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The Impact of an Innovative Simulation on Prelicensure Nursing Student Empathy Levels

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THE IMPACT OF AN INNOVATIVE SIMULATION ON PRELICENSURE NURSING STUDENT EMPATHY LEVELS

A SCHOLARLY PROJECT

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Abstract

Empathy is the ability to see oneself in the situation of another and to take actions on behalf of that individual based on that perception. However, empathy has been shown to decrease in nursing education and continues to do so in nursing practice. Importantly, aspects of empathy have been shown to be teachable. This scholarly practice project examined whether an innovative simulation would increase empathy in prelicensure nursing students. This study, guided by self-determination theory (SDT) and designed according to the Plan-Do-Study-Act (PDSA) change model, used a mixed-methods design. The instrument for quantitative data collection was the Toronto Empathy Questionnaire (TEQ) and the qualitative data was collected from a short-answer reflective questionnaire comprised of five open-ended questions. The sample size was n=28, which was a convenience sample based on the size of the cohort from which the participants were selected. The participants were fist-semester prelicensure nursing students from a single school in the Southwest. They participated in an innovative simulation in which they were placed in the roles of patient or family member and participated in a hospital admissions interview led by the simulation facilitator. Data from the TEQ was collected pre- and post-simulation. Data from the reflective questionnaire was collected after the simulation. Data analysis found that TEQ scores increased significantly post-simulation, with significant changes noted in two sub-scales.

Keywords: prelicensure nursing students, empathy, empathic behavior, caring, nurse-patient relationship, perspective-taking, patient experience, Toronto Empathy Questionnaire (TEQ), nursing education, and simulation

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This scholarly practice project of

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Chapter I: Phenomenon of Interest

Introduction

Empathy is an intrinsic understanding of the experience of another person, which manifests as an emotional response driven by the view that others are deserving of compassion and respect (Montazeri et al., 2020). Compassionate care expressed as an awareness of the vulnerability and suffering of another is a core value of the nursing profession, but research has shown empathy to be lacking in nursing students (Su et al., 2020). The purpose of this scholarly practice project (SPP) is to explore the role that simulated teaching experiences may play in fostering empathy in nursing students. Empathy is an important attribute for nurses to possess but has been shown to decrease over time in nursing school and clinical practice. This chapter lays the foundation for this scholarly practice project by explaining the current problem as it applies to nursing students' empathy. This chapter also addresses the background and significance of empathy in nursing students as it relates to nursing practice. Statement of the aims of this SPP closes out chapter I. The evidence-based practice framework for this scholarly project is the Plan Do Study Act (PDSA) model.

Statement of the Problem

Empathy is the ability to understand and share the feelings of someone else and is the foundation of the caring nurse-patient relationship (Mendes et al., 2019; Mufato & Gaiva, 2019). However, empathy in nursing students has been demonstrated to decline as they progress through their education (Ecklund at al., 2019; Sheehan et al., 2013). Empathy in nurses, or lack of,

impacts patient care and outcomes in several ways (Beest et al., 2019; Mendes et al., 2019). First, empathy impacts the ability to develop open communication and establish rapport between nurses and patients, which is important because patients are less likely to be communicative if they perceive a lack of empathy from nursing staff (Ecklund et al., 2019; Gholamzadeh et al., 2018). Next, empathy affects the quality and timeliness of communication with other members of the interdisciplinary healthcare team, which means that healthcare decisions and interventions could be delayed or omitted altogether (Gimenez-Espert et al., 2019). In addition to affecting team communication, the quality of empathy in nurses has the potential to inform culture organization-wide, with pervasive effects reaching across units and disciplines (Clark, 2018).

Empathy is important to nursing and healthcare organizations because it directly impacts nurses' willingness to care for populations such as the elderly, which is of concern because people over the age of 65 years-old comprise the largest and most quickly growing population seeking and receiving healthcare services (Gholamzadeh et al., 2018). Nurses' ability to empathize with patients and imagine themselves in the patients' shoes informs nursing judgment and clinical decision-making, ultimately impacting the quality of patient outcomes (Beest, 2018). Fortunately, research shows that aspects of empathy are teachable, although there is not yet a consensus on the best approach to teaching empathy (Ecklund et al., 2019; Everson et al., 2015; Ferri et al., 2017; Sheehan et al., 2013).

Background

Empathy and caring behaviors affect the nurse-patient relationship and informs how patients perceive the quality of their care (Mendes et al., 2019; Gholamzadeh et al., 2018). Gimenez-Espert et al. (2019) assert that communication is key to a caring relationship, and that lack of empathy in nursing is a barrier to communication with patients. The perception of

empathetic behavior is key for patients to feel validated and respected (Sheehan et al., 2013). Patients desire displays of empathy and caring from their nurses and showing sensitivity to patients' emotional states as well as their physical states increases patient satisfaction and compliance (Culha & Acaroglu, 2019; Ferri et al., 2017; Maruca et al., 2015). Beest et al. (2018) share that, conversely, the absence of empathy is noticeable by patients, who report that such absence causes emotional pain. It has been reported that lack of empathy and callous behavior rank high among complaints levied by patients when surveyed about their satisfaction with the care they received while in hospital (Ferri et al., 2017).

In addition to being an essential element of patient communication, empathy also affects the quality of communication between nurses and the rest of the professional healthcare team (Gimenez-Espert et al., 2019). Empathetic behavior is important to show to colleagues and coworkers as well as to patients at the bedside (Hess, 2015). Clark (2018) noted that nurses from across the country report palpable decline of empathy among their colleagues. Interprofessional communication is improved when colleagues are engaged and employ empathic communication skills, which are particularly important in times of high stress or disagreement (Guetterman et al., 2019). Buchman and Henderson (2019) found that higher empathy correlated to improved interprofessional communication among health care workers.

Lack of empathy is pervasive in many healthcare settings, which means that developing empathy in the workforce stands to directly impact patient outcomes (Ecklund et al., 2019; Levett-Jones & Cant, 2019). Empathy is important to all aspects of a healthcare organization, and it is particularly important to have at a leadership level, because nurse leaders are responsible for fostering and supporting organizational culture (Mansel & Einion, 2019). Empathetic values inform professional identity which directly affects the way nurses

interact with one another and interdisciplinary colleagues (Culha & Acaroglu, 2019). Hess (2015) asserts that individuals learn values and behaviors from their professional environments and that modeled behavior affects how nurses and caregivers within an organization treat each other and how new arrivals learn to treat one another. Mottaghi et al. (2020) inversely correlate caregiver empathy to compassion fatigue. Ferri et al. (2017) report that lower levels of burnout and higher levels of job satisfaction are associated with higher levels of empathy.

Specialty populations such as behavioral health and geriatric patient populations are perceived as difficult to work with because patients are more likely to exhibit unkind or uncooperative behaviors (Can Gür & Yilmaz, 2020; Teófilo et al., 2019). These populations particularly require empathetic caregivers to give quality care which is free of bias and discrimination because they are unable to advocate for themselves (Can Gür & Yilmaz, 2020; Teófilo et al., 2019). Can Gür and Yilmaz (2020) found that nursing students are not attracted to gerontology care areas and assert that empathy informs willingness of nurses to care for elderly populations as well as quality of care provided and patient outcomes. Similarly, Gerace (2020) found a correlation between higher empathy and willingness to work in clinical mental health care settings.

Clark (2018) found that empathy is critical to quality of care because it is part of what intrinsically drives the desire to act or help. Gholamzadeh et al. (2018) assert that empathetic behavior on the part of the nurse improves patient outcomes. Ferri et al. (2017) agree that high empathetic capacity in nursing staff correlates with improved patient health outcomes, citing a corresponding decrease in clinical errors and patient complications. Culha and Acaroglu (2019) found that higher levels of empathy are associated with higher levels of individualized care,

which increases the quality of nursing care provided and, in turn, positively affects patient outcomes.

Empathy, to some extent, is teachable (Eklund et al., 2019; Mendes et al., 2019). Ward (2016) emphasizes the importance of having multiple empathy learning opportunities throughout nursing programs. Most nursing students lack experience in healthcare prior to beginning nursing studies. They also often have little life experience on which to base empathy for patients to associate theoretical learning (Beest et al., 2018; Carlson et al., 1989; Ozdemir, 2019). Simulation has been shown in the literature to be an effective teaching strategy to increase empathy in nursing students (Beest et al., 2018; Eklund et al, 2019; Lovan & Wilson, 2012). Simulation is a good venue to teach empathy and caring to nursing students because it allows students at various levels of proficiency and aptitude to grow in competency and critical thinking (Larew et al., 2006)

Significance

The problem of reduced and atrophied empathy and how to address it in nursing is a systemic problem, starting in nursing school, and it ultimately affects patient care and organizational culture because it is such a critical part of effective communication, teamwork, and developing rapport (Clark, 2018; Gimenez-Espert et al., 2019). Empathy in nursing affects all facets of the profession including nursing practice, nursing education, nursing research, and nursing leadership.

Nursing practice is directly affected by empathetic behavior and attitudes of nurses at all levels of practice and experience (Maruca et al., 2015). Gimenez-Espert et al. (2019) found that seniority in nursing negatively correlates to empathy and caring behaviors. The decrease in empathy has been found to exist across nursing practice (Ecklund et al., 2019). This is important

because empathetic care contributes to better patient rapport, communication, outcomes, and especially healing (Kerr & Tegge, 2017).

