asked to provide a narrative description of a time when their use of nursing knowledge influenced a patient outcome, Kooker et al. (2007) found that EI domains of Goleman's (1995) framework (i.e., self–awareness, social awareness, self–management, and social/relationship management) were obvious in the narrative accounts. Furthermore, the authors determined that it was emotion that guided the nurses' application of nursing knowledge when making clinical decisions, not cognitive processes alone (Kooker et al., 2007). Other studies have evidenced the impact of EI on clinical performance, Codier et al. (2008) found a statistically significant result when evaluating the relationship between EI and nurse progression on clinical ladders, and Heydari et al., (2015) found a positive and statistically significant relationship between EI and self–perceived nursing competence in a large sample (n = 173) of Iranian nurses. Thus, emotional intelligence is related to nursing professional outcomes.

Competence in Nursing

The distinction between competency and competence as applied to Canadian nursing practice suggested by Moghabghab et al. (2018) provides clarification that might influence the development of a formal framework for competence in nursing, however, the authors' definitions have yet to be adopted into models of competence sponsored by professional nursing entities in the United States. In a review of literature pertaining to how competence is perceived in nursing, Cowan et al. (2005) noted that it is a poorly defined concept that can have positive (e.g., not being incompetent) and negative (e.g., being less than proficient) connotations. The implication of the negative meaning is consistent with Benner's (1984) model, where competence lies somewhere near the middle of a continuum between novice and expert and is said to take time to

develop. Cowan et al. determined that a holistic model that integrates knowledge, skills, and attitudes into actions nurses take when caring for patients might be better suited for research and assessment of competence in nursing. Church (2016) synthesized literature related to competence and quality of nursing care and determined that changes in practice attributable to advances in healthcare technologies and treatments make competence a continually evolving concept. The author put forth a model of competence that included seven specific behaviors that result from the integration of nursing knowledge, discipline specific skills, and professional values (Church, 2016). In evaluating Church's model and the one suggested by Cowan et al. it is evident that competence in nursing is likely the product of interrelated cognitive, psychomotor, and affective abilities and not something that can be defined or measured within one practice–specific domain.

The multidimensional nature of competence is evidenced by the ANA who suggested that competence is "situational and dynamic" (ANA, 2015, p. 44) and suggested that outcomes of competence vary according to the context in which specific competencies are expected. The organization promoted a holistic model of competence which is fostered by student integration of "knowledge, skills, ability, and judgment" (p. 44) obtained during individual and varied learning experiences while providing patient care (ANA, 2015). Ability, as a component of the model, results from intrinsic qualities such as self–awareness, emotional intelligence, and self–reflection, which allow a nurse to perform effectively (ANA, 2015). The AACN validated the ANA position by acknowledging that competence is developed in increments and suggested that students be prepared to a minimal level of competence within each essential baccalaureate domain during their undergraduate learning experience (AACN, 2021).

Relationships Among Empathy, EI, and Nursing Competence

As outlined previously in this paper, empathy, EI, and nursing competence appear to be interrelated concepts. The degree to which the combined effect of empathy and EI facilitates competency in student nurses, however, has not been well researched. Only one study (Jahanshahi et al., 2017) that identified an association between empathy and clinical competence in practicing nurses was found.

Empathy and Emotional Intelligence

Studies pertaining to the relationship between EI and empathy in health professionals began to surface in the early 2000s, but evidence to support a relationship between empathy and EI in student nurses has only appeared within the last few years. Hajibabaee et al. (2018) explored empathy and EI in a large (n = 320) sample of Iranian student nurses; in addition to finding a positive and statistically significant association between empathy and EI, the authors identified statistically significant gender–based differences in empathy, with females scoring higher. In examining the relationships among empathy, EI, and alexithymia (i.e., the inability to identify emotions), Di Lorenzo et al. (2019) found strong positive correlations between empathy and EI and inverse associations between alexithymia and EI in a sample of student nurses in Italy. Kang and Choi (2020) proposed a model for perceptions of palliative care and hospice in student nurses and noted a moderate and statistically significant association between empathy and EI in a large (n = 458) sample of student nurses in South Korea. The authors also noted a greater influence of empathy (when compared to EI) on perceptions of palliative care and hospice (Kang & Choi, 2020). Since several authors have found positive associations between empathy and EI, evaluating their combined influence on nursing competence may inform faculty efforts to develop affective attributes in student nurses.

Emotional Intelligence and Competence

The number of studies on the influence of EI on competence in student nurses over the past decade suggests that there is heightened interest in this topic. Beauvais et al. (2011) appear to be the first to have investigated the relationship between EI and student nurse performance. The authors noted a positive and statistically significant association between EI and self–perceived ability with nursing skills including patient teaching and collaboration, planning and evaluation, interpersonal relations and communication, and professional development, as well as a positive and statistically significant relationship between EI and overall self–perceived performance (Beauvais et al., 2011). Por et al. (2011) found a moderately positive statistically significant relationship between EI and self–perceived competence in a sample of student nurses in Great Britain. Similar findings were reported by Farshi et al. (2015) who evaluated associations of EI and self–perceived competence in student nurses in Iran. A study by Rice (2015) identified a positive association between EI and clinical self–efficacy but found no relationship between EI and self–assessed competence in a sample of student nurses. It is important to note that these authors all assessed competence using self–report instruments, and that the observed results do not suggest that EI influences competence demonstrated by student nurses during clinical patient encounters.

Empathy and Competence

No studies that explored relationships between empathy and competence in nursing students were located. There is, however, literature that highlights positive associations between empathy and EI, and between EI and competence, so it is possible that empathy, as an antecedent of EI (Mayer et al., 2007; Salovey & Mayer, 1990) may indirectly influence self–perceptions of competence in student nurses. The goal of the present study was to assess for a relationship

between empathy and nursing competence and explore the combined effect of empathy and EI on competence in student nurses. The findings of this study may inform curricular decisions surrounding affective learning outcomes in nursing education.

Methods

Study Design

A quantitative correlational design was used to explore relationships between empathy, emotional intelligence, and clinical competence. The data were further explored using mediation analysis to determine if emotional intelligence explained the relationship between empathy and clinical competence. All data were collected using Qualtrics secure internet survey platform.

Sample and Setting

An a priori power analysis was performed in G*Power (version 3.1.9.2) for Pearson's correlation using a two–tailed test, a projected population coefficient of .30, an alpha of .05, power of .80, and a null coefficient of zero which resulted in a required sample of 84 participants. An a priori power analysis for linear multiple regression (fixed effects model, correlation deviation from zero) was performed using a squared multiple correlation of .30, alpha of .05, power of .80, and two predictors which indicated at total sample of 26 participants.

A convenience sample of nursing students was used. Participants were enrolled in either the traditional (i.e., 4 year) or second degree (i.e., 14–month) degree baccalaureate (BSN) program at two campuses of a large northeastern university. Data collection took place during the spring, summer, and fall 2020 terms. Participants were in the second semester of the core nursing sequence and enrolled in a course entitled "Health and Illness of Adults and Older Adults I." All students who were able to provide legal consent were invited to participate in the

study. Study participation was voluntary, and students were able to withdraw consent at any time.

Procedure

Data used in these analyses were obtained as part of a larger quasi–experimental control group study that evaluated the use of a video–based patient narrative and empathy training as a mechanism to promote empathy in student nurses. The institutional review boards of the researcher's university and study site (where the researcher is a faculty member) approved the protocol and students were recruited using classroom visits and email flyers. Classroom visits took place in person during the spring 2020 term, and virtually during the summer and fall 2020 terms due to COVID–19 restrictions. A script (Appendix B) was used to explain the study purpose and procedures during all classroom visits to ensure consistency. Informed consent was obtained using written forms during the spring term and electronically during the summer and fall terms with all students receiving a copy of the consent document that contained the researchers contact information should they experience any difficulties while participating or choose to withdraw.

Participants accessed study instruments using an email link that directed them to a secure web–based survey platform. Participants completed the Modified Schutte Emotional Intelligence Scale (MSEIS) during the pre–study phase of the larger dissertation study and completed the Kiersma–Chen Empathy Scale (KCES) and Short Nursing Competency Questionnaire (SNCQ) during the post–study period. Participants were permitted to complete the surveys at any time during the survey open and close dates. Access to the MSEIS was provided upon study enrollment and closed one week before access to the KCES and SNCQ was allowed; this was necessary because of the timing of the experimental part of the larger study. Students were

afforded the opportunity to complete the KCES and SNCQ post–study surveys on the day they were scheduled to attend simulation. Subjects who completed every component of the study were eligible to enter a lottery to win one of six Amazon gift cards valued at $50 each.

Measures

Demographic data were collected using a researcher designed survey. Students completed the full 15–item KCES as a measure of self–perceived empathy, but a shorter, modified version was used in the data analysis. Emotional intelligence was assessed using the MSEIS, and the SNCQ was used to measure participant self–perceptions of nursing competence. Author permissions (Appendix D) were obtained for each instrument used in this study.

Kiersma–Chen Empathy Scale (KCES)

Designed to assess affective and cognitive empathy, the KCES (Appendix E) is a 15–item self–report instrument developed for use in pharmacy and nursing students (Kiersma et al., 2013). The measure uses a 7–point Likert–type scale (1=strongly disagree; 7=strongly agree), has a range from 15–105 (with higher scores indicating greater empathy), and contains for negatively worded items. The measure was developed as an alternative to the widely used Jefferson Scale of Empathy–Health Professions Students (JSE–HPS) which was limited to assessment of cognitive empathic behaviors. In evaluating the psychometric properties of their instrument, Kiersma et al. (2013) reported a Cronbach's alpha coefficient of .86 for the original scale. The authors demonstrated concurrent validity by correlating the scale with JSE–HPS which had been validated by Hojat et. al. (2002). The KCES was chosen for assessing empathy in this study because it represents a construct of empathy the researcher believes is applicable to nursing, it has previously been used to assess empathy in nursing students, and it was freely available.

Haley et al. (2017) employed the KCES to evaluate the effect of a patient narrative on empathy in student nurses and reported a reliability of α = .87 when used in their study. Thomas et al. (2020) applied the KCES as a measure of empathy toward pregnant patients and reported a range of α = .66–.81 when used with their sample. Everson et al. (2015) used the instrument to assess the effect of a 3–D simulation on cultural empathy and to perform additional psychometric testing of the 15–item measure with a large sample (*n* = 460) of student nurses in Australia. In this study, confirmatory factor analyses revealed that a shorter 8–item modified scale (MKCES) was better suited to measuring cognitive and affective empathy (Everson et al., 2015). When used with the sample of student nurses in the Everson et al. study the reliability for the MKCES was reported as α = .73.

In the present study, the KCES had a Cronbach's alpha coefficient of .67 (pre–test) and .66 (posttest). The researcher retained items 1, 2, 3, 7, 8, 12, 13, and 14 as Everson et al. (2015) had done to create the MKCES and evaluated the reliability of the shortened instrument. The Cronbach's alpha coefficient for the 8–item measure was .73 (pre–test) and .81 (posttest) when used with the sample of the current study. This improved reliability of the shortened instrument supported a decision to use the MKCES to assess self–perceived empathy in student nurses in the current study and all analyses were performed using the 8–item modified instrument.

Modified Schutte Emotional Intelligence Scale (MSEIS)

Adapted from the 33–item Schutte Emotional Intelligence Scale (SEIS) the MSEIS (Appendix H) was created by Austin et al. (2004) to improve assessment of the "utilization of emotions" factor of the original scale. Reliability of the modified instrument was evaluated along with the EIS and the commercially available Short Bar–On Emotional Quotient Inventory (EQ–i:S) in a sample of 500 nursing students. The authors reported reliabilities of α = .84 for the EIS,

α = .87 for the EQ–i:S, and α = .86 for the MSEIS when used with this sample (Austin et al., 2004). A three–factor structure (i.e., regulation of emotions, utilization of emotions, appraisal of emotions) was confirmed and the MSEIS was cross–validated by correlating these factors with associated subscales of the EQ–i:S (Austin et al., 2004). The MSEIS uses a 5–point Likert–type scale to assess perception of emotional intelligence (1 = "strongly disagree" and 5 = "strongly agree") and has a range in score from 41 to 205, with higher scores representing higher emotional intelligence. Besharat (2007) established construct validity for the MSEIS (translated to Farsi for use with his sample) using principal components factor analysis. In his study of 442 undergraduate university students, Besharat noted a single–factor general EI structure that, with the addition of oblique rotation, yielded three positively correlated sub-factors that were consistent with the findings of Austin et al.

When used to evaluate relationships between empathy, emotional intelligence, and exam scores in medical students (*n* = 156), Austin et al. (2005) reported reliability for the MSEIS as α = .84. Austin et al. (2007) applied the MSEIS to assess relationships between emotional intelligence, empathy, academic performance, and year of study in medical students and reported a reliability of α = .82 when the instrument was used with this sample. The MSEIS was also used to assess relationships between EI, personality, social support, and health–related factors in a large (*n* = 704) sample of undergraduate students in Scotland and Canada with a reported reliability of α = .86 (Austin, Saklofske & Egan, 2005). The Cronbach's alpha coefficient for the MSEIS was .70 in the present study, suggesting adequate reliability when the instrument was used with this sample.

Short Nursing Competencies Questionnaire (SNCQ)

The 18–item SNCQ (Appendix I) was derived from the larger 78–item Nursing Competencies Questionnaire (NCQ) using Mokken scaling, a statistical procedure that enables retention of latent concepts measured by the original instrument (Watson et al., 2002). Developed to evaluate self–perceived competence in student nurses, the instrument uses a 4–point (never, occasionally, usually, and always) Likert–type scale and scores range from 18–72 with higher scores indicating increased perception of nursing competence. A large sample of student nurses completed the instrument at two intervals (time 1 n = 300, time 2 n = 287) that were six months apart, with reliability for the instrument reported as $\alpha = .87$ and $\alpha = .89$, respectively (Watson et al., 2002).

Clinton et al. (2005) used both the NCQ and SNCQ to assess competence in student nurses and demonstrated concurrent validity as similar results for both instruments were observed in their sample. Farshi et al. (2015) applied the SNCQ to investigate the relationship between EI and competence in a group of 132 pre–licensure nursing students. Content validity for the measure was established using expert review by 10 nursing and midwifery faculty, and reliability for the SNCQ was reported as $\alpha = .77$ when used with their sample (Farshi et al., 2015). The SNCQ was used to assess the relationships of nursing competence and select demographic variables (e.g., social support, year of study, class attendance, and perceptions of the clinical learning environment) in student nurses with a reported reliability of $\alpha = .88$ (Bifftu et al., 2016). The instrument also had good reliability in student nurses when used by Lauder et al. (2008) to assess relationships of nursing competence, social support, and self–efficacy ($\alpha = .90$); and by Por et al. (2011) to assess relationships of nursing competence and emotional

intelligence (α = .90). The SNCQ had a Cronbach's alpha coefficient of .91 when used with in the present study.

Demographic Questionnaire

A 7–item survey (Appendix G) was developed by the researcher to assess demographic variables of participant age, gender, race/ethnicity, program of study, and campus location. Two questions pertaining to previous employment in a healthcare setting and prior experience of having been a patient was added to determine if these factors influenced self–perceptions of empathy.

Other Measures

The study reported in this chapter was part of a larger dissertation study in which participants completed a total of five instruments. In addition to the KCES, MSEIS, SNCQ, and demographic questionnaire, all subjects completed a measure of engagement during simulated clinical learning activities.

Analysis

Data were analyzed using IBM SPSS Version 26. Demographic variables were analyzed using descriptive statistics (i.e., frequencies, percentages and means with standard deviations). Pearson's product moment correlation coefficients were used to assess relationships among MKCES, MSEIS, and SNCQ scores. Hayes's (2018) PROCESS (v3.5) macro extension for regression analysis in SPSS (Model 4) was used to determine if emotional intelligence mediated the relationship between empathy and clinical competence.

Results

A total of 318 students were registered in the course that was targeted for this study during the January to October 2020 data collection period. The largest study enrollment occurred

during the spring 2020 term; 61 students consented to participate during this time, but only 18 were able to complete all parts of the study before the COVID–19 restrictions forced a transition to remote learning. One additional subject was able to complete all study components after the researcher modified a part of the protocol for implementation in a virtual environment. An additional 55 students were enrolled in the study during the summer and fall 2020 terms. Two students were deleted from the analysis due to inattentive response patterns (e.g., selecting "disagree" for each item) that were noted on their pre and post–study questionnaires, and one student withdrew during the fall term, leaving a final sample size of 71.