It is important for nursing educators to understand how nursing students develop empathetic nursing skills and what strategies are best suited to achieve that (Maruca et al., 2015). Day-Black (2015) noted that simulation helps students develop communication and helps increase engagement, which are attributes of empathy and caring behavior. Empathy assessment in simulation is also a valuable strategy to identify gaps and deficiencies in empathy, which can inform teaching strategies and curriculum development (Teherani et al., 2008).

Ample opportunities exist in nursing research regarding the study of empathy in nursing; most of the studies reviewed for this SPP were small, generally limited to one school or group of schools, with convenience samples of nursing students comprising the sample populations (Day-Black, 2015; Hsaio et al., 2013; Mottaghi, et al., 2020; Persaud & Thornton, 2018; Ward et al., 2016). Everson et al. (2015) identify gaps in the literature regarding simulation, including the limited number of studies and even less quantitative data regarding whether and how simulation increases empathy in students. Nearly all of the studies were short term, except for Sheehan et al. (2013), who applied the same test five times over five years, each time being to a different cohort. Teófilo et al. (2019) concluded that few empathy assessment tools are available and advise further research into developing new robust tools to assess and measure various aspects of empathy.

Levett-Jones and Cant (2019) determined that empathy acquisition can be described on a continuum as a three-stage process which begins with the perceiving stage, in which one becomes aware of another's affective and sensory cues as well as one's own values and biases,

then moves to the processing stage which involves the ability to recognize the view of another, and finally the responding stage which manifests as intrinsic motivation to help.

From this continuum, Levett-Jones and Cant (2019) developed an empathy teaching model but noted that further research would be required to demonstrate its value to nursing and education settings.

Empathy and caring behavior do not happen in a vacuum and such behaviors and values must happen within the context of organizations, which means that leadership bears the responsibility for prioritizing and modeling empathy (Valizadeh et al., 2018). Empathy and caring behaviors modeled by leaders and managers affect staff well-being and informs how staff treat peers and patients (Lown et al., 2020). Nursing leadership is key to improving and maintaining empathy at the bedside and all facets of nursing, including forming strong partnerships with nursing education to best align needs of clinical nursing with organizational planning to meet those needs (Gierach et al., 2019).

Project Objectives/Aim

The aims of this study are: 1) to evaluate the effectiveness of simulation scenarios as an empathy teaching strategy for nursing students to 2) increase knowledge about empathy in nursing students based on Self-Determination Theory and motivation 3) Utilize and established and reliable instrument to measure empathy 4) create an innovative simulation to assist students in applying and practicing empathetic behaviors 5) Disseminate the findings of this study through conference presentations and publication.

Conclusion

This Chapter introduced the concept of empathy as it applies to nursing practice. Additionally, the problem of the decrease in empathy throughout nursing school and into nursing

practice was identified, along with the significance of reduced empathy to clinical judgement, nurse/patient relationships, and patient outcomes. This problem is significant to nursing education, research, practice, and leadership because it affects all four domains of nursing and can be impacted by those nursing domains. Importantly, empathy has been shown to be teachable and simulation has potential to create controlled situations in which empathy can be fostered. The goal of this project is to use an innovative simulation scenario to increase empathy in nursing students.

Chapter II: Review of Literature

Introduction

This Chapter begins with the clinical practice question, then addresses the literature reviewed to support this project. Literature reviewed includes empirical and supporting literature. The theoretical framework for this project and evidence-based practice model are also discussed in this chapter, along with philosophical assumptions.

A literature review was conducted in the fall of 2020 using EBSCO, PubMEd, CINAHL, and Cochrane Library databases. Google Scholar was used as well. Search terms included: prelicensure nursing students, empathy, empathic behavior, caring, nurse-patient relationship, Toronto Empathy Questionnaire (TEQ), nursing education, and simulation. Supporting literature from educational institutions and curriculum developers is included as well. The date range for articles reviewed for this project spanned 2015 to 2022.

Evidence Based Clinical Practice Question

Does an innovative, interactive low fidelity simulation based on Jeffries theory of nursing simulation increase first semester nursing students' empathy levels?

Empirical Literature

Jeffries theory of simulation consists of five core elements which serve as a framework to guide the development of simulation learning experiences for nursing education in order to ensure that safety, fidelity, and outcomes are consistently met (Cowperthwait, 2020). The core elements are context, background, design, simulation experience, and outcomes. Context is the starting point in simulation design and evaluation and addresses the fundamental purpose of the simulation (Jeffries et al., 2015). According to Jeffries et al. (2015), the background addresses the goals/needs of the simulation, resources needed, as well as how the simulation fits into the larger context of curriculum and learning. Design involves the elements of the simulation, such as roles, equipment, and learning objectives which guide the selection and development of a simulation learning scenario (Jeffries et al., 2015). Simulation experience involves the environment in which the scenario is conducted and requires trust between the facilitator and participants, and fidelity to realism in order to promote authentic experiences and suspension of disbelief (Jeffries et al., 2015). Outcomes are the measurable results of the simulation and are comprised of three elements: participant, patient, and system outcomes (Jeffries et al., 2015).

The Jeffries simulation theory informs the NLN Jeffries Simulation Framework, which is the more recent iteration of the Jeffries simulation model (Cowperthwait, 2020). NLN Jeffries simulation framework addresses many elements of the International Association for Clinical Simulation and Learning (INACSL) standards for simulation (Cowperthwait, 2020). The International Nursing Association for Clinical Simulation and Learning (INACSL) standards help further break down elements of NLN Jeffries simulation framework into actionable

elements which can be implemented step-by-step in order to ensure standards are being met (INACSL, 2016).

The Jeffries simulation theory was utilized to underpin the development of an aging simulation designed to foster empathy for elderly patient and was found to align well with all phases of the simulation design (Bowden et al., 2022). Bowden et al. (2022) applied the context, background, and design elements of the theory to planning and design. Simulation experience guided what happened during the simulation itself and supported the ability to modulate individual simulations based on individual learner needs (Bowden et al., 2022). Jeffries simulation theory component, outcomes, helped evaluate the effectiveness of the simulation, whether goals were met, and identify potential changes that would improve the simulation moving forward (Bowden et al., 2022).

Many studies of nursing student and healthcare professions empathy reviewed used the Jefferson Empathy Scale (JSE) to measure empathy because it is psychometrically valid and has been used widely across the healthcare community to assess empathy in caregivers, nursing students, and medical students (Gholamzadeh et al., 2018; Hsiao et al., 2013; Kerr & Tegge, 2017; Sheehan et al., 2013). Hsiao et al. (2013) found the JSE to be psychometrically valid when applied to a convenience sample (n=613) and found it was reliable and valid for assessing perspective-taking, compassionate care, and standing in the patient's shoes.

Gholamzadeh et al. (2018) used the JSE alongside Kogan's Attitudes towards old People Scale in a quasi-experimental study (n=63) to determine that attitudes towards elderly patients improved through empathy skills training. The intervention group's mean empathy score increased significantly immediately after the intervention as well as when measured 2 months post-intervention (Gholamzadeh et al., 2018).

Kerr and Tegge (2017) conducted a cross-sectional study of undergraduate healthcare professions students, including nursing students, (*n*=202). They found that empathy as measured by the JSE was higher in the students who declared nursing as their major (Kerr & Tegge, 2017). Additionally, they found that gender and age influenced empathy levels as well (Kerr & Tegge, 2017).

Everson et al. (2015) used the Kersma-Chen Empathy scale to evaluate the effectiveness of a cultural simulation on nursing student's empathy. Their simulation used a single-group pre- and post-test design with a convenience sample (*n* = 460) from a university in Australia and found that post-test score improved significantly, particularly in the domains of perspective-taking and valuing affective empathy (Everson et al., 2015).

Sheehan et al. (2013), used the JSE to measure empathy of students who took an elective nursing course regarding the dimensions of human suffering and applied a pre- post-test design five times over a span of five years. They found that the findings were consistent across the five-year period and showed that the course increased empathy scores by several points (Sheehan et al., 2013).

Two integrated reviews were included in this review. The first, conducted by Teófilo et al. (2019) concluded that few empathy assessment tools are available and advise further research into developing new robust tools to assess and measure various aspects of empathy. Levett-Jones and Cant (2019) determined that empathy acquisition can be described on a continuum as a three-stage process, from which they developed a teaching model. but noted that further research will be required to demonstrate its value to nursing and education settings.

Empathy Affects the Nurse Patient Relationship

The first theme that emerged while reviewing the literature is that empathy and caring behaviors affect the nurse-patient relationship and determine the quality of care given and how patients perceive the quality of their care (Gholamzadeh et al., 2018; Mendes et al., 2019). Mottaghi et al. (2020) inversely correlate caregiver empathy to compassion fatigue. Additionally, studies have shown that empathetic behavior on the part of the nurse improves patient outcomes (Ecklund et al., 2019; Gholamzadeh et al., 2018; Levett-Jones, 2019).

Teherani et al (2018) found that empathetic behavior affects communication skills. Clark (2018) also determined that empathy is critical to quality of care because it is part of what intrinsically drives the desire to act or help. Showing sensitivity to patients' emotional states as well as their physical states increases patient satisfaction and compliance (Culha & Acaroglu, 2019). Beest et al. (2018) share that absence of empathy is noticeable by patients, who report that such absence causes emotional pain.

Gimenez-Espert et al. (2019) assert that communication is key to a caring relationship and that lack of empathy on the part of nursing is a barrier to communication with patients as well as the care team. This is important because lack of empathy is pervasive in many healthcare settings, which means that developing empathy in the workforce stands to directly impact patient outcomes (Levett-Jones & Cant, 2019).

Empathy Levels Vary Widely Among Nursing Students

That empathy varies across the educational timeline of nursing students, including post-licensure, is the second theme identified in this literature review. On this point, there were differences in findings, which suggests that more research is needed. Eklund et al. (2019) found that sixth semester nursing students had higher empathy scores than second semester nursing

students. Hsiao et al. (2013) report that students in a 4-year BSN program have higher measurable empathy than students in 2-year RN to BSN bridge program do.

Empathy declines in the second year of nursing school and continues to decline as students progress through nursing education (Ferri et al., 2017; Sheehan et al., 2013). This decrease in empathy has been found to continue into nursing practice as well, which is a highly concerning trend (Ecklund et al., 2019).

Empathy is Teachable

The third theme identified in this literature review is that empathy, to some extent, is teachable (Eklund et al., 2019; Mendes et al., 2019). Persaud and Thornton (2018) assert that nurses are less likely to display caring behaviors if it is not formally taught in nursing programs. Yang et al. (2020) found that the intervention group in their quasi-experimental study had significantly higher empathy scores than the control group. Ward (2016) emphasizes the importance of having multiple empathy learning opportunities throughout nursing programs.

Beest et al. (2018) found that a simulation placing the student in the role of the patient was effective in giving empathic insight into the challenges that patients experience in healthcare settings while being cared for by nurses. Their qualitative descriptive study (n = 75) identified four themes: endurance, silent scream for contact, scary dependency, and confrontation with role of the patient (Beest et al., 2018). Their findings revealed that students gained important insight into the feelings and perspective of the patients and supported the need to develop formal experiential learning experiences to increase empathy in nursing students (Beest et al., 2018).

Simulation Helps Students Engage in Experiential Learning

The fourth theme identified in the literature review is that of experiential learning. Traditional nursing students are in their early twenties, lack experience in healthcare

prior to beginning nursing studies, and often have little life experience on which to base empathy for patients or to associate theoretical learning (Beest et al., 2018; Carlson et al., 1989; Ozdemir, 2019). Simulation has been shown in the literature to be an effective teaching strategy to increase empathy in nursing students (Beest et al., 2018; Eklund et al, 2019).

Simulation has been increasingly used in nursing education and its benefits are that simulation labs and centers provide safe learning spaces in which every element of the learning experience can be controlled (Bowden et al., 2022). Simulations for nursing education allow educators to create simulated patient care scenarios using simulated patient rooms, equipment that would be found and used in patient rooms, and mannikins or standardized patients. Simulations can be high-fidelity, with high tech mannikins capable of replicating different patient states and which can be changed by the facilitator or actions of participants. Simulations can also be low-fidelity, and still give robust learning experiences based on established goals and learning outcomes. Educators can control every aspect of simulation and thus have a lot of flexibility as far as tailoring simulation experiences to the needs of a particular learner or learning objective.

Simulation helps students develop communication and increase engagement, which are attributes of empathy and caring behavior (Day-Black, 2017). Mid-fidelity standardized patient simulations serve as safe non-threatening opportunities for learning and self-reflection (Beest et al., 2018; Maruca et al., 2015; Persaud & Thornton, 2018; Sheehan et al., 2013). Some studies utilized role reversal to put students in the position of being the patient so that they could get a firsthand sense of what it is like to experience the other side of the nurse-patient relationship (Beest et al.,2018; Maruca et al., 2015; Sheehan et al., 2018).

Summary

Most of the studies selected for this literature review were small, generally limited to one school or group of schools, with convenience samples of nursing students comprising the sample populations (Day-Black, 2015; Hsaio et al., 2018; Mottaghi et al., 2020; Persaud & Thornton, 2018; Ward et al., 2016). Almost all of the studies were short term, except for Sheehan et al. (2013), who applied the same test five times over five years, each time being to a different cohort.

The literature reviewed for the project supports the use of simulation as a means of increasing measurable empathy in nursing students (Beest et al., 2018; Carlson et al., 1989; Eklund et al., 2019; Ozdemir, 2019). A review of the literature demonstrates a need for nursing students to increase their empathy (Eklund et al., 2019; Ferri et al., 2017; Hsiao et al., 2013). The literature also supports the concept that empathy is measurable and teachable (Eklund

Questionnaire has been demonstrated to be a valid and reliable tool for measuring empathy in nursing students before and after learning interventions, including simulation.

Supporting Literature

The need for teaching empathy to those entering healthcare professions is a notable theme in supporting literature (Amplion, 2020; Texas A&M International University, 2019). This is important because patients are more likely to place trust in their healthcare teams if the members of those healthcare teams convey empathy and compassion (Texas A&M International University, 2019). Amplion (2020) describes a communication training program at the University of Missouri School of Medicine; this was intended to improve empathy among its clinicians which successfully raise patient satisfaction scores from low-ranking to among the highest in the nation over a period of two years. Bottino (2018) asserts that it is important for nursing students and nurses to be able to distinguish between sympathy and empathy, because empathy is that

which drives nursing choices and actions. Bhavana Aitha, a senior nursing student at the University of Delaware, reports noticing a lack of empathy among her cohort as a result of fragmented digital communication, which is very different from the mindful presence and active-listening which nursing students must possess in order to engage in empathetic communication with their patients (Aitha, 2018).

Simulation as experiential learning is hailed as an effective means of teaching soft skills such as communication, critical thinking, and empathy. Wolters Kluwer (2017) discusses nursing simulations and reports that prelicensure nursing faculty utilize simulation in a variety of ways to teach students how to be more empathetic and to assess student's empathic abilities. Holden (2018) presented on a project conducted at a school of nursing geared towards increasing nursing student empathy through experiential learning which had significant results as measures by the Jefferson Empathy Scale, which this SPP will be using to collect data.

Empathy and caring in nursing have been identified as a critical element to safe patient care and patient outcomes by governmental agencies. The Agency for Healthcare Research and Quality (AHRQ) cites caregiver empathy as a critical element to family and patient engagement and safety improvement (Leana et al. , 2018). The U.S. Department of Veterans Affairs Veterans Health Administration (VA) also promotes utilization of empathic skills by healthcare workers in order to build rapport and morale with patients (VA.gov, 2018).

Theoretical Framework

The theoretical framework for this scholarly practice project is self-determination theory (SDT) (See Appendix A). This model is a framework for studying human personality and motivation and asserts that situations which promote the psychological needs of autonomy, competence, and relatedness are most effective at supporting and developing a person's

motivation (Ryan & Deci, 2000). Self-determination theory asserts that intrinsic motivation is based on values and personal inquiry which come about as a result of perception of having choice, whereas extrinsic motivation often promotes behavior as a result of coercion, or lack of choice (Gerber et al., 2021).

The three primary psychological needs of self-determination theory: autonomy, competence, and relatedness are crucial to fostering a sense of well-being and sense of control in a given situation (Ryan & Deci, 2000). Autonomy means that an individual has a sense of free will and choice and, when supported, leads to fully intentional engagement in activities (Ryan & Deci, 2000). Competence is a sense of having mastery over skills and tasks, and when individuals perceive competence in themselves, they are likely to engage in behaviors which will lead to accomplishment of goals and tasks (Ryan & Deci, 2000; Cherry, 2021). Relatedness, also referred to as connection, is the need for interpersonal connection and the sense of belonging with others (Gerber et al., 2021; Ryan & Deci, 2000). When the needs for autonomy, competence, and relatedness are met, people achieve the ability to become self-determined, which means that they will take actions and make decisions based on the internal belief that their actions will impact outcomes (Cherry, 2021).

Self-determination theory is applicable in many settings, including education and healthcare (Markwell et al., 2021; Ryan & Deci, 2000). Educator behaviors which are seen as guiding rather than controlling are perceived by students to be supportive of autonomy (Markwell et al., 2021). Establishing rapport with students and establishing dialogue with students has been found to help promote relatedness, and structure and constructive feedback increase perception of confidence in students (Markwell et al., 2021).