Demographic Variables

Participant age ranged from 20 to 52 years and the sample was overwhelmingly female (87.3%). Frequencies and percentages for all demographic characteristics are provided in Table 3.1. Eta coefficients were calculated to assess associations between empathy and demographic variables pertaining to previous healthcare experience ($\eta = .17$), and previous hospitalization ($\eta = .05$), which were both negligible.

Correlational Analyses

Pearson's product moment correlation coefficients were used to assess associations between empathy and emotional intelligence, emotional intelligence and nursing competence, and empathy and nursing competence (Research Question 1). Estimation of the magnitude of the relationships are reported using Cohen's (1988) guidelines with coefficients of .10, .30, and .50 representing small, moderate, or large effect sizes, respectively. Correlation coefficients for relationships among the variables of interest are summarized in Table 3.2.

Empathy and Emotional Intelligence

The analysis included a total of 71 paired observations. Scatterplot inspection confirmed a linear relationship between the variables. There was one outlier in the MKCES data which was retained in the analysis as removing it did not change the statistical conclusions. Mean MKCES score was 50.51 (± 0.49) and mean MSEIS score was 159.27 (± 15.73). Shapiro–Wilk's test suggested a non–normal distribution of MKCES score (p = .003), however, skew and kurtosis values (–0.68 and 0.40, respectively) were between ± 2 which is appropriate for parametric analyses requiring normal distributions (George & Mallery, 2016; Pituch & Stevens, 2016). Visual inspection of Q–Q plot indicated the MKCES distribution was approximately normal, supporting the use of parametric analysis. The distribution of MSEIS scores assessed using Shapiro–Wilk's test was normal (p = .845). A moderate and statistically significant positive correlation between empathy and emotional intelligence was noted in this sample (r = .32, p = .007), with empathy score explaining 10% of the variance in emotional intelligence score.

Emotional Intelligence and Nursing Competence

Scatterplot inspection of the 71 paired observations indicated a linear relationship between the variables. No outliers were noted in either dataset. Mean MSEIS score was 159.27 (± 15.73), and mean SNCQ score was 60.25 (± 0.85). Shapiro–Wilk's test indicated the MSEIS data were normally distributed (p = .845), but the SNCQ data were not (p = .031). Skew and kurtosis values for SNCQ data (0.03 and –0.91) were between ± 2, thus meeting the assumption of normality required for parametric analysis (George & Mallery, 2016; Pituch & Stevens, 2016). Visual inspection of Q–Q plot suggested an approximately normal distribution of SNCQ data. Pearson's correlation indicated a moderate positive and statistically significant relationship

between emotional intelligence and nursing competence ($r = .44$, $p < .001$). Emotional intelligence score accounted for 19% of the variance in nursing competence score in this sample.

Empathy and Nursing Competence

Scatterplot inspection confirmed a linear relationship between the 71 paired empathy and nursing competence scores. There was one outlier noted in the MKCES dataset that was retained in the analysis, since removing it did not alter the statistical outcome. Mean MKCES score was 50.51 (± 0.49) and mean SNCQ score was 60.25 (± 0.85). Shapiro–Wilk's tests suggested non–normal distributions for MKCES and SNCQ data ($p = .003$ and $p = .031$, respectively). Skew and kurtosis values for each variable (MKCES skew = –0.68 and kurtosis = 0.40; SNCQ skew = 0.03 and kurtosis –0.91) were between ± 2 and considered normally distributed and suitable for parametric analysis according to guidelines suggested by George and Mallery (2016) and Pituch and Stevens (2016). Visual inspection of Q–Q plots indicated that MKCES and SNCQ data distributions were approximately normal. A moderate positive and statistically significant relationship between empathy and nursing competence was observed ($r = .40$, $p = .001$). Empathy accounted for 16% of the variance in nursing competence in this sample.

Mediation Analysis

I next evaluated the relationships among the variables using a simple mediation model to determine if emotional intelligence explained any of the observed relationship between empathy and nursing competence (Figure 3.1). The direct and indirect effects of empathy on nursing competence as mediated by emotional intelligence were calculated using the approach recommended by Baron and Kenny (1986). Hayes's (2018) PROCESS (v3.5) macro extension for SPSS (Model 4) was used to confirm the findings of the simple mediation model and to determine the statistical significance of the indirect effect of empathy on nursing competence.

Ordinary Least Squares (OLS) Regression Analyses

Simple Linear Regression. First, I regressed nursing competence on empathy, and found that empathy statistically significantly predicted nursing competence $F(1,69) = 12.99$, $p = .001$, $R^2_{adjusted} = .15$, a medium effect according to Cohen's (1988) convention. Thus, the *c* path of the model (i.e., the total effect of empathy on clinical competence) was positive and statistically significant ($B = 0.69$, $t(1,69) = 3.60$, $p = .001$). I next regressed emotional intelligence on empathy, which indicated that empathy statistically significantly predicted emotional intelligence $F(1, 69) = 7.65$, $p = .007$, $R^2_{adjusted} = .09$, a small effect size according to Cohen's (1988) convention. Therefore, the *a* path (i.e., the effect of empathy on emotional intelligence) was positive and statistically significant ($B = 1.20$, $t(1,69) = 2.77$, $p = .007$). Last, I regressed nursing competence on emotional intelligence and found that emotional intelligence statistically significantly predicted nursing competence $F(1, 69) = 16.48$, $p < .001$, $R^2_{adjusted} = .18$, a medium effect size according to Cohen's (1988) convention.

Multiple Regression. The next step in Barron and Kenny's (1986) process utilizes OLS multiple regression to calculate the partial regression coefficients of the mediation model (Table 3.3). The results demonstrated that the partial regression effect of emotional intelligence on nursing competence (i.e., the *b* path) was positive and statistically significant ($B = 0.16$, $t(2,68) = 3.18$, $p = .002$), and the partial regression effect of empathy on nursing competence (i.e., the *c′* path) was positive and statistically significant ($B = 0.50$, $t(2,68) = 2.63$, $p = .01$).

Calculation of Indirect Effect

Sobel's (1982) product of the coefficients approach was utilized to calculate the indirect effect of empathy on nursing competence. I multiplied the regression coefficients for the *a* and *b*

paths (B = 1.20 and B = 0.16, respectively) to determine the coefficient for the indirect effect ($B_{indirect}$ = 0.19), noted as *ab* in Figure 3.1.

PROCESS Analysis

Last, I utilized Hayes's (2018) PROCESS (v3.5) macro for SPSS (Model 4) to confirm the OLS regression coefficients, calculate a bias–corrected bootstrapped 95% confidence interval for the indirect effect, and determine the statistical significance of the mediation effect (Table 3.4). The *a*, *b*, *c′,* and *c* path results calculated using OLS regression were validated (B = 1.20, B = 0.19, B = 0.50, and B = 0.69, respectively). The indirect effect of empathy on nursing competence (i.e., $B_{indirect}$ = 0.19) was evaluated using 5000 bias–corrected bootstrapped samples and found to be statistically significant (95% CI = 0.01–0.43). The partial mediating effect of emotional intelligence on the relationship between empathy and nursing competence was statistically significant ($t(2,68) = 3.60$, $p < .001$, 95% CI = 0.31–1.07). The combined effect of empathy and emotional intelligence accounted for 26.8% of the variance in nursing competence scores in this sample.

Discussion

The present study (a) explored associations between empathy, EI, and competence in undergraduate nursing students, and (b) determined if EI mediates the relationship between empathy and nursing competence. First, I explored the relationship between student self–perceptions of empathic ability as measured using posttest MKCES score and EI as measured using the MSEIS. A moderate positive and statistically significant relationship between empathy and EI was observed in this sample. This is consistent with findings in nursing reported by Hajibabaee et al. (2018), Di Lorenzo et al. (2019), and Kang and Choi (2020). Rego et al. (2010) evaluated EI as associated with the broader concept of caring in nursing (which included an

empathy component) and found statistically significant results in a sample of nurses in Portugal. Associations of empathy and EI have been identified in medical students (Austin et al., 2005), and Sa et al. (2019) noted associations of empathy and EI in a sample of health professions students that included dentistry, medicine, nursing, optometry, pharmacy, and veterinary disciplines. While these relationships have been explored in healthcare workers in other countries, there is a paucity of literature that reflects research on this topic in American health professionals or health professions students.

Second, I explored associations between EI and self–perceived nursing competence as measured using the SNCQ. A moderate positive and statistically significant relationship between EI and nursing competency was observed in this sample. The results of this study support earlier findings by Beauvais et al. (2011), Por et al. (2011), and Farshi et al. (2015) that demonstrated positive relationships between EI and competence in student nurses. The findings of this analysis contradict the results observed by Rice (2015) who evaluated associations between EI, self–efficacy, and competence in a sample of associate degree nursing students. Rice, however, indicated that a small sample size ($n = 57$) may have impacted the study outcomes. Relationships between EI and competence in practicing nurses have been reported by Codier et al. (2008) and Heydari et al., (2015) which suggests that EI abilities impact professional nursing activities.

Next, I explored the relationship between student self–perception of empathic ability as measured using posttest MKCES score and student perception of nursing competence as measured using the SNCQ. A moderate positive and statistically significant relationship between empathy and nursing competence was observed in this sample. This may be a unique finding as no prior studies describing this association in student nurses were identified in the literature. Jahanshahi et al. (2017), noted a positive and statistically significant relationship between self–

perceived empathy and self–reported competence in a sample of critical care nurses in Iran. Ogle et al. (2013) found statistically significant correlations between observed empathy and OSCE scores in medical students. Hojat et al. (2002) evaluated medical student empathy in relation to scores on validated assessments of residency clerkships during third–year clinical rotations with positive statistically significant findings. Casas et al. (2017) reported positive and statistically significant associations between self–perceived empathy and OSCE performance in medical students. Aside from overall competence, empathy may also influence specific health outcomes. To illustrate, Hojat et al. (2011) observed a statistically significant association between physician empathy and hemoglobin A1C control in patients with diabetes: Higher levels of provider empathy were correlated with greater glycemic control in this sample.

The previously unidentified positive correlation between empathy and competence in student nurses observed in the present study compelled additional analyses to determine the degree to which empathy and EI predicted self–perceived nursing competence in this sample. A concept analysis by Raghubir (2015) that described EI in advanced nursing practice assisted the researcher to develop a model that was suited to evaluating the relationships between the variables in the present study. Raghubir suggested that empathy influences and motivates behavior; and is necessary for executing EI domains of understanding, interpreting, and managing emotion. Therefore, empathy is an antecedent to EI. The author went on to identify EI consequents and indicated that EI influences nursing behavior by facilitating therapeutic relationships (Raghubir, 2015). Furthermore, Raghubir asserted that EI promotes a capacity for emotional regulation that is required to make appropriate decisions during periods of emotional stress. After considering the antecedents and consequents of EI as proposed by Raghubir in relation to the results obtained in the present study, the researcher tested to see if EI mediated

any of the relationship between empathy and competence and noted a partial mediating effect. If EI explains any of the relationship between empathy and competence it might be helpful to include EI training in undergraduate nursing curricula.

Limitations

The present study has several limitations. A convenience sample of student nurses from a single school of nursing located in the northeastern United States was used. The participants were overwhelming female and aged under 25 years. Geographic (Bach et al., 2017) and gender–based (Baez et al., 2017) influences on empathy and EI (Joseph & Newman, 2010) may have influenced the observed results, therefore, the findings may not be generalizable to other populations. All participants were in the second semester of the core nursing sequence at the time of the study and had varied amounts and types of actual patient care experience due to COVID–19 restrictions at the partner clinical agencies. It is possible that self–perceptions of empathy, EI, and nursing competency could change over time or be influenced by clinical experiences.

The sample size was less than indicated for correlational analyses. Recruitment and implementation of this study began during the spring 2020 semester just as the novel coronavirus first appeared in United States. The sudden suspension of in–person classes forced the researcher to pause data collection until a solution for remote facilitation of the experimental aspect of the larger study was identified. Initially, this resulted in a loss of subjects as they were unable to complete all study activities before the term ended. During the subsequent summer and fall 2020 semesters, the impact of the pandemic on students' individual health and wellness concerns, combined with disruptions to their learning engagement (e.g., poor internet connectivity, lack of social interactions with peers) probably contributed to low enrollment.

All concepts were measured using self–report instruments which raises the potential for biases that create difficulty in interpreting the reliability and validity of observed results (Polit & Beck, 2016). Although a measure of observed empathy was applied as part of the larger dissertation study, observed empathy scores were not used to explore associations among empathy, EI, and nursing competence in the present investigation. The remote environment limited student ability to demonstrate a range of behaviors associated with empathic nurse–patient interactions, thus the measure of self–perceived empathy was used instead. Measures of emotional intelligence are inherently self–report, but instrument design can improve the reliability and validity of observed results. The MSEIS was applied to assess EI in this study as it (or the shorter SEIS) had been used to assess relationships between empathy and EI and between EI and clinical competence in samples of health professionals and health professions students. The three–factor MSEIS (i.e., utilizing, appraising, and regulating emotions) is congruent with three (i.e., using, understanding/interpreting, and managing/regulating emotions) of the four–branches of Mayer and Salovey's (1997) framework, however, applying an instrument that explicitly measures all four branches may have allowed for a more comprehensive analysis of the relationships between variables. The use of a self–report instrument to assess competence in nursing students created threats to the internal and external validity of this study. The most frequently applied objective measures of competence reported in nursing education research are objective structured clinical evaluations (OSCE), however, they aren't commonly utilized in undergraduate programs and student nurses report feeling overwhelmed when assessed in this manner (Lewallen & Van Horn, 2019). Moreover, OSCE assessment is a time and resource–intensive process when compared with survey–based data collection, which makes it less applicable to certain research designs.

Conclusions

This research provides insight on affective attributes as related to cognitive and non–cognitive abilities in student nurses. The statistically significant findings between the variables, along with the combined effect of empathy and EI on students' perceptions of nursing competence, underscores a need to ensure that nursing curricula includes learning opportunities that develop students' affective abilities. Rapid and ever–evolving advances in medical therapies, patient care technologies, and other aspects of nursing practice continue to overwhelm nurse educators and overburden nursing curricula. Adopting reflective learning strategies that facilitate knowledge integration is one way to ensure ample opportunities for students to assimilate core nursing values.

Empathy development is generally not explicit in nursing curricula. Few studies on how it is best taught or influenced in student nurses exist (Levett–Jones et al., 2019). Yet empathy has been endorsed by the NLN, ANA, and AACN as an essential element of nursing practice (AACN, 2008, 2021; ANA, 2015; NLN, 2012). Furthermore, empathy is part of a caring relationship that nurses form with their patients which is evidenced in the provision of compassionate care (Nadelson et al., 2016). Richardson et al. (2015) noted that caring, empathy, and compassion contribute to the development of therapeutic relationships, and maintained that these core nursing values should be taught. Empathy, as an antecedent to EI, should therefore be formally taught as it may ultimately contribute to the development of nursing competence.

In a longitudinal study in student nurses, Holston and Taylor (2016) examined the effect of time on EI development. The authors noted incremental increases in some aspects of EI and a statistically significant increase in emotional self–awareness over the last two years of a BSN program, however, no intervention to promote EI was used in their study (Holston & Taylor,

2016). Fitzpatrick (2016) encouraged nurse educators to assist student development of EI skills and recommended the use of a structured model for teaching EI along with reflective learning activities to help students enhance their EI skills. Fitzpatrick's recommendation is one approach for transitioning to knowledge integration as it uses reflection to help students integrate professional values into nursing plans of care. Strategies for fostering EI along with empirical analyses of the efficacy of their use in undergraduate nursing education are needed.

Along with identifying best–practices for teaching EI, there is a need to focus on how competence is assessed in student nurses. Lewellen and Van Horn (2019) acknowledged the complexities with clinical evaluation in nursing but asserted that it is vital to ensure students develop nursing skills that are needed to provide safe patient care. There are few objective measures of competence aside from OSCEs. Lewellen and Van Horn noted a lack of consistency in instrument use which they attributed to no commonly accepted definition of competence in nursing. The authors also recommended that educators employ measures that evaluate overall competence as well as attributes that influence safe patient care (Lewellen & Van Horn, 2019). A potential avenue for objective assessment of competence in student nurses is the application of competency models such as the Quality and Safety Education for Nurses framework to assess student abilities during simulated clinical learning.

Although student self–perceptions of nursing ability cannot be equated with competence as suggested in Benner's (1986) model, the positive relationship between EI and nursing competence in the present study, along with findings reported by others, may provide insight on factors that facilitate competence in practice. A plethora of literature on new nurse transition to practice confirms the continued existence of the knowledge–to–practice gap that has plagued nursing for decades. Skills found to be underdeveloped in newly graduated nurses such as

interprofessional communication, organization, and teamwork are related to EI abilities. Including EI training within nursing curricula may optimize the development of skills that are essential for delivering safe patient care.