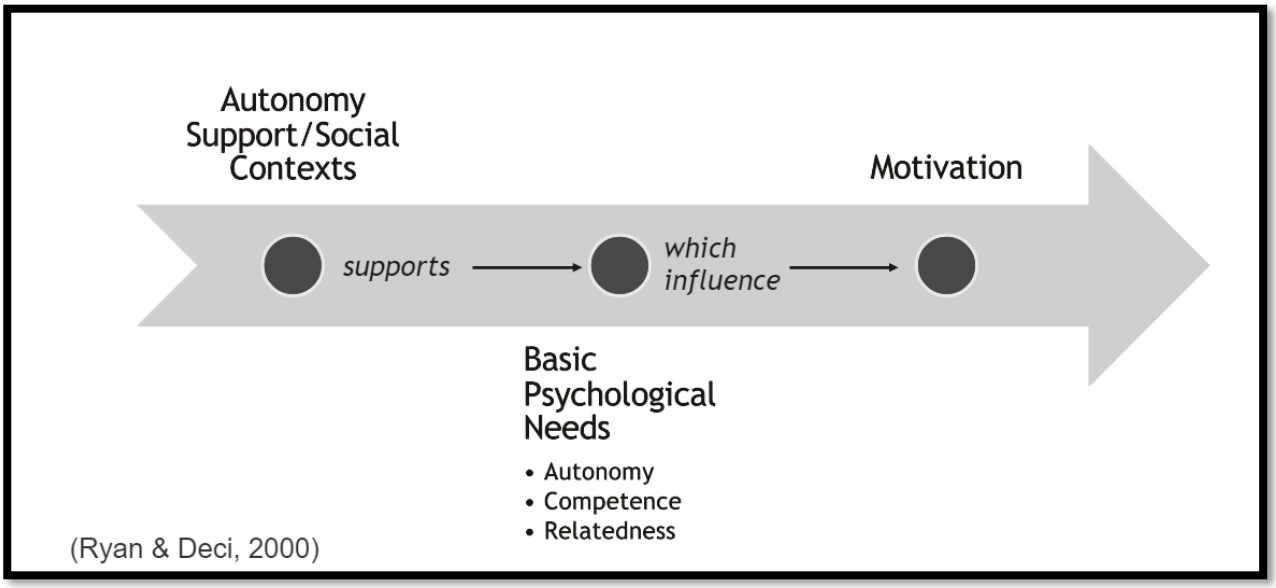
In addition to the three core SDT concepts of autonomy, competence, and relatedness, autonomy support is an SDT concept which applies to education and is described as support provided by others which helps to promote increased intrinsic motivation (Markwell et al., 2021). Aspects of autonomy support include transfer of responsibility and actions which support proactive behaviors (Orsini et al., 2016).

Finally, increased intrinsic motivation is correlated with increased student engagement and improved academic outcomes (Orsini et al., 2016). Self-determination theory is well-suited to teaching empathy to nursing students because it addresses the needs which need to be satisfied in order to motivate students to think and behave empathetically with regard to patient engagement (Gerber et al., 2021). Perlman et al. (2021) found that nursing students who were in situations where their autonomy, a pillar of SDT, was supported were more likely to score higher on measures of therapeutic relationships. In another study, Perlman et al. (2020) found that student scored higher on clinical placement survey measures when placed in clinical settings that supported autonomy. In a 2018 study regarding therapeutic-recreation clinical experiences for students studying mental health, Perlman et al. found that the inclusive setting supported a sense of belonging among the participating nursing students and demonstrated that the environment increased the students' understanding of symptoms of mental illness as well as with the experiences of those who suffer from mental illness.

Visser et al. (2019) used SDT in the context of examining interprofessional education (IPE) benefits to learners and found that SDT gave the researchers a framework with which to assess autonomy, competence, and relatedness. Using SDT gave Visser et al. (2019) insight into how IPE promoted intrinsic motivation to actively participate in collaboration with other disciplines to plan patient care.

Figure 1

Self-Determination Theory



Philosophical Assumptions

Self-determination theory has two fundamental assumptions. First, SDT begins with the assumption that people innately tend to engage in behaviors geared towards growth and mastery of challenges, but that positive growth depends on positive external support which fosters autonomy, competence, and relatedness (Ryan & Deci, 2000). Second, intrinsic motivation is important. Self-determination theory focuses on supporting development of intrinsic motivation by addressing driving factors such as a desire for social connection and making independent choices (Cherry, 2021).

The extent to which one's needs for autonomy, competence, and relatedness are extrinsically supported will inform the degree to which that individual will develop intrinsic motivation (Ryan & Deci, 2000). Essentially, if an individual is provided with supportive scaffolding from a mentor or instructor, for example, that individual is more likely to perceive

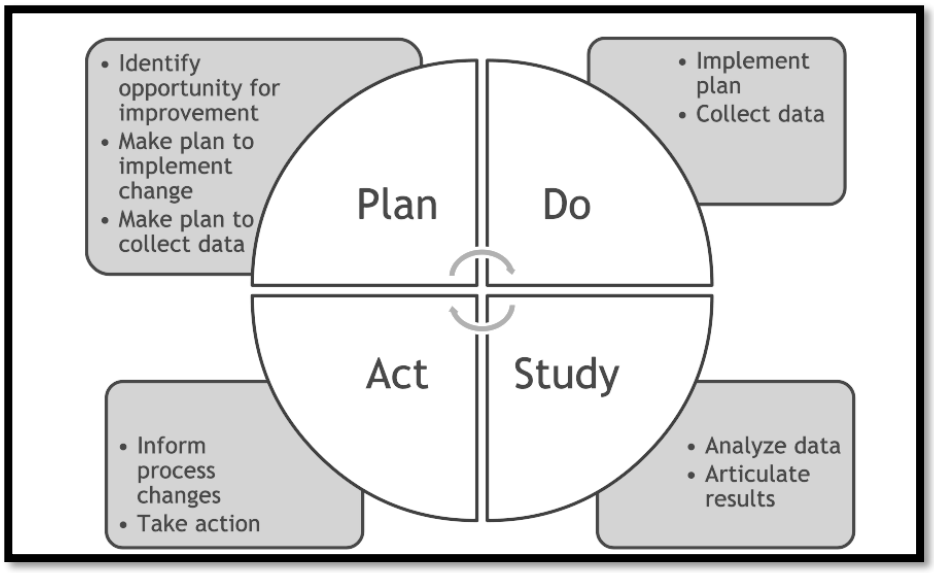
that they have autonomy in a given situation. If they perceive that they are supported and have autonomy, they are more likely to feel as though they have the space to relate to others and to feel competent in what they are doing. The external scaffolding which allows the learner to realize the psychological needs of autonomy, competence, and relatedness creates a learning state in which the learner can be intrinsically motivated to take action, rather than merely responding to external influences (Cherry, 2021; Ryan and Deci, 2000).

Evidence-based Practice (EBP) Model: Plan-Do-Study-Act (PDSA) Model

The PDSA model is a cyclic framework for quality improvement which has been widely adopted for use in health care and is comprised of multiple cycles of the four step cycle: Plan, Do, Study, and Act (Christoff, 2018; Melnyk & Fineout-Overholt, 2015). The planning phase is where an opportunity for improvement is identified and a plan is made to implement change and collect data (Melnyk & Fineout-Overholt, 2015). Next, the do phase is where the change is implemented and data is collected (Melnyk & Fineout-Overholt, 2015). Collected data is analyzed in the study phase and results inform learning (Melnyk & Fineout-Overholt, 2015). Last, the results are used to inform process changes and then testing is repeated in the act phase (Melnyk & Fineout-Overholt, 2015). Katowa-Mukwato et al. (2021) assert that the PDSA model is scalable across a variety of health care settings and is accessible to all levels of staff. The PDSA model is intended to test and study change on a small scale and involves multiple cycles of the Plan-Do-Study-Act approach in order to ensure that each step is rigorously tested and analyzed in order to ensure improved chance of success when scaled up (Melnyk & Fineout-Overholt, 2015).

Figure 2

Plan-Do-Study-Act Model



The PDSA approach allows for frequent evaluation during QI processes, which allows for quick identification of barriers and testing of approaches to overcome them (Moser et al., 2020). For example, Katowa-Mukwato et al. (2021) used PDSA to implement a hospital-based evidence-based practice pilot project to improve patient outcomes. Application of PDSA framework allowed Kotowa-Mukwato et al. (2021) to identify which of 12 areas of implementation met targets and to identify which approaches worked and areas that needed improvement. Hamilton et al. (2021) utilized rapid PDSA cycles to implement practice changes regarding surveillance of pathogens in a pediatric cystic fibrosis clinic during COVID-19 and were able to minimize risks and reduce costs while providing evidence-based care through rapidly changing external circumstances related to the pandemic.

Intervention

The intervention for the scholarly practice project will be an educational simulation conducted in a simulation center at a school of nursing. The intervention is an innovative empathy scenario in which students take on either the role of the patient or their adult family member and go through an admissions interview with a facilitator in the role of admitting nurse.

The scenario is that of an admissions interview because the cohort from which participants are selected has only been in nursing school for a few weeks and have had no clinical experiences or simulation experiences other than orientation to the simulation center and participation in a medication administration lab which focuses on the rights of medication administration. The assumption is that all of the participants would have some experience as patients in healthcare settings and that one of the most common aspects of healthcare are health history and medication questions, regardless of the type of clinical setting or whether a patient is engaged in a well-patient exam or otherwise. The goal of the admissions scenario was to be accessible to all participants.

In this simulation, the pretext is that the simulated patient is being admitted to the hospital and they and their family member are present for the initial admissions interview. The facilitator in the role of the admitting nurse and will be wearing a face shield, and surgical mask.

The participants in the simulated patient and family member roles will be asked to answer questions and communicate with the caregiver. Barriers to communication and ability to perform tasks will include the literal barriers of the PPE, which obscures facial expressions and non-verbal communication. This is notable because non-verbal communication accounts for 80% of intrapersonal communication and includes pitch of voice, facial expressions, and hand gestures (Khurana et al., 2020).