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Table 3.1

Demographic Characteristics of Study Participants

Demographic Characteristic	Sample	
	n	%
Gender		
Male	9	12.7
Female	62	87.3
Age		
20-25	48	67.6
> 25	23	32.4
Race/Ethnicity		
African American/Black	9	12.7
Asian	23	32.4
Hispanic/Latino	8	11.3
White	27	38.0
More than one race	4	5.6
Program of Study		
Traditional BSN	19	26.8
2nd Degree BSN	52	73.2
Previous Healthcare Experience [a]		
Yes	27	38.0
No	44	62.0
Previous Hospitalization		
Yes	40	56.3
No	31	43.7

Note: N = 71. Participants mean age was 21.54 years (SD ± 5.61).

[a] Categories of previous healthcare experience reported by participants included patient care technician/nurses' aide (*n* = 7), emergency medical technician/paramedic (*n* = 5), medical office assistant (*n* = 2), licensed practical nurse (*n* = 1), pharmacy technician (*n* = 1), more than one category of prior healthcare work (*n* = 9), or unspecified (*n* = 2).

Table 3.2

Descriptive Statistics and Correlations for MKCES, MSEIS, and SNCQ Scores

Variable	*n*	*M*	*SD*	1	2	3
1. Empathy [a]	71	50.51	0.49	—	.32*	.40*
2. Emotional Intelligence	71	159.27	15.73	.32*	—	.44**
3. Nursing Competence	71	60.25	.085	.40*	.44**	—

Note: MKCES = Modified Kiersma–Chen Empathy Scale; MSEIS = Modified Schutte Emotional Intelligence Scale; SNCQ = Short Nursing Competencies Questionnaire.

[a] Reflects posttest MKCES scores.

*$p < .01$. **$p < .001$.

Table 3.3

Regressions of Associations of Empathy, Emotional Intelligence, and Nursing Competence

Nursing Competence	*B*	*95% CI for B*		*SE B*	*β*	R^2	ΔR^2
		LL	*UL*				
Model						0.27	0.25^{***}
Constant	9.69	−11.00	30.38	10.37			
Empathy	0.50^{*}	0.12	0.88	0.19	0.29^{*}		
Emotional Intelligence	0.16^{**}	0.06	0.26	0.05	0.35^{**}		

Note. Model = "Enter" method in SPSS Statistics; *B* = unstandardized regression coefficient; *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE B* = standard error of the coefficient; *β* = standardized coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted R^2. $^{*}p < 0.05$. $^{**}p < 0.01$. $^{***}p < 0.001$.

Table 3.4

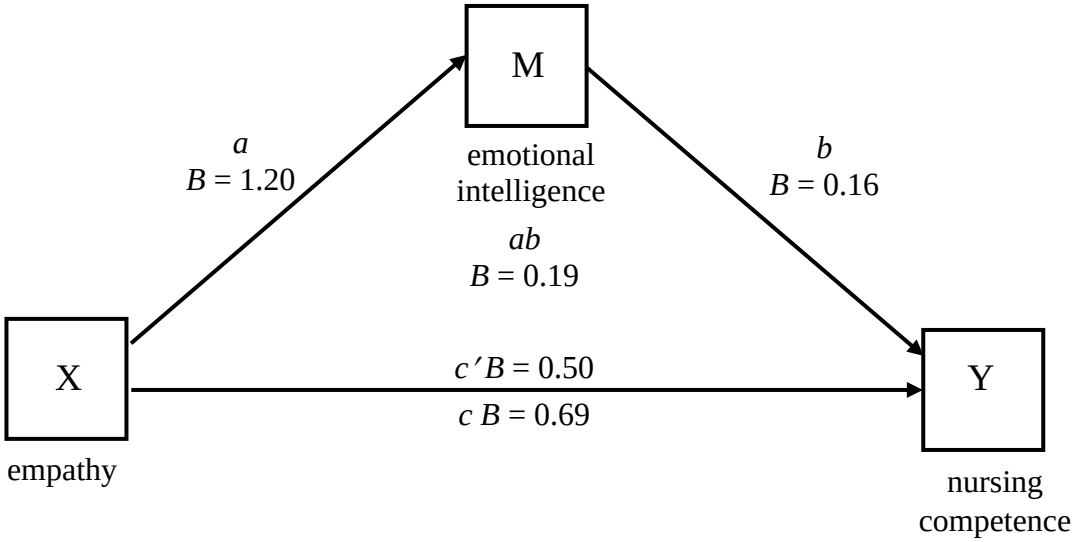
PROCESS (Model 4) Simple Mediation Coefficients

		Consequent						
		M (EI)				Y (Nurse Competence)		
Antecedent		*B*	*SE*	*p*		*B*	*SE*	*p*
X (Empathy)	*a*	1.20	0.43	.007	*c′*	0.50	0.19	.01
M (EI)		—	—	—	*b*	0.16	0.05	.002
constant	i_M	98.88	21.90	< .001	i_Y	9.69	10.37	.35
		R^2 = .10				R^2 = .27		
		$F(1,69) = 7.65$, $p = .007$				$F(2,68) = 12.42$, $p < .001$		

Note: The indirect effect (*ab*) = 0.19 and is statistically significant as indicated by bias-corrected bootstrapped 95% CI = 0.01–0.43. The total effect ($c = ab + c'$) = 0.69 (95% CI = 0.31–1.07). Two people who differ by one unit in empathy are expected to differ by 0.69 units in nurse competence. The partial mediating effect of EI is statistically significant $t(2,68) = 3.60$, $p < .001$).

Figure 3.1

Partial Mediating Effect of Emotional Intelligence on Relationship Between Empathy and Nursing Competence



Note: *a* = regression coefficient of emotional intelligence on empathy; *b* = regression coefficient of nursing competence on emotional intelligence; *c*′ = partial regression coefficient of nursing competence on empathy; *ab* = indirect effect of empathy on nursing competence; *c* = total effect of empathy on nursing competence.

Chapter IV

Promoting Student Nurse Engagement During Simulated Clinical Experiences: A Quasi–Experimental Study

Simulation–based clinical experiences provide student nurses an opportunity to apply theoretical knowledge to clinical situations and practice technical skills in a safe learning environment. Commonly referred to as simulation, this teaching strategy is rooted in cognitive, constructivist, and social learning theories (Rutherford–Hemming, 2012). For student nurses, simulation most often takes place in laboratories that replicate actual clinical environments replete with hospital beds, oxygen delivery devices, wound care supplies, medication carts, and patient monitors. These simulated settings provide opportunities for students to learn in context.

Patient interactions during simulation–based learning (SBL) can be facilitated using simulators such as static (i.e., non–technology enhanced) or human patient simulator (HPS) manikins that provide learners with computer–generated physiologic and verbal feedback. At times, standardized patients (SP), portrayed by specially trained actors, faculty, or student stand–ins, are used for SBL experiences. A major benefit to using SPs is it provides an interpersonal experience for students to practice aspects of therapeutic communication (Doolen, 2014) and patient–centered care (Herron et al., 2017). Although manikin–based simulation can be viewed as inauthentic and lacking opportunities for human interaction, a recent review of simulation in nursing education validated that HPS manikins are the most often used simulation modality in undergraduate curricula (Smiley, 2019). While SBL is a valuable substitute for traditional clinical learning, it has its limitations. Waxman et al. (2019) acknowledged that eliciting some of the more humanistic aspects of nursing care in simulation might be challenging.

In fact, Dean et al. (2015) raised concerns about using HPS simulators in nursing education and suggested that practicing nursing skills on manikins was inauthentic, de–humanized patient care, and that limited opportunities to practice interpersonal communication and develop core nursing attributes of caring and empathy. The authors argued that mock clinical settings do not adequately replicate the "interplay of scientific, technical and emotional factors" (p. 261) that are experienced in real environments. This highlights the need to explore methods for improving the authenticity (i.e., realism) of the SBL experience to allow opportunities for students to develop affective skills and practice humanistic nursing care.

Realism in healthcare simulation, also referred to as fidelity, describes how well the SBL experience matches the reality of the practice environment. According to Lopreiato (2016), concepts of fidelity (indicated in italics) include *conceptual* (e.g., how well individual aspects of the simulation contribute to a representation of an actual clinical situation), *environmental* (e.g., the degree to which the physical surroundings mimic real–world settings), and *psychological* (e.g., the level to which the simulation evokes emotions that are congruent with emotions experienced in practice). Moreover, the effectiveness of SBL is thought to be associated with how well the experience causes participant reactions that would be expected or needed in real–world environments (Lopreiato, 2016). Therefore, decisions surrounding the types and degree of fidelity in SBL should reflect the intended learning outcomes of the experience.

Naismith et al. (2020) evaluated the impact of various types of fidelity on participant learning in simulation. The authors determined that the combined effects of different types of fidelity influence participant perceptions of ability to apply learned skills in actual practice settings (Naismith et al., 2020). Efforts to maximize the physical fidelity of the SBL environment went largely unnoticed by participants in this study, while efforts to improve psychological

fidelity increased engagement and helped learners to perceive the experience as being more real (Naismith et al., 2020). As Lopreiato (2016) suggested, psychological fidelity involves an emotional reaction induced during a simulated clinical encounter, which in turn triggers physical, cognitive, neural, and biological reactions that would typically occur in real–world environments (Champney et al., 2014). While the findings of Naismith et al. (2020) represent the experiences of practicing healthcare professionals, it is worth evaluating how psychological fidelity impacts affective learning outcomes in student nurses as this area of simulation–based research is quite limited.

The purpose of the present study was to test the use of a video–based intervention that combined a first–person patient narrative with empathy training to influence student engagement during simulated clinical learning activities. This study also explored the relationship between student engagement and affective learning through simulation. The intervention was delivered as two 4–minute videos. The first video was a vignette that was added to the students' usual pre–simulation activities. In it, an actor portrayed the patient who was the focus of the simulation activity and delivered a monologue in which he described aspects of his social, emotional, and physical well–being. The second video was a short lesson on the importance of empathy as a professional nursing value, and an overview of how patients perceive empathy in their providers. It was hypothesized that students who received the intervention would be more emotionally engaged in the learning experience and that higher engagement would be associated with greater levels of empathy.

Conceptual Frameworks

Narrative transportation (NT), a concept that has been applied to research in the humanities, social sciences, and more recently healthcare, explains the process of being

transported (i.e., immersed or engaged) into a story or narrative account (Green & Brock, 2000). Described as a state in which "the reader loses access to some real–world facts in favor of accepting the narrative world that the author has created" (p. 702), the effects of NT through storytelling can be so strong as to change real–world beliefs and behaviors (Green & Brock, 2000). The NT concept is consistent with the idea of the "fiction contract" in simulation which is an agreement between the facilitator and participant to do their best to accept the simulation as if it were real (Lopreiato, 2016) and "suspend disbelief" to optimize the learning experience. Bowman and Standiford (2016) stated that NT may be applicable to healthcare simulation as most scenarios are formatted as a narrative unfolding story or include stories told by patients. Narrative transportation, therefore, is an appropriate conceptual framework for this study, because the intervention included a first–person narrative designed to influence student nurse behaviors during simulated clinical learning experiences. A narrative pedagogy framework was also applied to guide this research, as it a useful strategy for helping student nurses interpret, respond to, and reflect upon clinical experiences (Nehls, 1995). Swenson and Sims (2003), in support of adopting narrative pedagogy in nursing education, remarked on the nature of nursing as a "holistic and integrative discipline" (p. 155) that requires nurses to understand their patient's unique perspective. The intervention for this study was informed by narrative pedagogy and designed to provide students with an opportunity to learn more about the patient they would care for during the simulated clinical activity and facilitate their development of affective attributes that contribute to holistic approaches for providing nursing care.

Narrative Transportation Theory

Green and Sestir (2017) described transportation as "an integrative melding of cognitive, emotional, and imagery engagement in a story" (p. 1), which allows an individual to become

drawn into a narrative account. Narratives, which can be fictional or fact–based, impact real–world beliefs and behaviors because transported individuals perceive themselves to have experienced the content and context of the story (Green & Sestir, 2017). In addition to the spoken word, various narrative devices including books, audio recordings, film, serious games, and integrative media can be used to portray the characters or events in a story. Individual differences in level of transportability (i.e., the tendency to become immersed) exist, and people who are easily transported into one form of narrative may not be as likely to be transported into another (Green & Sestir, 2017). Transportation does not appear to be influenced by gender; however, individual emotional capacity does seem to potentiate transportation, with higher emotionality being associated with greater engagement in narratives (Green & Sestir, 2017).

Simulation scenarios are story–based depictions of clinical encounters, and the intervention for this study used a narrative story to provide students with an account of the patient's lived experience. Transportation may be attributable to an individual's desire or need to understand the perspectives of characters depicted in a story. Since the present study aimed to evaluate factors that contribute to student nurse engagement during SBL, narrative transportation was applied as a framework for this research.

Narrative Pedagogy

Diekelmann (1993) introduced the concept of narrative pedagogy to nursing academe as an alternative strategy to facilitate contextualized learning experiences. Diekelmann asserted that narrative pedagogy promotes the types of reflective thinking that help educators, students, and clinicians learn from prior experiences. This does not imply that storytelling is the teaching method; instead, narrative accounts become the mechanism by which other pedagogies such as constructivism and social learning theory are employed for learning. Narrative pedagogy permits

learners to peer into the lived experiences of others to better understand the salient and subtle aspects of their story. In reflecting on the story, learners analyze how different parts of the narrative fit together to uncover the true meaning of the event. The intervention for the present study utilized a story to provide an opportunity for students to analyze how a patient's physical, social, and economic well–being impacted his needs when hospitalized for an acute medical problem. The intent of the narrative was to enhance a simulated clinical activity to allow students to reflect on how a patient's lived experience impacts nursing care decisions and develop a richer understanding of the nurse's role as caregiver.

Simulation Engagement

Padgett et al. (2019) emphasized the importance of engagement for facilitating learning when simulation is used as an educational strategy but acknowledged that the concept is poorly understood. The authors attributed this to a lack of research on how engagement is measured or assessed in health care simulation (Padgett et al., 2019). Participant ability to suspend disbelief (i.e., participate in the activity as if it were real) is most often used to assess engagement, but the authors acknowledged that the two concepts are dissimilar (Padgett et al., 2019). Suspension of disbelief is a state that is dependent on factors such as fidelity and participant specific characteristics, while engagement is, in essence, a state of being (Padgett et al., 2019).

The findings of Padgett et al. (2019) are consistent with Mucker's (2017) exploration of suspension of disbelief, in which concepts that contribute to participant ability to accept the simulation as representing a real clinical encounter were identified. Muckler suggested that simulation fidelity (e.g., contextual, physical, and psychological), the use of a fiction contract (i.e., an agreement between learners and the facilitator to accept the limitations of the simulation environment to have a meaningful learning experience), emotional buy–in (i.e., the degree to

which the simulation arouses emotional responses in learners), and assigned meaning (i.e., the relevance of the simulation to what the participant wants or expects to learn) are all factors that promote engagement. In assessing nursing student perceptions of suspension of disbelief, Muckler and Thomas (2019) identified factors that limit student inclination or ability to engage in SBL activities including emotion (i.e., apprehension or anxiety), purposeful intention to engage (e.g., putting their mind to it), degree of preparation before the activity, and confidence in their ability to meet the simulation objectives. The authors suggested that participant mental state in relation to each of these factors limits their ability to become emotionally involved and engage in the simulation (Muckler & Thomas, 2019).

Rudolph et al. (2007) stated that along with suspension of disbelief, the fiction contract is an agreement between all parties (simulation designer, instructor, and student) to do their individual parts to make the learning experience meaningful. The authors noted that there are many dimensions to simulation engagement but highlighted the need for participants to feel "drawn in" to the scenario, by having opportunities to role–play simulation events and experience the types of social interactions that would be expected in real life (Rudolph et al., 2007). More importantly, Rudolph et al. suggested that conceptual and psychological realism is more important than the physical fidelity of the learning experience when simulation is used to foster clinical judgment and decision making.

In relation to effective decision making, Rudolph et al. (2007) emphasized the importance of providing learners (medical students, in their example) with the conceptual elements that are needed to make appropriate medical decisions. This included depicting physiologic changes in the simulated patient such as changes in pupil size, adventitious breath sounds, or abnormal vital signs that would be associated with the patient's disease process. Rudolph et al. stated this allows

for “if/then” responses that reflect good clinical judgment. Nursing decisions, however, surround more than physiologic manifestations of disease processes, as nurses are expected to develop holistic approaches to patient care that extend beyond a medical model. Therefore, simulated clinical learning for undergraduate student nurses should include conceptual elements that help students understand the patient’s lived experience in relation to his/her individual health care needs.