A hospital admission simulation involving PPE was chosen as the intervention because neophyte nursing students have not yet had clinical experiences on which to base a simulation and infection control and PPE is a topic which is introduced early in the course. This choice is appropriate for contemporary nursing students and practice because PPE is ubiquitous in clinical areas and, beginning on day one of clinicals, students are expected to engage with patients while

wearing face shields and face masks. Foundationally this is important because PPE, particularly masks and face shields have been shown to cause anxiety and fear in patients without additional steps taken by caregivers to ensure that empathetic and effective communication is mindfully conducted while wearing PPE (Fuller & Howell, 2020; Khurana et al., 2020).

The literature review for this SPP supports the practicality of using simulation as a teaching modality for experiential learning for prelicensure nursing students. Nursing students are often lacking in life experiences which would give them empathy for patient populations that they will be caring for, and the literature supports using simulation to build soft skills required in nursing such as empathy and compassion. SDT is applicable as a framework for supporting the autonomy, competence, and relatedness required to foster self-determination in students as it applies to developing empathy. The PSDA model will guide the project. Additionally, the TEQ is a psychometrically valid instrument for measuring empathy in novice nursing students.

The intervention for this scholarly practice project is a simulation in which the participants are placed in the roles of the patient and their family member during a hospital admissions interview. The participants will engage with the facilitator in the role of the nurse conducting the admissions interview who is wearing a mask and face shield. During the admissions interview, the facilitator will ask questions which the participants will try to answer, based on the information they were given during the simulation pre-briefing.

Conclusion

The literature review supports the assertion in Chapter I that empathy declines throughout nursing school and into nursing practice. This occurs in multiple ways including the lack of formal empathy-building exercises. The theoretical framework, practice change model, and

intervention address the need to increase empathy in nursing students, which was identified in Chapter I.

Chapter III: Methodology

Introduction

Empathy in nursing has been cited as a critical element of nursing care but has been demonstrated in the literature to decline in prelicensure nursing students as they progress through their education. This is a problem because nursing care impacts patient outcomes, and lack of empathy on the part of nurses has been shown to negatively impact patient rapport, professional communication, and clinical decisions.

Chapter III begins by describing the Evidence-Based Practice (EBP) model that will guide this scholarly practice project (SPP). Next, the research design will be addressed, along with the research questions. Detailed information about the population sample, including recruitment methods and inclusion criteria will be presented after which a thorough description of how the study will be conducted will be outlined. Discussion of data analysis methods, project timeline, limitations and generalizability will conclude this chapter.

Project Methods

This project used a mixed-methods approach to measuring and describing the experience of students during an empathy-building simulation. The PDSA framework guided the SPP. The project utilized a single-cohort pre- and post- empathy assessment using the TEQ (see Appendix B). After the simulation, participants also completed and submitted short-answer reflective questionnaire responses for qualitative analysis. Data from the TEQ was collected in order to determine whether the simulation intervention was effective. Qualitative data collection gathered in order to give depth and meaningful insight into the quantitative results from the TEQ by sharing the perspectives of the participants.

Project Design

This study was conducted using a mixed-methods research design to allow for qualitative data to give a more descriptive and comprehensive understanding of the quantitative data results (Polit & Beck, 2017). Data was collected pre- and post- intervention. Quantitative data was collected via administration of the TEQ, which is a questionnaire consisting of a 16-item five-point Likert scale. It has been extensively psychometrically tested and shown to be a reliable measure of empathy, including among health professions students. (Spreng et al., 2009; Haque, et al., 2018; Kourmousi et al., 2017). This is appropriate to answer the research question because it has been shown to be a valid instrument for measuring empathy in health care professions students. The TEQ has been demonstrated to be a valid and reliable instrument for measuring empathy in nursing students before and after learning interventions, including simulation.

Qualitative data was collected from a short-answer reflective questionnaire using open-ended questions. This approach allowed participants to reflect on their experiences in the roles of the patient and family members in terms of how their interactions with the facilitator in the role of the nurse made them feel.

The TEQ surveys and reflections were filled out by the students on their own devices using Research Electronic Data Capture (REDCap). REDCap is a secure web-based digital platform for creating and utilizing databases and surveys for clinical research (Harris et al., 2009). REDCap allows for secure data capture and seamless export into common statistical packages (Harris et al., 2019). A QR code was generated by REDCap for each survey which the participants accessed by scanning with their phones. Scanning the QR code activated a link to the survey which was then accessed by clicking on the link.

Practice Question

Does an innovative, interactive nursing simulation, based on Jeffries theory of nursing simulation, increase the first semester nursing students' empathy levels?

Sample

The population sample was a convenience sample of prelicensure nursing students recruited from a single cohort at a single school of nursing. The subjects were first-semester nursing students enrolled in an introductory nursing fundamentals course. Recruitment occurred at the beginning of the course in the third week of orientation and classes. Potential participants were approached in the classroom after lecture and provided education about the project along with informed consent documents to read and sign if they chose to participate.

Inclusion and Exclusion Criteria

Inclusion and exclusion criteria were straightforward: if the potential participant had been accepted to the school and enrolled in the course and allowed to participate in clinicals and lab, then they were eligible to be included. Acceptance to the school included the requirement that applicants had met education prerequisite requirements and entrance exams, which included demonstrated proficiency in English, math, biology, anatomy and physiology, and chemistry. Exclusion criteria included suspension at the time of expected participation, dismissal, or withdrawal from the course or program.

Potential participants were free to choose whether they wanted to participate, with no penalty to them if they decided not to participate. The principal investigator was not an instructor of the students. No instructors of the level that taught the students from which the participants were chosen were involved in any part of the recruitment or intervention process. This was

intended to alleviate any risk of potential participants feeling as though they were at risk of failure or a low grade related to potentially disappointing or offending a current instructor.

This sample was a convenience sample. The sample size was *n*=28. According to Polit and Beck (2017), sample saturation is a qualitative research term meaning the sample size at which any more participants would not yield any new information. A type II error is when the researcher misses a significant effect and fails to reject the null hypothesis, and is more likely to occur when the sample size is small. Using G*Power and inputting a sample of N=28 and α .05, the projected effect size is 0.58, which is considered a medium effect (Faul et al., 2007; Faul et al., 2009).

Setting

The project setting was a healthcare simulation center located in a regional teaching hospital in the Southwestern section of the United States. The simulation center has nine high- and mid- fidelity beds and additional rooms that can be utilized for a variety of low-fidelity purposes. The simulation center can ordinarily support 100 students at a time, but, because of COVID-19 precautions, that number varies depending on regional case severity.

The intervention proceeded as any simulation conducted in the simulation center. The process included a pre-briefing in the classroom to: assign roles, go over the procedure, and set expectations regarding timelines, conduct, and professional behavior. After the empathy simulation, participants were debriefed in the same manner as for simulation that is part of their prelicensure nursing curriculum. Each participant additionally submitted an anonymous REDCap survey about their experience. This is standard procedure for all simulation activities in the simulation center.

There were a few distinct differences in the empathy simulation as compared to simulations that are standard parts of the curriculum. First, there were the additional data collections in the forms of the post-intervention TEQ and reflective questionnaire, which were also submitted via REDCap. Next, this simulation was not graded or recorded on their educational records in any form, because it was not part of the standard curriculum. Last, the time involved in participation in the empathy simulation was not counted towards educational clinical hour requirements for the course. The time required for participation was in addition to the time allotment for course requirements.

Informed Consent

This scholarly practice project required Institutional Review Board (IRB) approval from Regis College and the site where the project was implemented. Institutional Review Board approval at the site at which the intervention took take place was obtained before IRB approval at Regis College was sought. There were several steps. The first step was to go through the process of requesting permission to access the online in-house IRB application form at the site. Once approval was obtained, Collaborative Institutional Training Initiative (CITI) training was completed. Then the IRB application was accessed, completed, and prepared for submission. Last, the project was presented to the site research committee for approval to proceed. Once the committee approved the project, the IRB application was then submitted.

The IRB application for this SPP was approved for expedited review. The intervention was not high risk, the population was not vulnerable, the study was short-term, and there was not deception involved.

Protection of participant privacy was a priority. The data collected did not contain information that could identify an individual and was kept on a secure encrypted REDCap server that only the principal investigator had administrative permission to access.

Potential participants were provided informed consent documents to read and sign and the facilitator was present to go over the document with them (see Appendix C). Time was provided for questions to be asked and answered. The informed consent document explained the process and reason the study was being conducted. It also explained that no identifying data was associated with the responses collected to the pre- and post-intervention TEQ, reflective questionnaire, or demographic data.

The informed consent document explained that participants would not have their personal information associated with the data collected. They were assigned a random number in order to correlate the collected data sets from each individual, but those numbers were not associated with personal information or recorded in conjunction with personal information at any time.

Additionally, the informed consent document explained to potential participants that their participation was completely voluntary and that there was no benefit or penalty associated with their decision to participate. Potential participants were also informed by the informed consent document that they could discontinue participation at any time for any reason with no consequences to them whatsoever. In order to protect participants from the appearance of bias or threat of consequences to their grades or progression through the nursing program, none of the faculty who taught that course knew which students participated.