Choi et al. (2017) had a slightly different perspective on the value of engagement. The authors acknowledged that behavioral engagement is contingent upon the fiction contract and participant agreement to suspend disbelief (Choi et al., 2017). However, Choi et al. believed that other forms of engagement exist, and suggested that emotional (i.e., the ability of the simulation to evoke emotion in the participant), and cognitive (i.e., a capacity to self–regulate behaviors to focus on the learning at hand) engagement are factors that influence learning. The authors proposed a multidimensional model of engagement in healthcare simulation and asserted that the aesthetics of the simulation design facilitate learning that transfers to real–world environments. Aesthetics, in a simulation context, are the elements of the scenario that provoke emotional and cognitive triggers that permit effective performance (Choi et al., 2017). The perspectives shared by Choi et al. inform educators of the importance of creating simulation experiences that strike a balance between evoking emotion and facilitating learning. It is important that the activity triggers emotions that would be experienced in real–world contexts without being so overwhelming as to prevent attainment of the desired cognitive learning outcomes.

Much of the literature on engagement in simulation is in areas outside of nursing education, so examining student nurse experiences during SBL with manikins is warranted as engagement can influence their learning. Power et al. (2016), in recognizing the reliance on

manikin–based simulation in nursing education, stressed the need to provide context for the simulated patient to enhance student ability to suspend disbelief. The authors suggested that additional background information is needed for students to appreciate the patient's perspective when planning and implementing nursing care (Power et al., 2016). Students in the Power et al. study watched video vignettes of patients presented in case–based classroom learning experiences. Simulation activities, facilitated later, featured manikins dressed in the props worn by actors who portrayed the patients in the vignettes that had been previously viewed. The authors noted that students reported feeling more connected to and aware of the manikin's "feelings" as well as more sensitive to the manikin's "needs" because of watching the vignettes (Power et al., 2016). The fact that the students believed that manikins had feelings or needs suggests that the vignettes were useful for increasing realism, suspension of disbelief, and possibly student engagement during SBL experiences. Although Power et al. made no quantitative assessment of engagement, the use of patient narratives to increase the conceptual and psychological fidelity appeared to have impacted students' interactions with the manikins.

Johnston et al. (2017) performed an experiment to determine if video narratives, used as a pre–simulation activity, impacted student perceptions of value, realism, and learning–transfer during manikin–based simulation. The authors found that students who watched the video narrative had higher and statistically significant perceptions of transferability of learning than those who did not receive the intervention, but there were no statistically significant differences between groups on perceptions of realism or value (Johnston et al., 2017). Ultimately, as Johnston et al. noted, exploring learner engagement in SBL using manikins is a more recent focus of simulation research. However, a literature search revealed no empirical studies of student nurse engagement during manikin–based simulation. Therefore, I applied the

Transportation Scale as a novel method for assessing student nurse suspension of disbelief (a manifestation of engagement) during simulated clinical experiences.

Transportation and Empathy

Prior studies have demonstrated strong associations between transportation and empathy. In fact, Green and Sestir (2017) stated that the perspective taking, empathic concern, and fantasy subscales of Davis's empathy measure (Davis, 1983) are highly correlated with the transportation measure developed by Green and Brock (2000). Johnson (2012) identified a statistically significant positive relationship between empathy, transportation, and a tendency toward helping behaviors in a study involving humanities students. Stansfield and Bunce (2014) noted a positive and statistically significant relationship between transportation and empathy and found that story–induced empathy was a statistically significant predictor of real–world helping behaviors. Walkington et al. (2020) found positive associations between narrative transportation and empathy, and more importantly determined that story–influenced empathy resulted in greater empathic concern demonstrated toward suspected criminal offenders.

The primary aim of this study was to determine if viewing a first–person narrative of the patient being cared for during the simulation, combined with a lesson on empathy in nursing, increased student nurse engagement in the scenario. The following hypothesis is tested: Undergraduate nursing students who view a fictional audio–visual narrative combined with empathy training will have a greater degree of engagement in the simulation experience as measured using the Transportation Scale (TS) than students who complete the usual pre–simulation activities alone. As positive relationships between empathy and transportation have been noted in other samples, the relationship between narrative transportation and empathy was

also assessed to evaluate if transportation is associated with student self–perceptions of empathy as experienced in simulated clinical learning.

Methods

Study Design

A quasi–experimental posttest only design was used. A correlational analysis was added to explore for a relationship between the study variables of interest (i.e., transportation and empathy). All data were collected using Qualtrics secure internet–based survey platform. Study participation was voluntary, and students were able to withdraw consent at any time.

Intervention

A researcher–created video vignette of the simulated patient was added to the usual pre–simulation activities for an existing SBL experience that was an existing learning activity for a course entitled "Health and Illness of Adults and Older Adults 1." An actor was hired to play the role of Warren Flagg, a Caucasian man in his mid–40s (the demographics of the patient depicted in the existing scenario) and deliver a first–person narrative (Appendix A) in which he shared details about his physical, social, and emotional well–being. The actor was seated in a chair in front of a non–descript background that could be interpreted as being in his home or any setting outside of a healthcare environment. The choice of setting was intentional, as the researcher wanted students to focus on the patient's unique personal story, and not see him as a patient being treated for a medical issue. The narrative was developed to provide a holistic representation of the patient's lived experience and was consistent with the narratives used in the National League for Nursing (NLN) Advancing Care Excellence (ACE) evolving case studies that help students appreciate the needs of vulnerable populations (NLN, 2021). The intent of the ACE framework is to help student nurses reflect on the patient's unique perspective to encourage

competency with providing nursing care that reflects the NLN core values of caring, integrity, diversity, and excellence (Tagliareni et al., 2012). To enhance the conceptual and psychological fidelity of the simulated clinical activity, the actor's image was added to the electronic health record that students could access before and during the simulation and his physical characteristics (e.g., height, weight, and age) were incorporated into the patient's chart. The intervention also included a brief video-based lesson on the importance of empathy in nursing detailed behaviors that convey empathy to patients.

Sample and Setting

Two a priori power analyses were performed in G*Power 3.1.9.2 for differences in means between two groups, and for Pearson's correlation using an alpha probability of 0.05, power of 0.8 and medium effect size for each test. Of these, the largest sample size indicated was 128. Recruitment and enrollment continued for three consecutive semesters to obtain a sample that was large enough to achieve power.

A convenience sample of student nurses was recruited from a bachelor's degree nursing (BSN) program at a large northeastern university. The students were enrolled in either the traditional (i.e., 4 year) or second degree (i.e., 14 month) curriculum during the spring, summer, and fall 2020 terms. To be eligible to participate students had to be registered for the target course (i.e., "Health and Illness of Adults and Older Adults II," the initial medical/surgical course in the sequence of both curricula), attend either of the two campus locations where the simulation activity was integrated in the course, and be able to provide legal consent.

Procedure

The present study was part of a larger quasi–experimental dissertation study that evaluated the use of a video–based patient narrative and empathy training as a mechanism to

promote empathy in student nurses. The institutional review boards of the researcher's university and the study site (where the researcher is also a member of the faculty) approved the study protocol. Students were recruited during a classroom visit that took place on the first day of each semester using a script (Appendix B) to ensure consistency. Recruitment was in person during the spring 2020 term, and virtual during the summer and fall 2020 terms after COVID–19 pandemic forced a change to remote instruction. The researcher explained the purpose and procedures for the study and time was allotted for answering students' questions. Paper versions of the signed consent document were collected during the spring 2020 semester, but students who enrolled in the study during the summer and fall terms consented electronically. To achieve the sample size indicated by the a priori power analyses, recruitment continued up until 10 days prior to students' scheduled simulation day using an email flyer.

Although the present investigation used a posttest only design, the demographic data reported in the results section of this paper were collected as part of the pre–test survey used in the parent study. Batch randomization was used to assign participants to the control and treatment conditions because students attend simulation as a clinical group and section rosters could not be altered. The researcher was blinded as to which participants were assigned to each group to mitigate her influence over study outcomes during interactions she had with the students. The Assistant Dean for clinical learning was added to the protocol as research staff and was responsible for sending the intervention to students who were assigned to receive it. Participants in the treatment group received a YouTube link to access the vignette approximately one week prior to their scheduled simulation date, with instructions to view the video in addition to the usual pre–simulation activities (e.g., content review that included pathophysiology of the patient's condition, medications to be given, and expected nursing interventions). Students were

permitted to access and watch the videos at any time prior to their simulation date in a place of their choosing. The researcher had no ability to determine which students watched the video but was able to gauge the frequency with which the videos were viewed using analytics built into the YouTube platform.

During the earliest phase of the study all simulation sessions were facilitated in person and the researcher had no direct interactions with study participants. However, the university suspended all in–person instruction as the COVID–19 global pandemic hit the United States and the study was temporarily halted. A virtual storyboard simulation technique (Roberts & Mazurak, in press) was developed by the researcher and a colleague once it became apparent that remote instruction would continue into the fall 2020 semester. The complexity of implementing the virtual simulation using a technology enhanced storyboard required the researcher to facilitate all remaining simulation sessions to ensure consistency with the learning experiences that were part of this study. The remote simulation was conducted using one of three web–conferencing platforms according to the technology the university made available at various timepoints during the pandemic. Despite the need to use multiple platforms, there were no overt differences in functionality between the web–conferencing systems. Each experience was facilitated in the same manner and ran approximately two hours.

The researcher used the share screen feature of the web–conferencing software to reveal images depicting key aspects of the scenario to students in response to their verbalized nursing interventions (e.g., if a student verbalized applying oxygen to the patient, an image of the manikin wearing the stated oxygen delivery device appeared on the student's home computer monitor). The researcher used the existing simulation script (i.e., the same prompts used for in–person facilitation) to voice patient responses to student questions and nursing activities

(Appendix C). An on–screen patient monitor was added to provide students with audio and visual cues. This was done to add a degree of realism to the virtual experience as it allowed students to perceive real–time variability in the patient's vital signs in response to their actions.

All students participated in a structured debriefing immediately following the simulation experience that was facilitated by the researcher with the students' clinical faculty serving as a content expert. The debriefing lasted approximately twice as long as the simulation activity (e.g., 10 minutes of participating in the scenario followed by 20 minutes of debriefing). Debriefing was conducted using the Advocacy/Inquiry method (Rudolph et al., 2006) to encourage reflective analyses of student actions and clinical judgements that were exhibited during the learning activity. To illustrate the technique, the facilitator might open the dialogue by stating:

> I noticed you chose to administer Tylenol #3 in response to the patient's pain level of 8 out of 10. There were three types of pain medication to choose from and each had parameters for use in relation to the patient's pain level. I would have administered dilaudid as the parameter indicated it should be used for pain greater than 7 out of 10. Could you share what influenced your decision to administer Tylenol #3?

An open and ongoing conversation between the students, facilitator, and clinical instructor takes place following the prompt until students have developed a shared understanding of the context and meaning of the situation that is appropriate for future clinical applications.

Students received 15 minutes during their scheduled simulation day to complete the post study instruments. Invitations to access the surveys were generated from the secure survey platform and sent to the students' school email address. An electronic link to enter a lottery to win one of six Amazon gift cards each valued at $50 appeared after the final survey question, however, entry into the lottery was optional.

Measures

Permission to use the Kiersma–Chen Empathy Scale (KCES) and the Transportation Scale (TS) was obtained from the authors of each instrument (Appendix D). A researcher–designed survey (Appendix G) was used to collect demographic data.

Kiersma–Chen Empathy Scale (KCES)

The KCES (Appendix E), a 15–item measure of self–perceived empathy (Kiersma et al., 2013) was developed for use with nursing and pharmacy students. The KCES uses a 7–point Likert–type scale (1 = strongly disagree; 7 = strongly agree) with scores ranging from 15–105 (higher scores equal greater empathy). The instrument contains four reverse scored items. Designed as an alternative to the Jefferson Scale of Empathy–Health Professions Students (JSE–HPS) (Fjortoft et al., 2011), the KCES assesses both affective and cognitive empathy, whereas the JSE–HSP is intended to assess the cognitive type alone. The original scale had a Cronbach's alpha coefficient of .86, and concurrent validity was demonstrated through correlations with the JSE–HPS which had been previously validated. The instrument was selected for use in the present study as it was freely available and had previously been used with samples of student nurses.

Haley et al. (2017) reported a reliability of $\alpha = .87$, and Thomas et al. (2020) reported a range in reliability of $\alpha = .66–.81$ with both studies evaluating empathy in student nurses. The Cronbach's alpha coefficient for the KCES was .67 (pre–test) and .66 (post–test) when used in the present study, suggesting relatively poor reliability when used with this sample. Psychometric properties of the KCES had previously been evaluated using a large sample of student nurses in Australia (n = 460), with a series of confirmatory factor analyses indicating that a shorter 8–item modified scale with a range in score between 8–56 was better suited for

measuring affective and cognitive empathy (Everson et al., 2015). Everson et al. (2015) applied the modified instrument (MKCES) to evaluate using a 3–D simulation experience to influence cultural empathy in student nurses and reported a Cronbach's alpha of .73 when the MCES was used in their sample.

As the KCES had a relatively poor reliability when used with this sample, the researcher retained the 8 items used in the MKCES (items 1, 2, 3, 7, 8, 12, 13, and 14) and assessed the reliability of the shortened instrument. The 8–item MKCES measure used in the present study had a Cronbach's alpha coefficient of .73 (pre–test) and .81 (post–test). The improved reliability supported the researcher's decision to use the MKCES to measure self–perceived empathy, thus the correlational analysis in the present study was performed using the 8–item instrument.

Transportation Scale (TS)

Developed by Green and Brock (2000) the Transportation Scale (Appendix J) is a 12–item Likert–type instrument (1 = "not at all" and 7 = "very much") that has been used to measure engagement or immersion in narrative accounts. The measure has been used to assess visual (i.e., movies or television shows) and written (i.e., books) narrative engagement in samples of humanities students (Johnson, 2012), university students and staff (Stansfield & Bunce, 2004), healthcare consumers (Cuesta et al., 2017; Gebbers et al., 2017), and product consumers' responses to advertising (Laurence, 2018). The instrument has also been applied to assess if transportation influenced student nurses' knowledge, beliefs, and attitudes on patient care in response to watching a movie about a woman with a terminal illness.

The wording of the items contained in the measure can be modified to reflect the medium that the narrative was applied to. To illustrate, item 2— "While I was *reading the narrative*, activity going on in the room around me was on my mind" might be changed to read "*watching*

the movie" if the instrument was applied to immersion in a motion picture, or to "*listening to the speech*" if engagement during a political speech were being assessed. In the present study the questions were adapted to reflect using the TS to assess engagement in simulation, for example, item 8— "I found myself thinking of ways the *narrative* could have turned out differently" was changed to read "I found myself thinking of ways the *simulation* could have turned out differently." Each question was altered to reflect its application to simulation, and the wording of the questions in the adapted instrument was reviewed and agreed upon by three additional faculty members at the study site who have each had more than five years of experience in simulation education. A similar approach was used by Moore and Miller (2020) who adapted the items for use with student nurses to assess the relationship between transportation and student perceptions of caring for patients in response to viewing the movie *Wit* (Nichols, 2001). In the Moore and Miller study, the authors reported a reliability of $\alpha = .86$ for the adapted instrument when used with their sample. The TS as adapted for use in simulation in the present study, however, had a Cronbach's alpha coefficient of .59, suggesting poor reliability when used with this sample.

Appel et al. (2015) created the Transportation Scale Short Form (TS–SF) to improve the usefulness of the measure while retaining the factor structure of the original TS instrument. The authors retained items 3, 4, 6, 7, 12, and 13 from the TS to create a 6–item scale with a range of score from 6–42 (Appel et al., 2015). The authors performed psychometric testing for the TS–SF by administering it alongside the TS in an experimental study that included 301 participants. Subjects were randomized to four groups, with two groups reading one of two versions of a story about dating, and the other two groups reading one of two versions of a story about a pregnant woman. Differences between versions of each story pertained only to scrambling the order of story events (i.e., one group read the intact story, while the other read the scrambled version).

Half of the subjects in each group completed the TS and the other half completed the TS–SF. Reliabilities for the TS were reported as α = .77 and α = .78 and reliabilities of the TS–SF were α = .84 and α = .80 for participants assigned to read the two versions of the dating story. When evaluated with the pregnancy story, reliabilities for the TS were reported as α = .78 and α = .81, and reliabilities for the TS–SF were α = .87 and α = .87 (Appel et al., 2015). Concurrent validity for the TS–SF was demonstrated using comparisons of average TS and TS–SF scores within each story group (i.e., participants who received the intact stories and completed the TS had their average TS score correlated with their average score for the items retained in the shorter TS–SF, and the same procedure was used to correlate TS and TS–SP scores for participants who received the scrambled stories). Correlations between transportation scores for groups reading the dating story were strong (r = .96, p < .001) for both story versions. Correlations between transportation scores for the groups reading the pregnancy story were also strong (r = .93, p < .001 and r = .95, p < .001) for the two story versions. Hamby et al. (2017) reported a reliability of α = .72 for the TS–SF when used with a sample of 101 Amazon mTurk workers who read a story about a person with college debt. Hoewe and Sherrill (2019) applied the scale with a sample of 218 individuals who watched one of three politically themed television programs and reported a reliability of α = .80 for the TS–SF measure. Johnson and Rosenbaum (2018) reported a reliability of α = .85 when the TS–SF was used with a sample of 217 university students. Thus, the shortened version of the instrument has demonstrated good reliability.

Five of the items that Appel et al. (2015) used to create the TS–SF (i.e., 3, 4, 6, 7, and 12) were retained from the full TS measure completed by participants in the present study, resulting in a scale with a range of score from 5–35. The 6th item in the Appel et al. instrument was unnecessary as it is used to evaluate imagery for a second character and therefore was not

applicable to the narrative intervention. Cronbach's alpha coefficient for the TS–SF in the present study was .73. Since the TS–SF was a more reliable measure of transportation than the TS when used with this sample, the researcher utilized the shorter instrument to assess learner engagement during manikin based SBL activities.

Demographic Questionnaire

The researcher created a 7–item survey (Appendix G) to collect data on participant age, gender, race/ethnicity, curriculum (i.e., traditional or second degree), and campus location. To determine if prior experience with patient–provider interactions influenced empathy, two questions were used to evaluate if participants had previously been employed in a healthcare setting or had ever been a hospitalized patient.

Other Measures

Students completed a total of five instruments as part of the larger dissertation study. In addition to the measures discussed here, the KCES was administered as a pre-study instrument along with a measure of emotional intelligence. Students also completed a measure of nursing competence along with the KCES and TS as part of the post-study surveys.

Analysis

Data were analyzed using IBM SPSS Statistics Version 26. Descriptive statistics (i.e., frequencies, percentages, and means with standard deviations) were used to analyze demographic variables. Independent samples *t* tests were used to evaluate differences in transportation between groups. Spearman's rank–order correlation was used to assess for a relationship between transportation and empathy.

Results

There were 318 students registered in the target course over the three semesters that data were collected. A total of 61 students consented to participate during the spring 2020 term but only 18 had completed all study elements before the pandemic forced a transition to online instruction. One additional participant was able to complete the simulation and post–study surveys after the remote storyboard technique was implemented. An additional 55 students agreed to participate during the summer and fall 2020 terms. One student withdrew from the study during the fall semester, and two participants were removed from the study due to inattentive response patterns (e.g., selecting "neutral" for each item) that were noted on their pre and post–study surveys. A final sample size of 71 was achieved, with 33 students in the control group and 38 students receiving the intervention.

Demographic Variables

Most participants (67.6%) were aged 25 or younger and the sample was overwhelmingly female (87.3%). Consistent with the diverse population of the school of nursing, many subjects (56.4%) indicated belonging to a minority group. No statistically significant differences between groups on any demographic variable were observed. Frequencies and percentages for all demographic characteristics, along with statistical reporting for between group differences on race/ethnicity, curriculum plan, and previous hospitalization are provided in Table 4.1. Fisher's exact tests for between group differences on individual categories of prior healthcare experience are provided in Table 4.2.

Transportation

Independent samples *t* tests were used to assess for differences in TS–SF score between the control (CG) and intervention (IG) groups (Hypothesis 1). A total of 71 responses (CG *n* =

33, IG n = 38) were included in the analysis. No outliers were noted on boxplot inspection, and Shapiro–Wilk's test indicated a normal distribution of transportation scores in each group (CG p = .47; IG p = .06). Levene's test of equality of error variance indicated equal variances of TS–SF scores for each group (p = .57). Data are reported as mean ± standard deviation, unless otherwise noted. Mean TS–SF score was 1.28 (95% CI = –0.98–3.54) points higher in the IG (27.16 ± 5.04) than in the CG (25.88 ± 4.42), but this difference was not statistically significant ($t(69) = 1.129$, p = .26).

Association of Self–Perceived Empathy and Transportation

A total of 71 paired observations were used in the analysis. A non–parametric test was performed due to the influence of an outlier and non–normal distributions of the MKCES and TS–SF data. Spearman's rank–order correlation was used to assess for a relationship between self–perceived empathy and transportation. Scatterplot inspection confirmed a monotonic relationship between the variables. A weak positive statistically significant correlation between self–perceived empathy and transportation was observed in this sample ($\rho(69) = .29$, p = .01).

Discussion

Differences in Transportation

The purpose of this study was to evaluate the use of a first–person patient narrative combined with empathy training to improve student nurse engagement during simulated clinical learning activities. Hypothesis 1 stated that students who viewed a fictional audio–visual narrative combined with empathy training would have increased engagement in the simulation experience as measured by TS–SF when compared with students who completed the usual pre–simulation activities alone. Differences in transportation scores, while higher in the intervention group, were not statistically significant, and Hypothesis 1 was not supported.

The decision to use the TS to assess engagement during SBL activities was supported by similarities between the concepts of suspension of disbelief, the fiction contract, psychological fidelity or realism, and transportation. The original study protocol was planned to be implemented during in–person simulation experiences, which provide an opportunity for students to experience the various types of fidelity (i.e., conceptual, psychological, and physical) that contribute to suspension of disbelief. It was hypothesized that students who had an opportunity to "meet" the patient via the video–vignette before meeting the manikin in the simulation lab would feel more engaged in the scenario. The virtual implementation of the SBL activity prevented participant interactions with the manikin, which may have impacted perceived realism during the SBL activity. This could have contributed to decreased engagement in the simulation activity and impacted the study results.

This may have been the first study to use an actor to portray the patient to be cared for in the scenario as a mechanism to influence student nurse engagement during manikin–based SBL activities. Transportation theory posits that story–based narratives can generate feelings of connectedness toward fictional characters, and the intervention used in this investigation was centered on this theoretical framework. The concepts of suspension of disbelief and of the fiction contract in simulation imply that students will accept the simulation as being representative of an actual clinical encounter, thus it was believed that the narrative would help students perceive the manikin as a "real" patient during a SBL activity and therefore feel more engaged. While no statistically significant effect was noted in this study, transportation may be applicable to SBL as a method to evaluate how stories influence learner engagement and learning outcomes. Future research to assess student engagement during in–person SBL measured using the TS might help

to determine if this innovative narrative pedagogy approach to manikin–based simulation should be adopted within nursing curricula.

Relationship Between Empathy and Transportation

An aim of the present study was to explore the relationship between student nurse self–perception of empathy measured using the MKCES and engagement during simulated clinical learning using the TS–SF. A positive and statistically significant association between self–perceived empathy and transportation was observed in this sample.

Empathy and transportation, as noted by Green and Brock (2000) are related concepts, and positive correlations between empathy and transportation have been found in several other studies (Johnson, 2012; Stansfield & Bunce, 2014; Walkington, 2020). Hester and Schleifer (2016) advocated for using narrative forms of literature to promote empathy in medical students and other health professionals. The authors asserted that narratives provide students with vicarious experiences on a range of human conditions that they might otherwise not encounter.

Rowe (2018) suggested that empathy can improve in response to the character identification that occurs via narrative transportation. The author noted that transportation serves as a device to encourage the reader to view the world from another person's perspective and to understand their feelings and experiences. The relationship observed in the present study suggests that students who had greater degrees of transportation also had higher levels of empathy. This is an especially important finding in simulated clinical learning facilitated using HPS manikins, which has been criticized for devaluing human connectedness in nursing students (Dean et al., 2016).

Limitations

There were several limitations to this research. Interpretation of the findings of the experimental portion of this study is limited by low statistical power. The use of a convenience sample recruited from a single school of nursing limits the generalizability of the findings of this study to other populations. While gender is not thought to influence a capacity for transportation per se, there are gender–based differences in the types of stories that effect transportation (Green & Sestir, 2017) and the use of an overwhelmingly female sample might have influenced TS–SF scores. Furthermore, known gender–based influences on empathy exist (Baez et al., 2017) and may have impacted the observed results of the correlational analysis. The use of self–report measures to assess empathy and engagement in this study limits the reliability and validity of the findings due to the potential for response bias (Polit & Back, 2016).

The lack of true randomization may have impacted the findings of the study. While the researcher attempted to ensure homogeneity of the control and intervention groups by randomly assigning clinical sections to each condition, it is possible that existing differences within clinical groups confounded the observed results. Furthermore, the dynamics within individual clinical groups during the SBL experience may have influenced the degree to which participants were able to accept the simulation as if it were real, resulting in decreased engagement. Suspension of disbelief is influenced by the conceptual, physical, and psychological fidelity of the simulation experience and when simulation is used as a group learning activity there is the potential for disruptions to the fidelity of the experience due to individual student behaviors. Since study participation was voluntary, there were instances in which only a few students within a group had received the intervention and peer behaviors during the SBL activity may have influenced transportation score.

The intervention was delivered using an email link to the video–based narrative and empathy training that was accessed through YouTube. The researcher had no ability to ensure that students assigned to receive the intervention viewed it. The link to the unlisted video was sent to students six days prior to their scheduled simulation activity via their school email address and students were instructed to view the video on their own time. During the spring and summer 2020 terms analytics built into YouTube suggested an appropriate number of views relative to numbers of students in the intervention group. During the fall 2020 term, however, the video was viewed less than half as many times as expected, suggesting that some students in the intervention group did not actually get the intervention. The timeframe between the intervention and posttest assessments may have also impacted the study findings. Since students were given access to the intervention videos six days before their simulation day, it is possible that some could have waited to view it up until the day of their simulation. Therefore, the time interval between the intervention and posttest measures could have ranged from 0–6 days.

Last, the timing of the study was greatly impacted by the arrival of the novel coronavirus in America. Within weeks of commencing the study, students were sent home from the university and all in–person instruction was suspended. Meaningful engagement during remote learning experiences was hampered by several factors including limitations of the home environment (i.e., some students did not have sufficient technology resources for learning), student concerns surrounding the health of their immediate and extended families, and by the isolation and economic hardships incurred by state–wide lockdowns. These issues continued throughout the duration of the data collection period and may have impacted the researcher's ability to recruit a sample size necessary to achieve power or contributed to non–adherence to the

study protocol (i.e., completing all pre–simulation activities, viewing the intervention if assigned to do so, and completing all study instruments).

Conclusions

The present study sought to investigate the concept of transportation in relation to student engagement during simulated clinical learning activities. No previous research on engagement in simulation as assessed by the TS or TS–SF was found in the literature, so this investigation was a novel application of the instrument. Evidence to support the ways in which student engagement in SBL impacts learning outcomes is beginning to emerge. MacLean et al. (2019) found that presence (a term for immersion in virtual reality experiences) fully mediated the relationship between the perceived realism of the simulation and student competency with discharge teaching. Johnston et al. (2017) connected the use of narratives to student engagement and perception of learning transfer in simulation. Power et al. (2016) found that students developed emotional connections to simulation manikins after watching video vignettes and, as a result, perceived being better able to care for the simulated patient.

Although the present study did not yield statistically significant results, the mean scores for transportation were in the hypothesized direction for participants who viewed the intervention. Furthermore, the larger dissertation study demonstrated that viewing a first–person narrative combined with empathy training resulted in statistically significant higher levels of empathy in student nurses, which suggests that transportation may have played a role in influencing affective learning outcomes. Together, these results indicate that learning can be influenced when narratives are used to provide context for SBL experiences. Simulation is more than the use of manikins and clinical equipment to facilitate learning. Educators can utilize narratives to enhance SBL by creating real–world contexts that allow students to apply nursing

knowledge as it is expected to be used in practice. When combined with reflective exercises such as a structured debriefing, SBL assists students to improve their clinical acumen. Future research on narrative pedagogy as a method to enhance student engagement with manikins may yield evidence that demonstrates the efficacy of simulated clinical learning for promoting holistic nursing practices that can improve patient care.

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Table 4.1

Demographic Characteristics of Study Participants

Demographic Characteristic	Control		Intervention		Sample	
	n	%	*n*	%	*n*	%
Gender						
Male	4	12.1	5	13.2	9	12.7
Female	29	87.9	33	86.8	62	87.3
Age						
20-25	24	72.7	24	63.2	48	67.6
> 25	9	27.3	14	36.8	23	32.4
Race/Ethnicity [a]						
African American/Black	4	12.1	5	13.2	9	12.7
Asian	7	21.2	16	42.1	23	32.4
Hispanic/Latino	5	15.2	3	7.9	8	11.3
White	14	42.4	13	34.2	27	38.0
More than one race	3	9.1	1	2.6	4	5.6
Curriculum Plan [b]						
Traditional BSN	10	20.3	9	23.7	19	26.8
2nd Degree BSN	23	69.7	29	76.3	52	73.2
Previous Healthcare Experience						
Yes	13	39.4	14	36.8	27	38.0
No	20	60.6	24	63.2	44	62.0
Previous Hospitalization [c]						
Yes	19	57.6	21	55.3	40	56.3
No	14	42.4	17	44.7	31	43.7

Note: $N = 71$ (control group $n = 33$, intervention group $n = 38$). Participants were on average 21.54 years old (SD ± 5.61), and participant age did not differ by group ($U = 739.50$, $z = 1.30$, $p = .192$).

[a] Participant race/ethnicity did not differ by group. Fisher's exact test was performed due to an inadequate sample size for chi-square test of homogeneity, with the two multinomial probability distributions being equal ($p = .319$).

[b] There were no statistically significant differences in proportions between groups on curriculum plan as assessed using chi-square test of homogeneity ($\chi^2 = .395$, $p = .530$).

[c] There were no statistically significant differences in proportion between groups on rate of previous hospitalization as assessed using chi-square test of homogeneity ($\chi^2 = .038$, $p = .845$).

Table 4.2

Crosstabulation of Group and Prior Healthcare Experience

	Group	
Type of Healthcare Experience	Control (n = 13)	Intervention (n = 14)
EMT/Paramedic	3 (23.1)	2 (14.3)
Licensed practical/vocational nurse		1 (7.1)
Medical office assistant	1 (7.1)	1 (7.1)
Patient care tech/nurses' aide	5 (38.5)	2 (14.3)
Pharmacy tech		1 (7.1)
Medical office assistant and patient care tech/nurses' aide	2 (15.4)	3 (21.4)
EMT/Paramedic and medical office assistant		1 (7.1)
Dental assistant/hygienist and patient care tech/nurses' aide		1 (7.1)
Patient care tech/nurses' aide and social worker/counselor	1 (7.1)	
EMT/paramedic and pharmacy tech	1 (7.1)	
Declined to specify		2 (14.3)

Note: Fisher's exact test was performed due to an inadequate sample size for chi-square test of homogeneity, with the two multinomial probability distributions being equal (p = .612).

Chapter V

Dissertation Summary

The purpose of this study was to evaluate the use of a first–person narrative and empathy training to increase self–perceived and observed empathy in undergraduate student nurses. Additional objectives of this research study were to explore relationships between: (a) self–perceived and observed empathy, (b) empathy and emotional intelligence, (c) emotional intelligence and nursing competence, and (d) empathy and nursing competence. Last, this study aimed to apply the Transportation Scale (Green & Brock, 2000) as a novel method for assessing learner engagement during simulation–based learning (SBL) and to assess the relationship between empathy and transportation. The sample included 71 participants from two baccalaureate nursing programs (i.e., traditional 4–year degree and 14–month second degree) at a large urban northeastern university. In addition to a researcher–created demographic survey, instruments used in this study included the Kiersma–Chen Empathy Scale (KCES), the Consultation and Relational Empathy (CARE) measure, the Transportation Scale (TS), the Modified Schutte Emotional Intelligence Scale (MSEIS), and the Short Nursing Competencies Questionnaire (SNCQ). Modified versions of the instruments for self–perceived empathy (MKCES) and transportation (TS–SF) were used in the data analyses.