Prior to giving potential participants informed consent documents to read, the document was checked for readability and achieved a Flesch-Kincaid readability score of 6.8. (Maqsood et al., 2022).

Ethical Considerations

Institutional Review Board approval was obtained from Regis College and the research institution. This project presented minimal risks to prelicensure nursing students. The likelihood and degree of harm or distress from participation in this research was not deemed to be greater than that which is ordinarily encountered in daily life or routine participation in educational clinical and simulation activities during the course of studies. There were no personal identifiers for participants included in the electronic datasets.

Potential risks for participating in the project included becoming tired from participating in the simulation scenario or becoming distressed by playing the role of the patient/family member. Participants were able to stop at any time and discontinue participation if they become distressed. Additional risks were that participants could become tired or distressed while filling out surveys and completing debriefing sessions. They could report eye strain from reading pre-briefing documents, which explained the scenario and expectations. Participants were allowed to discontinue participation if such a situation arose.

Risks were minimized in several ways. First, participants were given informed consent documents to review and sign. The informed consent document outlined in plain language the reasons for the research, the procedure, and the potential risks and benefits to participants. The informed consent also explained to participants that participation was completely voluntary and that they could decline to participate or withdraw from the study at any time with no consequences.

Next, participants were monitored at all times by a faculty member or the principal investigator. If any distress had been noted, the simulation would have been stopped

immediately. Additionally, debriefing after the scenario was part of the intervention and participants were able to discuss their feelings and perceptions at that time with a faculty member present.

Measurement

The independent variable was the student who participated in the simulation in the role of either the patient or family member. The participants were given information sheets with pertinent information to the patient in the simulation in order for them to be able to answer admissions questions that the facilitator in the role of the nurse asked during the simulation. However, there were some differences in the way the information was presented, in order to give the participants the opportunity to decide what to do with the information and whether or not to use that information in the simulation. The dependent variable was the TEQ score, which measured whether the simulation was effective at increasing empathy scores.

The TEQ is a good fit for Self-determination theory which underpins this study because it addresses different aspects of empathy including intrinsic motivation to assess the emotional state of another person and intrinsic motivation to help. The items on the TEQ address the pillars of SDT, autonomy, and relatedness by assessing an individual's ability to relate to another as well as their motivation to take action based on that assessment.

Plan and Procedures

Following IRB approval from Regis College and the institution at which the research was conducted, the Plan-Do-Study-Act Model was used to guide the implementation of this scholarly project (Zann et al., 2021). As presented previously in this chapter, the model uses a four-phase, plan-do-study-act (PDSA) cyclic model. The steps of the PDSA are broken down into subcomponents to guide the implementation of EBP quality improvement projects.

The planning phase is the phase of the project which identifies a problem and then determines the need for an intervention. This step includes the literature review included in chapter II, which does support the need for promoting empathy in nursing students. During the planning phase, the institution at which the research was conducted was approached and a plan was made to allocate resources, space and time to conduct the research and gather data.

Prior to the commencement of the course for which the participant cohort was recruited, a list of students and faculty was obtained. This list was obtained so that faculty could be educated about the intervention and data-gathering process. Additionally, faculty and staff were consulted with on multiple occasions in order to coordinate times for meetings with potential participants and to obtain informed consents prior to participation.

The second step of the PDSA model is do. During this phase, the intervention was conducted in the simulation center and data was collected. This required several hours total and involved several steps. First, the process was explained to the participants in the classroom. Prebriefing was also conducted in-classroom. Then, the implementation of the simulation itself, gathering of the post-intervention data, and debriefing occurred at the simulation center. The simulation center only allowed a limited number of individuals at the center at a time, and groups were rotated through on an hourly basis. At the simulation center, each group rotated through four stations: preparation, the simulation itself, debrief, then filling out the post-intervention surveys. Individual participants were involved in the process from beginning-to-end for a total of no more than two hours.

Participants were recruited in the classroom, which occurred on week two of the 8-week instructional module. At this time, the informed consent was explained and an opportunity was given for questions to be asked, answered and clarified. Once informed consents were signed and

collected, they were placed in an envelope which was sealed and secured immediately in a locked location.

The week before the intervention took place:

- Participants met in a classroom and took the TEQ pre-survey and answered demographic survey questions (see Appendix D) via REDCap. REDCap is a web-based data collection tool developed for research and provides tools for secure data collection and management. Participants accessed the surveys by scanning a QR code which was incorporated into the presentation accompanying the pre-brief which was projected onto a screen at the front of the classroom. There were also printed versions of the QR code along with a web address and access code, in case any of the participants were unable to access the surveys using the QR codes. (10 minutes)
- Participants were then pre-briefed for the simulation in the classroom. Psychological safety was addressed and their voluntary participation and right to cease participation at any time for any reason without penalty was reiterated. Confidentiality was addressed and the importance of not sharing information with other groups was stated. Clear and open communication as a part of a safe learning environment was addressed and the facilitator communicated expectations of professional integrity and ethics as well as the simulation center's policies and procedures for conduct during a simulation. (30 minutes)
- The day of the simulation, participants:
    - Oriented to the simulation room (5 minutes)
    - Participated in the simulation (15 minutes)
    - Debriefed in the room with the facilitator (10 minutes)
    - Took the TEQ post-survey and answered reflective questions (15 minutes)

Data was collected from the TEQ pre- and post- surveys. Demographic survey data was collected at the time of administration of the TEQ pre- survey. Qualitative data was collected at the time of TEQ post-intervention survey.

The third phase of the PDSA method is study. This is when data will be analyzed. Data were transferred from REDCap to Intellectus Statistics for analysis. Metrics determined prior to implementation of the intervention were used to facilitate analysis and identify correlations between the intervention and outcomes.

Act, the final step in the PDSA cycle, is where recommendations are made related to the outcomes and findings of data analysis. This phase requires synthesis of the previous three steps of the cycle, the interpretation of which will inform the summary and recommendations for subsequent action.

Data Analysis

This scholarly practice project utilized a combination of quantitative and qualitative data analysis to present findings. Demographic data were collected pre-intervention. Quantitative data was be collected pre- and post- intervention using the 16-item 5-point Likert scale Toronto Empathy Questionnaire (TEQ) (see Appendix E). The Toronto Empathy Questionnaire (TEQ) has been used in multiple studies regarding empathy in healthcare professions students as well as other professional disciplines such as teachers (Haque et al., 2018; Kourmousi et al., 2017; Xu et al., 2020). The TEQ is applicable for students at all levels of experience and has been determined to be a psychometrically valid approach to measuring empathy (Haque et al., 2018; Kourmousi et al., 2017; Spreng et al., 2008; Xu et al., 2020). The TEQ was selected for this study because it does not require prior experience in healthcare to answer the questions. This is appropriate

because the participants were first-semester prelicensure nursing students who had not yet had clinical experiences in their roles as nursing students.

Qualitative data was collected post-intervention via short answer responses to 6 open-ended reflective questions.

Demographic data

Demographic data was collected after the informed consent was signed by each participant. Demographic data was collected for several reasons. First, the demographic data helped describe the characteristics of the sample. The demographic data was also used to compare characteristics of the sample to the cohort from which it was selected. Finally, demographic data was collected in order to assess generalizability and transferability of the data analysis results to other settings and populations.

Quantitative data analysis

This SPP used a pretest/posttest design with descriptive statistics. The TEQ specifically measures certain aspects of the sub-concepts of the Self-Determination theory and has been shown to be reliable and valid in measuring empathy. Using a nationwide sample of Greek teachers, Kourmousi et al. (2017) tested the TEQ's internal consistency using Chronbach's alpha coefficient, the result of which, 0.72, is considered satisfactory. Xu et al. (2020), using medical students, found that classical test theory confirmed the psychometric strength of the cTEQ.

Likert-scale questionnaire and data was analyzed using Intellectus statistics two-tailed paired samples t-test. Two-tailed paired samples are used to assess whether mean differences exist on repeated scale variables after controlling for the effects of one or more scale covariates.

Descriptive statistics were employed to analyze differences between groups within the sample. This was done in order to determine whether correlations exist between demographic groups and to determine the generalizability of the findings.

Qualitative data analysis

Qualitative data was be collected via a six-item short-answer questionnaire which asked open-ended reflective questions (see Appendix F). Participants responded to each reflective question in one to three sentences. Common themes were clustered and analyzed in order to enrich the quantitative data and help the researcher to better understand the quantitative data results.

Limitations

There were several limitations identified in this study. First, this study included a small sample size (N=28). This sample was a convenience sample taken from the total number of students admitted the cohort of the course from which the participant sample was recruited. There was a risk that, by the time of the intervention, some students who signed up to participate may have dropped the course, been dismissed, or taken a leave of absence, which would have made the sample size smaller. However, all of the participants who elected to participate ended up following through and the sample size remained the same throughout.

This study was limited to a single site. It took place at a school of nursing in the Southwest United States. This school of nursing is part of a large multi-state hospital system, but it is the only school within the system and stands alone as a single-site school of nursing.

Additionally, this project was short in duration. This study only included a single cohort of students. Data was only be collected at one point in time, giving a view of one point in time with no longitudinal data or other cohorts to compare.