The first report, Chapter II: Fostering Empathy in Undergraduate Nursing Students, detailed a quasi–experiment that evaluated the use of a first–person video–vignette and empathy training for increasing self–perceived (assessed using the KCES) and observed (assessed using the CARE measure) empathy in student nurses. The hypotheses were that students who received the intervention would have a greater increase in self–perceived empathy and demonstrate

greater empathy toward a manikin during a simulated clinical learning experience. Additional analysis of the relationship between self–perceived and observed empathy was performed. A statistically significant interaction between group and time was observed. Additional analyses revealed that pre to posttest changes in MKCES scores for students in the intervention group were statistically significantly higher than those of students in the control group. The results indicated that the video–vignette was useful for improving self–perceived empathy in this sample of student nurses. A standardized patient actor was employed to review video recordings of the scenario to evaluate student's empathic interactions with the manikin during the simulated clinical activity. While the mean CARE score of participants in the intervention group was in the hypothesized direction, differences between the control and intervention group were not statistically significant. Findings from the quasi–experiment presented in Chapter II inform the nursing education community about a method that may help to promote student attainment of affective learning outcomes such as empathy during simulated clinical learning experiences. This is important as SBL, when implemented using human patient simulator (HPS) manikins, has been criticized for lacking the human interactions that are needed for students to practice therapeutic communication and provide patient–centered care.

Chapter III presented the second manuscript, titled Self Perceptions of Nursing Competency in Undergraduate Nursing Students, a correlational study that described relationships among empathy (assessed using the KCES), emotional intelligence (assessed using the MSEIS), and nursing competence (assessed using the SNCQ). No studies that evaluated all three variables in student nurses were identified in the literature, however, Di Lorenzo et al. (2019) and Hajibabaee et al. (2018) had previously identified relationships between empathy and emotional intelligence (EI), and Beauvais (2011) demonstrated a relationship between EI and

nursing competence. A theory–based approach was utilized to investigate associations among these combined variables of interest. Mayer and Salovey (1997) put forth an ability model of EI in which an individual learns to accurately interpret, use, and manage emotions to make effective decisions. Since empathy is a known antecedent of EI, the way in which empathy and EI combine to influence nursing competence warranted examination. Positive and statistically significant associations between MKCES and MSEIS score, between MSEIS and SNCQ score, and between MKCES and SNCQ score were observed in this sample. Further analyses using multiple linear regression identified that EI had a partial mediating effect on the relationship between empathy and nursing competence in this sample. This may be the first time such an association has been identified. When viewed together with existing research on relationships amongst empathy, EI, and nursing competence, the findings of this study are noteworthy. Several authors have noted deficits in new–to–practice nurse competencies including interpersonal communication, organization, and teamwork and collaboration, skills that are all influenced by EI. Deliberate instruction that promotes affective learning outcomes during the pre–licensure period may therefore assist new nurse transition to practice. Furthermore, as higher levels of EI are associated with improved patient care practices (Codier & Codier, 2017), strategies to develop EI attributes in student nurses should be investigated.

The final manuscript, The Use of Patient Narratives to Promote Student Nurse Engagement During Simulated Clinical Experiences, is presented in Chapter IV. A quasi–experiment that evaluated the use of a first–person narrative and empathy training for increasing student nurse engagement (assessed using the TS) in SBL is described. It was hypothesized that students who viewed the intervention before interacting with the manikin in simulation would have a higher TS score than students who completed the usual pre–simulation activities (i.e.,

content review) alone. A correlational analysis was performed to assess for a relationship between narrative transportation and empathy as this association has been observed in other student populations. The application of the TS in this study was unique but appropriate, as Bowman and Standiford (2016) suggested narrative transportation as a mechanism to improve participant immersion in healthcare simulation contexts, and as Moore and Miller (2020) had used the TS with student nurses, although these authors applied the instrument during a classroom learning experience. Higher but non–statistically significant TS scores were observed in the intervention group, and a weak positive correlation between MKCES and TS score was noted in this sample. These findings inform the nursing education community about the use of narratives to enhance fidelity in simulation, and the potential to investigate engagement during manikin–based simulation, an area that has not been well explored. The results of this study should be considered in relation to the simulation environment that was used to facilitate the learning experiences. To accommodate COVID–19 restrictions the simulations were conducted using web conferencing platforms which may have impacted student ability to suspend disbelief (i.e., accept the simulated clinical encounter as if it were real). While between–group differences in engagement were not statistically significant, the higher score observed in the intervention group may be meaningful and warrants further investigation.

Implications for Nursing Education and Avenues for Future Research

Simulation–based learning is a major component of clinical education in undergraduate nursing programs (Smiley, 2019). The use of simulated clinical experiences will likely expand due to issues that continue to plague nursing academe (e.g., insufficient placement sites, restrictions placed on student activities, and a lack of qualified faculty). There is a large body of evidence that suggests SBL is effective for improving student self–efficacy, self–confidence, and

satisfaction with the learning experience (Cantrell et al., 2017). Although research on using SBL to achieve specific curricular objectives has begun to emerge, more quantitative studies are needed to establish a strong evidence–base for its use in undergraduate nursing education.

Recent investigations on SBL in undergraduate nursing curricula are largely focused on cognitive learning and psychomotor skills development. Few simulation studies that included empirical assessment of affective learning outcomes such as empathy exist. More concerning is a lack of evaluation on the usefulness of simulation for fostering student abilities with therapeutic communication or providing patient–centered care (both of which are influenced by empathic ability). It is difficult to validate expanded simulation use if simulated clinical experiences do not provide opportunities for students to practice and demonstrate professional nursing values such as caring, compassion, and holism that are expected during actual patient encounters.

The results of this study indicated that incorporating a video–vignette to provide context for the simulated patient's unique perspective on his health and well–being into a SBL experience was useful for improving self–perceived empathic ability in student nurses. This study also provides insight on a strategy that may help to influence observed empathic behaviors and student engagement during simulation. Research from the nursing workforce sector (Huston et al., 2018) suggested that new nurses need additional preparation with competencies centered in the affective learning domain that potentiate their ability to use EI skills. Relationships among empathy, EI, and nursing competence observed in the present study suggest that promoting empathy development in student nurses may assist new graduates in their transition to practice.

The findings reported here may not be generalizable to other populations as they reflect outcomes observed in a small sample of nurses from one school of nursing in the northeastern United States. All students were enrolled in a baccalaureate degree program at a public

university and there may be characteristics inherent to this group that differ from students enrolled in other entry to practice programs. Aside from being underpowered, the study was limited by several factors including a lack of true randomization, the use of self–report measures, and the potential that some students in the intervention group may not have received the intervention. The major variable of interest, empathy, was only assessed at two timepoints, so the degree to which gains in self–perceived empathic ability are retained is unknown. While the findings of this study suggest a promising method to facilitate affective learning during manikin–based simulation, additional research is needed.

To address these concerns nurse educators can endeavor to:

1. Design simulation scenarios aimed at influencing affective learning outcomes using a theory–based approach such as the NLN/Jeffries Simulation Theory (Jeffries, 2016).
2. Engage in reflective conversations about the patient's experience of being cared for in simulation using a structured debriefing method such as the Advocacy/Inquiry (Rudolph et al., 2006) method.
3. Evaluate strategies for influencing emotional intelligence in student nurses during program progression to optimize competency with communication, collaboration, teamwork, and organization skills.
4. Develop strategies for objective assessment of empathic behaviors in simulation environments and in clinical settings so that interventions to increase empathy can be evaluated.
5. Conduct multi–site simulation studies within the various entry to practice programs that reflect diverse student populations and facilitate large–sample data collection.

Last, the nursing education community could benefit from research that evaluates the application of narrative pedagogy as Diekelmann (1993) intended it to be used as a curricular teaching strategy. Nurse educators are an innovative group, but there are opportunities for innovation that do not require "newness." Formally adopting previously underutilized teaching approaches may, in fact, yield remarkable results. If adopted as a cross–curricular element, narrative pedagogy can bridge classroom and clinical learning through simulation. The potential for scenario development is endless, and research on this innovative approach may yield evidence that allows for true and lasting reform in nursing education.

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Appendix A

Script of First-Person Patient Monologue (Warren Flagg)

If I had to describe myself, I'm what you would call average. I grew up in a working-class neighborhood and still live there today. Most of my friends went off to college right after high school, but I couldn't afford it. My dad took off when I was 8—mom worked as a nurse's aide at the local hospital and struggled to make ends meet. Somehow, she managed to provide for me and my two sisters, but I think all of the stress and hassle really took a toll on her. She's retired now—doesn't get out of the house too much, but I try to get over there 3-4 nights a week to keep her company. My sisters both live too far away to really help her out.

I always enjoyed shop class when I was in school, so I took a job at the local automotive plant after I graduated, and still work there today. The pay was decent, and I married a girl from town. After a few years, Jen and I bought a small house and had two daughters. Anna is now 17 and getting ready to graduate from high school. She is the most outgoing girl, has tons of friends, and is hoping to go away to college. Liv just turned 15. She plays soccer, is a good student, but tends to be a bit of a homebody. She is very close to her mom, and since Jen and I split, I don't get to see her as often as I would like.

When Jen left, I was really upset. I grew up with divorced parents, and I never wanted my girls to feel the way I did. I hardly ever saw my dad. He lived two states away, remarried, and had a new family. It made everything so hard. I make a real effort to stay involved in the girls' lives, and I have been saving as much money as I can to help them pay for college. I didn't have that luxury, and I want them to do better than I did.

Next year I will have been at the plant for 30 years—I'm always worried that the next round of layoffs are going to cost me the only job I have ever had. They have already cut some of our insurance benefits, and there are always rumors that the plant will close. I mean, what else would I do? I don't really have a lot of choices with a high school diploma.

I am not much for socializing; I prefer to spend my free time fishing and hunting. But sometimes, after work, a couple of guys from the plant invite me out for a drink at the bar. A few months ago, I met Paige there and we really hit it off. She's divorced too and has a 12-year-old son named Mike. We try to do something fun a couple of nights a week, which is nice because before we started dating, I spent most evenings with my mom.

Mom needs a lot of help around the house, and also with her finances. She has social security, but that doesn't cover everything, you know. I've convinced her to sell the house and move into a small apartment so that it is easier for her to manage. I have been going over there most weekends clearing things out and making repairs—the house is old and needs quite a bit of work to get it ready to sell. Paige comes to help me out on the weekends that Mike is with her ex.

I really can’t complain too much. My girls are almost grown, and both will soon be away at college. Paige gets along real well with mom, and I get along great with Mike. Once mom’s house sells, I’ll have a lot more time to get back to doing what I enjoy.

Appendix B

Participant Recruiting Script

To be used when visiting classroom locations at Newark and New Brunswick campuses.

Good morning/afternoon everyone.

My name is Michele Livich Roberts, and I am one of the simulation facilitators in the Center for Clinical Learning. I may have met some of you during your simulations for your courses last semester.

I am also a doctoral student at Teachers College Columbia University. I love working with students in simulation and I have become very interested in research on techniques that may improve simulation learning. I am doing a study of that type for my dissertation and I am inviting all students taking "Health and Illness of Adults and Older Adults I" to participate.

This study is an experiment that will evaluate the use of a learning module on empathy in nursing practice, and a video containing a story about the patient you will care for (Warren Flagg) during one of your simulations this semester, on student empathy. This study will also test the effect of this learning module and patient story on your level of engagement during the simulation. Your behavior toward the manikin during simulation will be evaluated by a standardized patient. A standardized patient is an actor who is specially trained to work with students during simulation. This study will also evaluate relationships between your self-perceptions of empathy and emotional intelligence, your self-perceptions of empathy and clinical competence, and your self-perception of empathy and your behavior toward the manikin.

Approximately half of the students will be randomly assigned to watch the learning module and patient story videos in addition to the regular pre-simulation assignment for Warren Flagg. It will take about 10 minutes (in total) to watch both videos. The other half of the students will only complete the pre-simulation assignment.

If you decide to participate in this study you will be asked to provide some information about yourself (age, gender, race, previous healthcare experience, and whether you have ever been a patient or not) on a form that will take no more than 5 minutes to fill in. You will be asked to complete a total of 5 surveys during the study. Two of these surveys will be completed before your simulation day. One is a 15-item scale that assesses your self-perception of empathy and should take no more than 5 minutes to complete. The other is a 41-item survey that measures emotional intelligence which should take you about 10 minutes to complete.

The other three surveys will be completed following your simulation session on the day you are scheduled to attend your simulation. You will be provided time during the debriefing period to complete these surveys. One is the same self-assessment of empathy that you completed before the simulation and will take no more than 5 minutes to complete. Another is a scale that measures your perception of clinical competence during your experiences with actual patients

during clinical; it contains 18 items and should take about 5 minutes to finish. The last survey contains 12 items that measure your level of engagement in the simulation and should take no more than 5 minutes to complete.

All the forms you will complete will be accessed electronically using a secure software program called Qualtrics. Your surveys will only identify you by a code that you create and your answers to all questions will be kept confidential. Your answers to the surveys will not be shared with your course or clinical faculty.

You will be recorded during your interactions with the manikin. You have previously provided consent to be recorded during your simulation activities in the Center for Clinical Learning. If you consent to take part in this study, you are agreeing to be recorded for the purpose of having your behavior toward the manikin evaluated by the standardized patient. You will be recorded regardless of your decision to participate or not as per your prior consent. These recordings are not shared with your course or clinical faculty and will be deleted immediately after being reviewed by the standardized patient.

You do not have to participate in this study if you do not wish to do so. You will have to complete the pre-assignment for Warren Flagg and participate in the Warren Flagg simulation regardless of your decision to participate in this study (or not) as it is a required part of your course. Your decision to participate (or not participate) has no influence over your course or clinical grade.

If you decide to participate in this study, you will be provided an opportunity to register your email address in a lottery after completing the final survey. This lottery is being used to offer you a chance to be compensated for taking part in this research. Six students who register their email for the lottery will be selected to receive a $50 gift card that can be used to make purchases at Amazon.com. Your chances of winning will depend on how many people register their email address, but it is estimated that your odds of winning are between 5-10%.

Thank you so much for allowing me to speak with you today. I handed each of you a consent form as you arrived to class. If you are willing to take part in this study, please review the form and sign the last page of the document.

Appendix C

Warren Flagg Simulation Scenario

Warren Flagg Simulation

Date Last Modified: 5/23/2019

Discipline: Nursing

Expected Simulation Run Time: 30 minutes

Location: Center for Clinical Learning

Today's Date:

File Name: Flagg_MRSA_Anaphylaxis
Student Level: Health and Illness of Adults & Older Adults I

Guided Reflection Time: Twice the amount of time that the simulation runs.

Location for Reflection:

Brief Description of Client

Name: Warren Flagg

Date of Birth: 11/03/XX

Gender: M **Age:** 47 **Weight:** 75kg **Height:** 5'11"

Race: Caucasian **Religion:** Not stated.

Major Support: Friend **Support Phone:** (987) 654-3210

Allergies: Ciprofloxacin **Immunizations:** Up to date.

Attending Provider/Team: Hospitalist

Past Medical History: No past medical history.

History of Present Illness: Acute traumatic injury.

Social History: Divorced father of 2.

Primary Medical Diagnosis: Multiple lacerations to right hand.

Surgeries/Procedures & Dates: No prior surgical history.

Scenario Progression Outline **Phase One**

Patient Name: Warren Flagg **Date of Birth: 11/03/XX**

Timing (approx.)	Manikin/SP Actions	Expected Interventions	May Use the Following Cues
0-5 min	Vital signs: HR = 100 B/P = 130/72 mmHg SpO_2 = 98% (RA) RR = 18 Temp = 100.2° F Pain: 7/10 Pt is AA/Ox3; PERRL Lungs clear bilaterally Bowel sounds present and equal in all quadrants Voice sounds distressed "I'm in a lot of pain, please help me." "What are those yellow gowns for?" "Can you just dress my wounds so I can go home? I don't have any insurance."	**Learners should begin by:** • Performing hand hygiene • Introducing selves • Confirming patient ID • Maintaining contact precautions • Instructing visitor to put on isolation gown **Then:** • Obtain vital signs including SpO_2 • Assess pain • Assess wounds on right hand • Elevate right hand • Obtain C&S of wound • Address patient concerns related	**Role member providing cue:** Patient *If pain not addressed* **Cue:** "Are you going to give me something for my pain?" *If ungowned visitor goes unnoticed* **Cue:** "Will my friend get infected?" *If statement about lack of insurance is not addressed* **Cue:** "I really can't afford to stay in the hospital, I can take care of this at home after you put a bandage on it." **Role member providing cue:** Visitor

		to lack of insurance	*After obtaining isolation gown* **Cue:** "I have small kids at home. Do you think I am infected too?" **Role member providing cue:** Social worker (via phone) *If students call for social service consult* **Cue:** I will see the patient in a little while. I have to see 3 other patients first." *If students ask how long it will take* **Cue:** "I won't be able to get there for 1 ½ to 2 hours."
5-10 min	*If pain medication is given pain will gradually begin to subside* "How long will it take for the medicine to work? I have to get home to my sons." *If pain medication is not administered, pain worsens* "Please, can you give me something for this pain?"	• Administer pain medication (using 6 rights) • Ask about patient's refusal of surgery	**Role member providing cue:** Patient *If patient is not educated regarding need to remain in hospital to receive treatment* **Cue:** "My neighbor is watching my kids; I have to get home to them. I can't stay here too much longer."
10-15 min	Advance scenario by 20 minutes Pain has decreased to 3/10 Patient distressed about appearance of wound	• Reassess pain • Irrigate wound • Perform wound care • Educate patient on need for surgical intervention and antibiotics	**Role member providing cue:** Patient *If antibiotic therapy isn't adequately explained* **Cue:** "So, can you discharge me right

	"Oh my! I can't believe how bad it is, it's going to take forever to heal."	• Provide emotional support to patient	after I get the antibiotic, right? **Role member providing cue:** Visitor *Once nurse begins to irrigate wound* **Cue:** "Warren, that machine really did a job on your hand!"

Scenario Progression Outline **Phase Two**

Timing (approx.)	Manikin/SP Actions	Expected Interventions	May Use the Following Cues
0-5 min	Vital signs: HR = 116 B/P = 120/64 mmHg SpO_2 = 95% (RA) RR = 20 Temp = 99.4° F Pain: 3/10 Pt remains AA/Ox3; PERRL Lungs clear bilaterally Bowel sounds present and equal in all quadrants Voice sounds calm *If pain is reassessed* "The pain is a little better" *If asked why bandage was removed* "Oh, it was too tight, so I loosened it." "Are you going to be giving me an antibiotic?"	**Learners should begin by:** • Performing hand hygiene • Introducing selves • Confirming patient ID **Then:** • Obtain vital signs including SpO_2 • Reassess pain • Assess dressing on right hand • Elevate right hand • Reapply dressing • Hang IV fluids • Check orders and obtain antibiotic • Educate patient on need for surgery	**Role member providing cue:** Patient *If students do not explain that isolation was D/C'd* **Cue:** "Aren't you supposed to be wearing those yellow gowns?" *If antibiotic isn't obtained* **Cue:** "The ER doctor said that I needed to be admitted to receive antibiotics, do you think really I need them?" *If students explain need to stay in the hospital to have surgery* **Cue:** "I really don't want to have surgery. I can take care of my hand at home."

	"Can I go home after I get my medication?" *If students reinforce need for surgery* "My brother died after having a simple procedure, I don't want the same thing to happen to me."		**Role member providing cue:** Visitor *If students do not explain the need to stay in the hospital to have surgery* **Cue:** "The ER doc said the surgeon would see Warren today to discuss the surgery. Will he be coming soon?" **Role member providing cue:** Provider *If students recognize fluoroquinolone allergy* **Cue:** "Okay, thanks for letting me know. Please give nafcillin 1gram IVPB instead."
5-10 min	Pt remains AA/Ox3 and calm. Lungs remain clear, vital signs remain the same Once antibiotic is administered advance scenario by 1 hour Vital signs: HR = 122 B/P = 116/60 mmHg SpO_2 = 92% (RA) RR = 24 Temp = 98.9° F Pain: 3/10 Breath sounds expiratory wheeze "I feel a little chilly, can I have another blanket?"	• Check for allergy • Administer antibiotic (using 6 rights) • Assess for allergic reaction (i.e., breath sounds, SpO_2 and skin assessment) • Call provider for O_2 order and possibility of allergic reaction • Administer O_2 2 lpm via nasal cannula	**Role member providing cue:** Patient *If blanket is given without assessing for other signs of allergic reaction* **Cue:** "I feel a little itchy. Are you sure these linens are clean?" *If oxygen isn't administered* **Cue:** "Do you think the itching is from the medicine you gave me?" **Role member providing cue:** Visitor

	SpO_2 continues to worsen after O_2 is applied ***If three phases are being used end Phase Two here**		*If students do not call provider for possible allergic reaction* **Cue:** "He doesn't seem to be getting better. Can you get someone to help him?"
10-15 min	Vital signs: HR = 138 B/P = 110/62 mmHg SpO_2 = 85% RR = 28 Patient anxious Voice sounds distressed "I feel like I can't breathe. Can you raise my head up?" Breath sounds progress from wheezing to stridor *If nasal cannula is not changed to non-rebreather mask* "I really can't breathe. This oxygen isn't helping." *After non-rebreather mask is applied* "I think my tongue is swollen." "I feel like my throat is closing." ***If two phases are being used scenario ends after Provider enters room**	• Reassess patient for improvement (i.e., breath sounds, SpO_2) • Change nasal cannula to non-rebreather mask • Call provider • Reassess vital signs • Call a rapid response • Bring code cart to bedside • Remain at patient's side • Reassure patient	**Role member providing cue:** Patient *As non-rebreather mask is being applied* **Cue:** "What is happening to me?" *As rapid response is being called* **Cue:** Patient coughing "Please help me!" **Role member providing cue:** Visitor *As rapid response is being called* **Cue:** "Don't worry Warren, the nurses are going to take care of you." **Role member providing cue:** Provider *As Provider enters room* **Cue:** "He's having an anaphylactic reaction. We need to give him epinephrine 1mg IM; Benadryl 50mg IVP, and Solumedrol 125mg IVPB. He also needs an albuterol nebulizer treatment."

Scenario Progression Outline **Phase Three (optional)**

Timing (approx.)	Manikin/SP Actions	Expected Interventions	May Use the Following Cues
0-5 min	Vital signs: HR = 138 B/P = 110/62 mmHg SpO_2 = 85% RR = 28 Patient anxious Voice sounds distressed "I feel like I can't breathe. Can you raise my head up?" Breath sounds progress from wheezing to stridor *If nasal cannula is not changed to non-rebreather mask* "I really can't breathe . . . this oxygen isn't helping." *After non-rebreather mask is applied* "I think my tongue is swollen." "I feel like my throat is closing."	**Learners should begin by:** • Performing hand hygiene • Introducing selves • Confirming patient ID **Then:** • Reassess patient for improvement (i.e., breath sounds, SpO_2) • Change nasal cannula to non-rebreather mask • Call provider • Reassess vital signs • Call a rapid response • Bring code cart to bedside • Remain at patient's side • Reassure patient	**Role member providing cue:** Patient *As non-rebreather mask is being applied* **Cue:** "What is happening to me?" *As rapid response is being called* **Cue:** Patient coughing "Please help me!" **Role member providing cue:** Visitor *As rapid response is being called* **Cue:** "Don't worry Warren, the nurses are going to take care of you." **Role member providing cue:** Provider *Provider enters room* **Cue:** "He's having an anaphylactic reaction. We need to give him epinephrine 1mg IM; Benadryl 50mg IVP, and Solumedrol 125mg IVPB. He also needs an albuterol nebulizer treatment."
5-10 min	Vital signs: HR = 138 B/P = 110/62 mmHg SpO_2 = 85%	• Administer medications (using 6 rights)	**Role member providing cue:** Patient

	RR = 28 Talking while coughing “Please help me . . . (coughing).” “Why is this happening . . . (coughing)?” After meds are given advance scenario by 5 minutes Vital signs: HR = 1118 B/P = 118/74 mmHg SpO_2 = 95% RR = 20 “I’m starting to feel a little bit better.” “This was much worse than when I had the reaction to Cipro.”	• Reassess breath sounds and vital signs • Communicate events leading up to rapid response to provider using SBAR format • Communicate reassessment findings to provider • Reassure patient	*As medications are being administered* **Cue:** “I can’t breathe . . . (coughing).” *After meds are given and he feels a little better* **Cue:** How did this happen? I thought I was allergic to Cipro, not the medication that you gave me.” **Role member providing cue:** Provider *After patient is better (address students)* **Cue:** “Can you tell me what happened leading up your calling a rapid response?”

Appendix D

Author Permissions

TCApps

Livich Roberts, Michele <mml2212@tc.columbia.edu>

Permission to use the Kiersma-Chen Empathy Scale

4 messages

Livich Roberts, Michele <mml2212@tc.columbia.edu> Tue, Jan 22, 2019 at 6:10 PM
To: mekiersma@manchester.edu, amchen@cedarville.edu

Dear Dr. Kiersma and Dr. Chen,

I am writing to request permission to use the Kiersma-Chen Empathy Scale (KCES) to evaluate the main outcome of interest in my dissertation. I am a doctoral student at Teachers College Columbia University enrolled in the Doctor of Nursing Education (EdD) program, and I am preparing my dissertation proposal. Part of this proposal is to identify and obtain the instruments that I will use in my study.

My dissertation is focused on promoting nursing student empathy during simulation-based learning experiences. My plan is to create an audio-visual narrative of the "patient" that students will care for during the simulation; this narrative will be a fictional portrayal of the patient that includes his/her experiences, concerns, beliefs, and values. The study will be a quasi-experimental, pre-test/post-test design. The control and treatment groups will both participate in the same simulation, with the treatment group watching the narrative as part of their pre-brief activities. One of my aims is to demonstrate that assisting students to "know" the patient (manikin) will influence how they approach caring for the manikin during the simulation and result in an increase in student KCES score.

I became aware of your instrument while completing a literature review on how empathy and caring are taught and evaluated in nursing students. There is little quantitative literature on teaching strategies to foster empathy or on evaluating empathy in nursing students. I have only been able to locate a couple of studies that looked at empathy as an outcome in simulation learning. I hope to add to the body of knowledge on this topic, and I hope that you agree to allow me to use your scale in my study.

I would be happy to address any questions or concerns that you may have. I would also be happy to share the results of my research with you once my study is concluded. Thank you for your time and consideration.

Sincerely,

Michele Roberts

--
Michele Livich Roberts MSN, RN, CNE
EdD Student, Online Nursing Education Program (ONE)
President - TC ONE Student Association
Teachers College Columbia University
mml2212@tc.columbia.edu
(609) 712-3720

Chen, Aleda M <amchen@cedarville.edu> Tue, Jan 22, 2019 at 11:03 PM
To: "Livich Roberts, Michele" <mml2212@tc.columbia.edu>
Cc: Mary Kiersma <mkiersma@acpe-accredit.org>

Michele,

We are happy to share the KCES with you! I have attached a copy of the KCES (modifiable for your specific target patient population) and scoring instructions. It sounds like a very interesting study!

We do ask that you share the KCES data (de-identified) for further scale validation (if possible) as well as cite us in any manuscript or publication.

Please let me know if you have any questions,
Aleda
[Quoted text hidden]
--
Aleda M. H. Chen, PharmD, PhD

Assistant Dean
Associate Professor of Pharmacy Practice
Community Pharmacy Research Fellowship Director
School of Pharmacy
Cedarville University
o: 937-766-7454
f: 937-766-7410
cedarville.edu/pharmacy

TCApps

Livich Roberts, Michele <mml2212@tc.columbia.edu>

CARE Measure - question about use of instrument in nursing education research

4 messages

Livich Roberts, Michele <mml2212@tc.columbia.edu> Thu, Jul 11, 2019 at 9:30 PM
To: edward.duncan@stir.ac.uk

Dear Dr. Duncan,

I am writing to request permission to use the Consultation and Relational Empathy (CARE) measure to assess one of the outcomes of interest in my dissertation. I am a doctoral student at Teachers College Columbia University enrolled in the Doctor of Nursing Education (EdD) program, and I am preparing my dissertation proposal. Part of this proposal is to identify and obtain the instruments that I will use in my study.

My dissertation is focused on promoting nursing student empathy during simulation-based learning experiences. My plan is to create an audio-visual narrative of the "patient" that students will care for during the simulation; this narrative will be a fictional portrayal of the patient that includes his/her experiences, concerns, beliefs, and values. The study will be a quasi-experimental, pre-test/post-test design. I would like to assess for a relationship between self-perceived empathy and observed empathic behaviors during simulation using high-fidelity manikins as part of my study.

I became aware of your instrument while reviewing literature on measuring patient perceptions of empathy as demonstrated by healthcare providers. The CARE measure was also used to assess nursing student demonstration of empathy toward patient-actors during simulation based learning activities (Bas-Sarmiento, Fernández-Gutiérrez, Baena-Baños, & Romero-Sánchez, 2017) with significant correlations of self=perceived and "patient"-perceived empathy reported. My intention s to have an independent party review recorded simulation activities to evaluate student interactions aimed at a manikin (i.e., the reviewer will score the measure as if he/she were the patient portrayed by the manikin).

I would also appreciate insight into how the "does not apply" option is scored. I understand that the measure has a score range of 10-50, but am unsure if the minimum/maximum ranges are adjusted if an item is removed, or how an unanswered item is handled.

I would be happy to address any questions or concerns that you may have. I would also be happy to share the results of my research with you once my study is concluded. Thank you for your time and consideration.

Sincerely,

Michele Livich Roberts

References

Bas-Sarmiento, P., Fernández-Gutiérrez, M., Baena-Baños, M., & Romero-Sánchez, J. M. (2017). Efficacy of empathy training in nursing students: A quasi-experimental study. Nurse Education Today, 59, 59-65.

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Michele Livich Roberts MSN, RN, CNE
EdD Student, Online Nursing Education Program (ONE)
President - TC ONE Student Association
Teachers College Columbia University
mml2212@tc.columbia.edu
(609) 712-3720

Edward Duncan <edward.duncan@stir.ac.uk> Tue, Jul 23, 2019 at 7:10 AM
To: "Livich Roberts, Michele" <mml2212@tc.columbia.edu>
Cc: "stewart.mercer@ed.ac.uk" <stewart.mercer@ed.ac.uk>

Dear Michele,

Many thanks for your email. I have been out of the country on business so only catching up with emails now.

The lead author of the measure is Prof. Stewart Mercer (I merely developed the web platform), so I have copied him into this message to respond to your requests.

Best wishes

Eddie

[Quoted text hidden]

MERCER Stewart <Stewart.Mercer@ed.ac.uk> Mon, Jul 29, 2019 at 10:09 AM
To: Edward Duncan <edward.duncan@stir.ac.uk>, "Livich Roberts, Michele" <mml2212@tc.columbia.edu>

Hi MIchele

No problem to use the measure.

Scoring is 1-5 for each item (i.e. poor to excellent). You can see the various ways to deal with missing values in the paper here;

https://academic.oup.com/fampra/article/22/3/328/501177

regards

Stewart

[Quoted text hidden]

Livich Roberts, Michele <mml2212@tc.columbia.edu> Mon, Jul 29, 2019 at 1:54 PM
To: MERCER Stewart <Stewart.Mercer@ed.ac.uk>
Cc: Edward Duncan <edward.duncan@stir.ac.uk>

Dear Dr. Mercer,

Thank you so very much for all of your assistance. I will e sure to share my findings with you!

Enjoy the rest of your summer.

Best,
Michele

[Quoted text hidden]

TCApps

Livich Roberts, Michele <mml2212@tc.columbia.edu>

Modified Schutte Emotional Intelligence Scale-Permission to use instrument

2 messages

Livich Roberts, Michele <mml2212@tc.columbia.edu> Sun, Mar 31, 2019 at 1:32 PM
To: Elizabeth.Austin@ed.ac.uk

Dear Dr. Austin,

I am writing to request permission to use the Modified Schutte Emotional Intelligence Scale to assess one of the outcomes of interest in my dissertation. I am a doctoral student at Teachers College Columbia University enrolled in the Doctor of Nursing Education (EdD) program, and I am preparing my dissertation proposal. Part of this proposal is to identify and obtain the instruments that I will use in my study.

My dissertation is focused on promoting nursing student empathy during simulation-based learning experiences. My plan is to create an audio-visual narrative of the "patient" that students will care for during the simulation; this narrative will be a fictional portrayal of the patient that includes his/her experiences, concerns, beliefs, and values. The study will be a quasi-experimental, pre-test/post-test design. I would like to assess for a relationship between self-perceived empathy and emotional intelligence as part of my study.

I became aware of your instrument while reviewing literature on measuring emotional intelligence (EI) in health profession students. Much of the literature on learning outcomes resulting from simulation-based educational activities has been focused on student satisfaction, self-confidence, and more recently clinical judgement and technical skills acquisition. I believe that simulation design can be improved to foster clinical decision making in nursing students that is reflective of a humanistic approach to caring for the patient when high-fidelity manikins are used. Other studies that I have reviewed have examined relationships between empathy and EI outside of simulation learning; I believe that assessing EI in my research will add to the body of evidence that supports best practices in healthcare simulation.