Last, because data is self-reported, there may have been bias in the data collected. Participants may have tried to give answers that they thought was socially desirable. They may also have misinterpreted the questions and given inaccurate data unintentionally.

Transferability/Generalizability

Generalizability is the degree to which research methods support the applicability of the findings to the population which the sample represents (Polit & Beck, 2017). Because the limitations for this SPP included a small sample size, the cohort may be reflective of the larger population of nursing students in the region. However, due to variations between regions and schools, the generalizability may be localized to the immediate region from which the majority of the students are recruited to the school. Findings from this project may be transferrable to other cohorts of prelicensure nursing students within the research institution as well as within the region. PDSA is designed to be incrementally scalable and results from this SPP may be scalable within the institution then assessed for further generalizability from there.

Conclusion

This study used the PDSA model as the framework for developing the plan and procedures. The plan and procedures included the planning and preparation phase of the study. This study also used a mixed-methods approach to gather data. Qualitative data was gathered and analyzed for common themes in order to support the quantitative data gathered by pre- and post-intervention administration of the TEQ. Data was collected to help determine whether the aim of the study, to increase empathy in nursing students, was effectively accomplished using an innovative simulation which put the participants in the role of a patient or their family member. The population sample was recruited from a single cohort of first-semester prelicensure nursing students from a single school of nursing. Participation was voluntary and there were no penalties

to choosing not to participate. Faculty teaching the cohort was not involved with any part of the intervention nor did they know who chose to participate or who decided to discontinue participation at any time. The intervention took place at a simulation center at the school of nursing and was conducted in a manner similar to that of simulations which are part of the prelicensure nursing curriculum.

Potential participants were given an informed consent, written at no higher than a seventh-grade reading level, and it was explained by a facilitator with time given for questions and concerns to be addressed. Potential risks were no more than that of participation in simulation activities required to satisfy requirements of the course for the cohort from which the study sample was recruited. However, participants may have become tired or distressed by the content of the scenario, in which case they were allowed to withdraw from participation without any penalty to them. Additionally, if a facilitator observed a participant becoming anxious or distressed, they would have dismissed the participant with no penalty to that participant.

Chapter IV: Results

Introduction

The intent of this mixed-methods project was to determine whether an innovative simulation geared towards increasing empathy in prelicensure nursing students is effective. A pre- and post- self-administered survey, the Toronto Empathy Questionnaire (TEQ) was administered to participants in the novel empathy simulation in order to compare scores before and after intervention. This chapter will cover the results of data collection and statistical analysis. Demographic data is discussed first. Next, quantitative data will be addressed. Paired t-

tests were used to determine if there was a significant difference in TEQ scores pre- and post-intervention. This chapter concludes with a summary of qualitative data collected from short-answer responses submitted by the participants. All surveys were filled out completely and were included for analysis.

Demographic Data Analysis

Twenty-eight pre-licensure nursing students (*n*=28) were recruited to participate in this study. Demographic data collected from participants included gender, age, race and ethnicity, prior experience working in a healthcare setting, prior degrees, and birth order.

Descriptive Statistics

Introduction

Frequencies and percentages were calculated for gender, work experience, race and ethnicity, birth order, age, and prior degrees.

Frequencies and Percentages

The most frequently observed category of gender was female (*n* = 26, 92.86%). The most frequently observed category of previous healthcare work experience was Yes (*n* = 15, 53.57%). The most frequently observed category of race and ethnicity was White/European American (*n* = 20, 71.43%). The most frequently observed category of birth order was Oldest/First (*n* = 12, 42.86%). The most frequently observed category of age was 18-24 (*n* = 24, 85.71%). The most frequently observed category of prior degrees was none (*n* = 17, 60.71%). Frequencies and percentages are presented in Table 1.

Table 1

Demographics Frequencies and Percentages

Variable	*n*	*%*
Gender		
Female	26	92.86
Male	2	7.14
Missing	0	0.00
Previous healthcare work experience		
No	13	46.43
Yes	15	53.57
Missing	0	0.00
Race and ethnicity		
White/European American	20	71.43
Latino/Latinx, White	3	10.71
Latino/Latinx	3	10.71
Black/African American	1	3.57
Asian/Asian American	1	3.57
Missing	0	0.00
Birth order		
Youngest/Last	5	17.86
Oldest/First	12	42.86
Middle	10	35.71
Only child	1	3.57
Missing	0	0.00
Age		
18-24	24	85.71
25-34	4	14.29
Missing	0	0.00

Prior degrees		
None	17	60.71
Bachelors	1	3.57
Associates	10	35.71
Missing	0	0.00

Note. Due to rounding errors, percentages may not equal 100%.

Quantitative Data Analysis

Quantitative data was collected pre- and post- intervention via administration of the Toronto Empathy Questionnaire (TEQ), a self-administered fifteen-item five-point Likert scale questionnaire which measures six subscales of empathy: perception of emotional state in other that stimulates same self-emotion, emotion comprehension in others, assessment of emotional state in others by demonstrating sensitivity, sympathetic physiological arousal, altruism, and prosocial helping. Total scores were analyzed to determine whether significant changes pre- and post-intervention had occurred. Additionally, individual items were analyzed to determine whether significant changes occurred in any of the subscales pre- and post-intervention.

Two-Tailed Paired Samples t-Test: TEQ scores

Introduction

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of pre- and post-intervention TEQ scores was significantly different from zero.

Assumptions

Normality. A Shapiro-Wilk test was conducted to determine whether the differences in total score pre- and total score post- could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant based on an alpha value of

.05, $W = 0.92$, $p = .028$. This result suggests the differences in pre- and post- scores are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated.

Homogeneity of Variance. Levene's test was conducted to assess whether the variances of pre- and post- scores were significantly different. The result of Levene's test was not significant based on an alpha value of .05, $F(1, 54) = 0.81$, $p = .374$. This result suggests it is possible that pre- and post-intervention scores were produced by distributions with equal variances, indicating the assumption of homogeneity of variance was met.

Results of Two-tailed Paired samples t-Test

The result of the two-tailed paired samples *t*-test was significant based on an alpha value of .05, $t(27) = -4.36$, $p < .001$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of pre- and the mean of post- scores was significantly different from zero. The mean of pre-intervention was significantly lower than the mean of total_score_post. The results are presented in Table 2. A bar plot of the means is presented in Figure 3.

Table 2

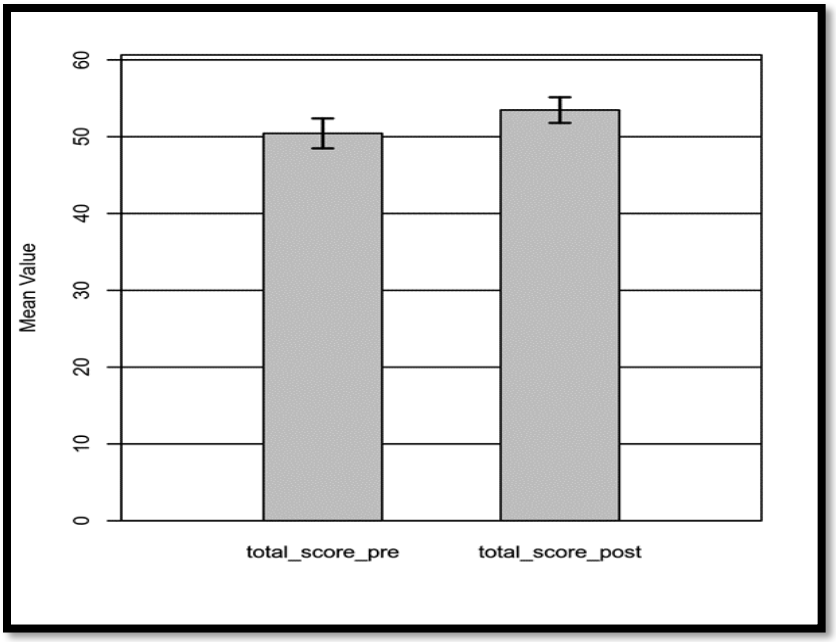
Two-Tailed Paired Samples t-Test for the Difference Between Pre-intervention TEQ and Post-intervention TEQ

total_score_pre		total_score_post				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
50.43	5.25	53.46	4.52	-4.36	< .001	0.82

Note. N = 28. Degrees of Freedom for the *t*-statistic = 27. *d* represents Cohen's *d*.