I would be happy to address any questions or concerns that you may have. I would also be happy to share the results of my research with you once my study is concluded. Thank you for your time and consideration.

Sincerely,

Michele Livich Roberts

--
Michele Livich Roberts MSN, RN, CNE
EdD Student, Online Nursing Education Program (ONE)
President - TC ONE Student Association
Teachers College Columbia University
mml2212@tc.columbia.edu
(609) 712-3720

AUSTIN Elizabeth <Elizabeth.Austin@ed.ac.uk> Thu, Apr 4, 2019 at 4:30 PM
To: "Livich Roberts, Michele" <mml2212@tc.columbia.edu>
Cc: AUSTIN Elizabeth <Elizabeth.Austin@ed.ac.uk>

Dear Michelle,

It's fine to use this scale, it is freely available for research use. All the information about the items and scoring can be obtained from the paper.

Best wishes,

Elizabeth

TCApps

Livich Roberts, Michele <mml2212@tc.columbia.edu>

Short Nursing Competencies Questionnaire

2 messages

Livich Roberts, Michele <mml2212@tc.columbia.edu> Mon, Mar 25, 2019 at 7:58 AM
To: r.watson@hull.ac.uk

Dear Dr. Watson,

I am writing to request permission to use the Short Nursing Competencies Questionnaire (SNCQ) to assess one of the outcomes of interest in my dissertation. I am a doctoral student at Teachers College Columbia University enrolled in the Doctor of Nursing Education (EdD) program, and I am preparing my dissertation proposal. Part of this proposal is to identify and obtain the instruments that I will use in my study.

My dissertation is focused on promoting nursing student empathy during simulation-based learning experiences. My plan is to create an audio-visual narrative of the "patient" that students will care for during the simulation; this narrative will be a fictional portrayal of the patient that includes his/her experiences, concerns, beliefs, and values. The study will be a quasi-experimental, pre-test/post-test design. I would like to assess for a relationship between self-perceived empathy and student perception of clinical competence as part of my study.

I became aware of your instrument while reviewing literature on how clinical competence is assessed in nursing students. In simulation, elements of clinical competence are assessed using the Lasater Clinical Judgment Rubric or the Creighton Competency Evaluation Instrument. These instruments, however, are used to objectively measure group performance. I believe that utilizing the SNCQ as a measure of individual student competency in simulation will add to the body of knowledge on techniques that support simulation-based learning.

I would be happy to address any questions or concerns that you may have. I would also be happy to share the results of my research with you once my study is concluded. Thank you for your time and consideration.

Sincerely,

Michele Livich Roberts

--
Michele Livich Roberts MSN, RN, CNE
EdD Student, Online Nursing Education Program (ONE)
President - TC ONE Student Association
Teachers College Columbia University
mml2212@tc.columbia.edu
(609) 712-3720

Roger Watson <R.Watson@hull.ac.uk> Mon, Mar 25, 2019 at 8:02 AM
To: "Livich Roberts, Michele" <mml2212@tc.columbia.edu>

Dear Michele

You are welcome to use it - no copyright on that version

Roger

Roger Watson PhD FRCN FRCP Edin FAAN
Editor-in-Chief, Journal of Advanced Nursing
Editor, Nursing Open
Professor of Nursing, University of Hull, UK
Follow me on Twitter @rwatson1955
http://twtbizcard.com/rwatson1955
Mobile +447808480547
Skype roger.watson3
"The plural of anecdote is not data"
Sent from my iPad
[Quoted text hidden]

TCApps

Livich Roberts, Michele <mml2212@tc.columbia.edu>

Transport Narrative Questionnaire

2 messages

Livich Roberts, Michele <mml2212@tc.columbia.edu> Thu, Feb 28, 2019 at 4:35 PM
To: mcgreen2@buffalo.edu

Dear Dr. Green,

I am writing to request permission to use the Transport Narrative Questionnaire. I am a doctoral student at Teachers College Columbia University enrolled in the Doctor of Nursing Education (EdD) program, and I am preparing my dissertation proposal. Part of this proposal is to identify and obtain the instruments that I might use in my study.

My dissertation is focused on promoting nursing student empathy during simulation-based learning experiences. My plan is to create an audio-visual narrative of the "patient" (manikin) that students will care for during the simulation; this narrative will be a fictional portrayal of the patient that includes his/her experiences, concerns, beliefs, and values. The study will be a quasi-experimental, pre-test/post-test design. The control and treatment groups will both participate in the same simulation, with the treatment group watching the narrative as part of their pre-brief activities.

I became aware of your instrument while reviewing literature that evaluated relationships between empathy and transportation into narrative stories. I was excited to find empirical research that demonstrates a relationship between immersion in fictional narratives and emotional response to the main character portrayed in the story. I am hoping to correlate student perception of empathy (measured using the Kiersma-Chen Empathy Scale, a valid and reliable measure of empathy in nursing and pharmacy students) with the degree to which they were transported into the patient narrative/simulation experience. It is my belief that your construct of transportation is similar to psychological fidelity in healthcare simulation, an aspect of simulation that has not been well researched.

Thank you for taking the time to read this email. I would be happy to address any questions or concerns that you may have. Thank you for your consideration.

Sincerely,

Michele Roberts

--
Michele Livich Roberts MSN, RN, CNE
EdD Student, Online Nursing Education Program (ONE)
President - TC ONE Student Association
Teachers College Columbia University
mml2212@tc.columbia.edu
(609) 712-3720

Green, Melanie <mcgreen2@buffalo.edu> Fri, Mar 1, 2019 at 8:09 AM
To: "Livich Roberts, Michele" <mml2212@tc.columbia.edu>
Cc: "Green, Melanie" <mcgreen2@buffalo.edu>

Dear Michele,

You are welcome to use the transportation measure. Best of luck with your research -- it sounds very interesting!

Best regards,

Melanie

Appendix E

Kiersma–Chen Empathy Scale

The Kiersma-Chen Empathy Scale

The following questions pertain to your attitudes and feelings **toward [insert patient group here]**. Please mark the number on the scale below that indicated your level of agreement or disagreement with each statement, where 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neutral, 5=somewhat agree, 6=agree, and 7=strongly agree.

	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Neutral 4	Somewhat Agree 5	Agree 6	Strongly Agree 7
1. It is necessary for a healthcare practitioner to be able to comprehend someone else's experiences.	○	○	○	○	○	○	○
2. I am able to express my understanding of someone's feelings.	○	○	○	○	○	○	○
3. I am able to comprehend someone else's experiences.	○	○	○	○	○	○	○
4. I will not allow myself to be influenced by someone's feelings when determining the best treatment.	○	○	○	○	○	○	○
5. It is necessary for a healthcare practitioner to be able to express an understanding of someone's feelings.	○	○	○	○	○	○	○
6. It is necessary for a healthcare practitioner to be able to value someone else's point of view.	○	○	○	○	○	○	○

7. I believe that caring is essential to building a strong relationship with patients.	○	○	○	○	○	○	○
8. I am able to view the world from another person's perspective.	○	○	○	○	○	○	○
9. Considering someone's feelings i not necessary to provide patient-centered care.	○	○	○	○	○	○	○
10. I am able to value someone else's point of view.	○	○	○	○	○	○	○
11. I have difficulty identifying with someone else's feelings.	○	○	○	○	○	○	○
12. To build a strong relationship with patients, it is essential for a healthcare practitioner to be caring.	○	○	○	○	○	○	○
13. It is necessary for a healthcare practitioner to be able to identify with someone else's feelings.	○	○	○	○	○	○	○
14. It is necessary for a healthcare practitioner to be able to view the world from another person's perspective.	○	○	○	○	○	○	○
15. A healthcare practitioner should not be influenced by someone's feelings when determining the best treatment.	○	○	○	○	○	○	○

Appendix F

CARE Measure

CARE Patient Feedback Measure for

*** Type name of Practitioner here ***

Please write today's date here:

D D / M M / Y Y

Please rate the following statements about today's consultation.

Please mark the box like this ☑ with a ball point pen. If you change your mind just cross out your old response and make your new choice. Please answer every statement.

How good was the practitioner at...	Poor	Fair	Good	Very Good	Excellent	Does not apply
1) **Making you feel at ease** (introducing him/herself, explaining his/her position, being friendly and warm towards you, treating you with respect; not cold or abrupt)	☐	☐	☐	☐	☐	☐
2) **Letting you tell your "story"** (giving you time to fully describe your condition in your own words; not interrupting, rushing or diverting you)	☐	☐	☐	☐	☐	☐
3) **Really listening** (paying close attention to what you were saying; not looking at the notes or computer as you were talking)	☐	☐	☐	☐	☐	☐
4) **Being interested in you as a whole person** (asking/knowing relevant details about your life, your situation; not treating you as "just a number")	☐	☐	☐	☐	☐	☐
5) **Fully understanding your concerns** (communicating that he/she had accurately understood your concerns and anxieties; not overlooking or dismissing anything)	☐	☐	☐	☐	☐	☐
6) **Showing care and compassion** (seeming genuinely concerned, connecting with you on a human level; not being indifferent or "detached")	☐	☐	☐	☐	☐	☐
7) **Being positive** (having a positive approach and a positive attitude; being honest but not negative about your problems)	☐	☐	☐	☐	☐	☐
8) **Explaining things clearly** (fully answering your questions; explaining clearly, giving you adequate information; not being vague)	☐	☐	☐	☐	☐	☐
9) **Helping you to take control** (exploring with you what you can do to improve you health yourself; encouraging rather than "lecturing" you)	☐	☐	☐	☐	☐	☐
10) **Making a plan of action with you** (discussing the options, involving you in decisions as much as you want to be involved; not ignoring your views)	☐	☐	☐	☐	☐	☐

Comments: If you would like to add further comments on this consultation, please do so here.

4571132878

Appendix G

Demographic Questionnaire

1. Please enter your age in the box provided below.

_____

2. Please indicate your gender by selecting one option from the choices below.

- ○ Male (1)
- ○ Female (2)
- ○ Other (3)

3. Please indicate the race/ethnicity you most identify as by selecting one option from the choices below.

- ○ African American/Black (1)
- ○ Asian (2)
- ○ Hispanic/Latino (3)
- ○ Native American/Alaskan Native (4)
- ○ Native Hawaiian/other Pacific Islander (5)
- ○ White (6)
- ○ More than one race (7)

4. Please indicate your nursing program of study by selecting one option.

- ○ Traditional Bachelors of Science in Nursing (1)
- ○ Second Degree Bachelors of Science in Nursing (2)

5. Please enter your home campus location by selecting one option.

- ○ Newark (1)
- ○ New Brunswick (2)

6. Do you have previous experience working as a healthcare professional?

- ○ Yes (1)
- ○ No (2)

Please indicate the type of healthcare experience you have by selecting an option below. You can select more than one option, if applicable.

- ☐ Dental assistant/dental hygienist (1)
- ☐ Emergency medical technician/paramedic (2)
- ☐ Licensed practical nurse/vocational nurse (3)
- ☐ Medical office assistant (4)
- ☐ Patient care technician/nurses' aide (5)
- ☐ Pharmacy technician (6)
- ☐ Respiratory therapist (7)
- ☐ Social worker/counselor (8)
- ☐ Surgical technician (9)

7. Have you ever been a patient in a hospital setting (aside from times when you have seen your provider for routine care)?

- ○ Yes (1)
- ○ No (2)

Appendix H

Modified Schutte Emotional Intelligence Scale

Table 1
Items used in the modified 44-item scale

1. I know when to speak about my personal problems to others. (1)
2. When I am faced with obstacles, I remember times when I faced similar obstacles and overcame them.(2)
3. I generally expect to fail when I try something new*.(3R)
4. My mood has little effect on how I deal with problems*. (N)
5. Other people find it easy to confide in me. (4)
6. I find it hard to understand the non-verbal messages of other people*. (5)
7. Some of the major events of my life have led me to re-evaluate what is important and not important. (6)
8. I sometimes can't tell whether someone I am conversing with is serious or joking*. (N)
9. When my mood changes I see new possibilities. (7)
10. Emotions don't have much effect on my quality of life*. (8R)
11. I am aware of my emotions as I experience them. (9)
12. I generally don't expect good things to happen* (10R)
13. When trying to solve a problem in my life, I find it helpful to be as unemotional as possible. * (N)
14. I prefer to keep my emotions private. * (11R)
15. When I experience a positive emotion, I know how to make it last. (12)
16. I arrange events others enjoy. (13)
17. I quite often misread what is going on in social situations* (N)
18. I seek out activities that make me happy. (14)
19. I am aware of the non-verbal message that I send others. (15)
20. I have little interest in the impression I make on others. * (16R)
21. When I am in a positive mood, solving problems is easy for me. (17)
22. I tend to misread peoples' facial expressions. * (18R)
23. I don't believe that my emotions give any help in coming up with new ideas. * (N)
24. I often don't know why my emotions change. * (19R)
25. I don't find that being in a positive mood helps me come up with new ideas. * (20R)
26. I find it hard to control my emotions. * (21R)
27. I easily recognize my emotions as I experience them. (22)
28. People have told me that I am difficult to talk to. * (N)
29. I motivate myself by imagining a good outcome to tasks I take on. (23)
30. I compliment others when they have done something well. (24)
31. I am aware of the non-verbal messages other people send. (25)
32. When another person tells me about an important event in his or her life, I almost feel as though I have experienced the event myself. (26)
33. When I feel a change in emotions, I tend to come up with new ideas. (27)
34. Emotions don't play a big part in how I deal with problems. * (N)
35. When I am faced with a challenge, I give up because I believe I will fail. * (28)
36. I know what other people are feeling just by looking at them. (29)
37. I help other people feel better when they are down. (30)
38. I use good moods to help myself keep trying in the face of obstacles. (31)
39. I find it hard to tell how someone is feeling from their tone of voice. * (32R)
40. It is difficult for me to understand why people feel the way they do. * (33)
41. I find it hard to make close friendships. * (N)

* Reverse-keyed item, R reversal of an original item, N new item.

Appendix I

Short Nursing Competencies Questionnaire

Table 1. Short nursing competencies questionnaire

Item	Description
1	I give emotional support to clients in need
2	I strive for optimal standards of care
3	I recognize legal responsibilities in clinical practice
4	I adopt an individualized approach in planning care
5	I provide rationale for thoughts and behaviour when questioned
6	I communicate concise and appropriate client information as necessary to members of the healthcare team
7	I demonstrate a working knowledge of equipment
8	I consider psychosocial aspects of any illness or disability when planning care
9	I demonstrate knowledge about the condition of clients assigned to me
10	I establish clinical priorities in relation to total patient needs
11	I use time and resources effectively and efficiently
12	I revise care as necessary, based on accurate evaluation of client's condition and response to care
13	I anticipate teaching needs of clients
14	I make accurate clinical judgements based on assessment data
15	I apply resources in a creative manner to solve clinical problems
16	I identify and use community resources in the delivery of care
17	I use appropriate teaching methods and materials for different audiences
18	I plan and implement health teaching for clients when necessary

The response to each item is that the student indicates that they 'always', 'usually', 'occasionally' or 'never' achieve the level of competence described. The level of difficulty increases from item 1 onwards. Students are more likely to score above 'never' on items in the scale as their own assessment of their competence increases

Appendix J

Transportation Scale Adapted for Simulation

Transportation Questionnaire

Fill in the number under each question that best represents your opinion about the simulation you just participated in.

1. While I was participating in the simulation, I could easily picture the events in it taking place.

1	2	3	4	5	6	7
not at all						very much

2. While I was participating in the simulation, activity going on outside the patient's room was on my mind.

1	2	3	4	5	6	7
not at all						very much

3. I could picture myself in the scene of the events depicted in the simulation.

1	2	3	4	5	6	7
not at all						very much

4. I was mentally involved in the simulation while participating in it.

1	2	3	4	5	6	7
not at all						very much

5. After the simulation ended, I found it easy to put it out of my mind.

1	2	3	4	5	6	7
not at all						very much

6. I wanted to learn how the patient's story ended.

1	2	3	4	5	6	7
not at all						very much

7. The simulation affected me emotionally.

1	2	3	4	5	6	7
not at all						very much

8. I found myself thinking of ways the simulation could have turned out differently.

1	2	3	4	5	6	7
not at all						very much

9. I found my mind wandering while participating in the simulation.

1	2	3	4	5	6	7
not at all						very much

10. The events in the simulation are relevant to my everyday nursing practice.

1	2	3	4	5	6	7
not at all						very much

11. The events in the simulation have changed my nursing practice.

1	2	3	4	5	6	7
not at all						very much

12. I had a vivid mental image of Warren Flagg.

1	2	3	4	5	6	7
not at all						very much

Notes: Items 2, 5, and 9 are reverse scored.