Figure 3

Means of pre- and post-intervention TEQ with 95.00% CI Error Bars



Two-Tailed Wilcoxon Signed Rank Test

Introduction

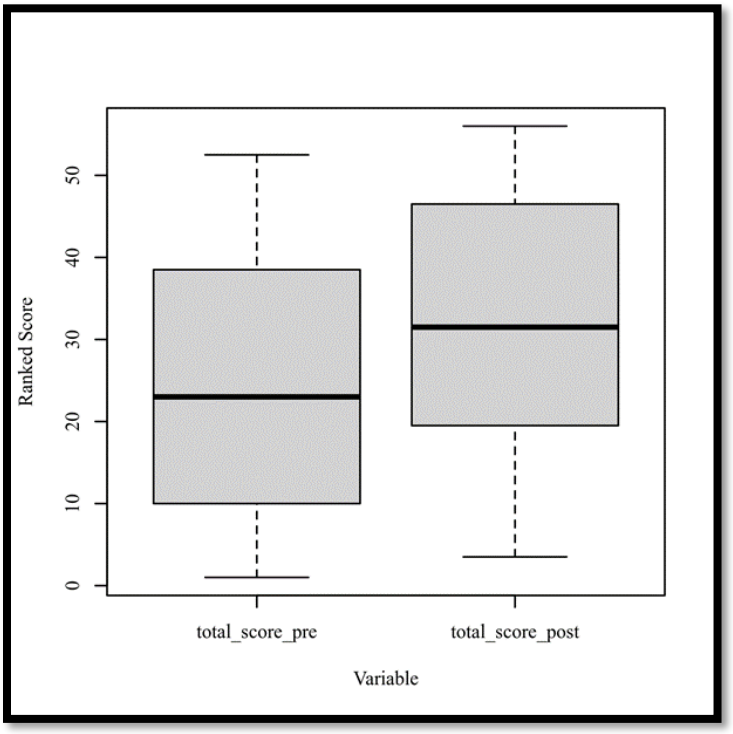
A two-tailed Wilcoxon signed rank test was conducted to examine whether there was a significant difference between pre- and post-intervention TEQ. The two-tailed Wilcoxon signed rank test is a non-parametric alternative to the paired samples *t*-test and does not share its distributional assumptions (Conover & Iman, 1981).

Results of Two-Tailed Wilcoxon Signed Rank Test

The results of the two-tailed Wilcoxon signed rank test were significant based on an alpha value of .05, $V = 31.50$, $z = -3.67$, $p < .001$. This indicates that the differences between pre- and post-intervention TEQ are not likely due to random variation. The median of pre-intervention TEQ ($Mdn = 51.00$) was significantly lower than the median of post-intervention TEQ ($Mdn = 53.00$). Figure 4 presents a boxplot of the ranked values of pre- and post-intervention TEQ scores.

Figure 4

Ranked values of pre- and post-intervention TEQ



Individual Subscales of Measurement

In addition to looking at the total TEQ scores, the two-tailed paired samples *t*-test was applied to each item in the TEQ in order to determine whether any individual subscales reflected notable changes. Of the fifteen items and six subscales of the TEQ, significant changes only occurred in three items from two measurement subscales. Two items, both negatively scored from the subscale *assessment of emotional state in others by demonstrating sensitivity* and one item, positively scored, from *prosocial helping* had significant changes between pre- and post-intervention. All three changes were noted by increases in the post-intervention survey as compared to the scores in the pre-intervention survey.

Table 3

TEQ Categorized by Measurement

TEQ Categorized by Measurement	

Measurement	Item	Item # on TEQ	Negatively Scored?	Significant change?
Perception of emotional state in other that stimulates same self-emotion	When someone else is feeling excited, I tend to get excited too	1		No
	I remain unaffected when someone close to me is happy	4	✓	No
Emotion comprehension in others	I can tell when others are sad even when they do not say anything	8		No
Assessment of emotional state in others by demonstrating sensitivity	Other people's misfortunes do not disturb me a great deal	2	✓	Yes
	When a friend starts to talk about his\her problems, I try to steer the conversation towards something else	7	✓	No
	I do not feel sympathy for people who cause their own serious illnesses	10	✓	No
	I am not really interested in how other people feel	12	✓	No
	I find it silly for people to cry out of happiness	15	✓	Yes
Sympathetic physiological arousal	It upsets me to see someone being treated disrespectfully	3		No
	I have tender, concerned feelings for people less fortunate than me	6		No
	I find that I am "in tune" with other people's moods	9		No
	I become irritated when someone cries	11	✓	No
Altruism	I enjoy making other people feel better	5		No
	When I see someone being treated unfairly, I do not feel very much pity for them	14	✓	No
	When I see someone being taken advantage of, I feel kind of protective towards him\her	16		No
Prosocial helping	I get a strong urge to help when I see someone who is upset	13		Yes

Qualitative data analysis

Qualitative data was collected by a six-item short-answer questionnaire administered post-intervention. Simulation participants were assigned to play either the role of the patient or the role of the patient's adult child. Participants were asked to respond to each question using 1-3 sentences. The short-answer questions gave the participants the opportunity to reflect on their experiences in the simulation and to describe their feelings about their roles, as well as the roles of the other participants in the simulation. Data was collected via REDCap and the responses were captured exactly as the participants submitted them. Every participant responded to each of the six questions, so there was no missing data.

Generally, the responses demonstrated engagement with the simulation scenario and the participants' taking ownership of the roles within the scenario. Participants in the role of the patient tended to feel as though the patient was in good hands but described feelings of distress and embarrassment when they didn't know the answers to the questions that the nurse was asking. Those who participated in the role of the family member described feelings of helplessness and discomfort because they knew the answers to some of the questions the nurse was asking but were unsure whether they could interject or when they could speak up because the nurse had not directly addressed them.

Regardless of whether a participant was assigned the role of patient or family member, there appeared to be agreement that the nurse needed to acknowledge the family member early on in the admissions process in order to make the family member feel validated and recognized.

Table 4

Open-ended Short-answer Reflective Questions

Open-ended short-answer reflective questions	Selected responses
1. Describe how your interaction with the nurse	• I wish she would have included me

made you feel as a patient or family member.	• I felt a little upset that my "daughter" wasn't acknowledged • It showed me how important family is when being admitted to the hospital
2. Describe how the nurse's behavior impacted your ability to find them relatable.	• I was already irritated with the nurse for not seeing me as the family member. • The nurse's upbeat tone and manner made me feel relaxed and able to talk easily with her
3. Describe how you felt when you didn't have all of the answers to the questions the nurse was asking you.	• I felt sad and embarrassed • I felt kind of clueless • I felt very uneasy and unsure • I was a little panicked
4. When the other participant (family member or patient) was speaking to the nurse, describe how you felt about their interaction.	• I was happy that my daughter had all the names of my medication, my medication history, and my allergies, because I didn't have all that knowledge. • I felt like the family member wanted to speak but was unsure when they should. • I felt dumb and somewhat embarrassed that I couldn't remember my own medical history.
5. Describe how the nurse impacted the way you felt about yourself as a patient or family member.	• As the patient I felt comfortable • I feel like the nurse should have included my family member more. • I wish the nurse included me more in my mother's care.
6. If you had been in the position of the nurse, what might you have done differently?	• I would have introduced myself to the patient as well as the family in the room. • Acknowledge everyone in the room. • I would have interacted with everyone in the room • I would have acknowledged the patient AND the family member.

Conclusion

To summarize, chapter IV analyzed the data which was collected from participants via REDCap pre- and post-intervention. Data collected pre-intervention included demographic data and the pre-intervention TEQ assessment. Data collected post-intervention included post-intervention TEQ and short-answer reflective questionnaire responses. The two-tailed paired samples t-test of the total scores of the TEQ did demonstrate significant increase in empathy in the post-intervention TEQ assessment compared to the pre-intervention TEQ assessment.

Analysis of individual items and subscales of the TEQ using two-tailed paired samples *t*-tests found significant changes in two subscales *assessment of emotional state in others by demonstrating sensitivity* and *prosocial helping.* Additionally, participants' reflections demonstrated that they were considering the perspectives of the family and patients being cared for by the nurse in the simulation scenario.

Chapter V: Conclusions and Discussion

Introduction

This chapter will discuss and summarize the results of the data analysis for this SPP. Additionally, the findings will be interpreted in the context of the research question and the theoretical framework of this SPP – Self-determination theory (SDT). A synthesis of the findings related to other studies relevant to the topic of improving empathy in nursing students will also be discussed. Next, limitations to this study will be explored and addressed. This chapter will continue with a discussion of limitations of this study. Last, dissemination of findings of this SPP will be discussed.

Interpretation of Results

Overall, the results of data interpretation were that there was a statistically significant increase in overall empathy scores of participants after the simulation compared to before the simulation, as measured by the Toronto Empathy Questionnaire (TEQ). Further analysis of individual items and subdomains of measurement of the TEQ reveals significant change in two of the six domains of empathy measured by the TEQ: *Assessment of emotional state in others by demonstrating sensitivity* and *prosocial helping*. There were no significant changes in the other four domains: *Perception of emotional state in others that stimulates same self-emotion; emotion comprehension in others; sympathetic physiological arousal;* and *altruism*.

Interestingly, the notable increase in individual scores of *assessment of emotional state in others by demonstrating sensitivity* reflect changes in the sensitivity to the state of others. This perception and sensitivity to the state of others is described as cognitive or clinical empathy by Ursoniu et al. (2021), who state that clinical empathy is essential to developing compassionate empathy, which is what drives one to take action to help. Thus, it may be that the simulation experienced caused participants to have a heightened perception of the perspectives of patients and their family members after participating in a simulation scenario which placed them into those roles.

The other subscale of measurement of the TEQ which reflected notable increases in the post-intervention assessment as compared to the pre-intervention assessment was that of *prosocial helping*, which examines higher-order prosocial behaviors related to empathic responses (Spreng et al., 2009). Prosocial helping is the action response to clinical empathy, compassionate empathy (Ursoniu et al., 2021). Taking action to help is a fundamental aspect of nursing, so it is encouraging to see an increase in the score of this particular measurement of empathy.

Of the TEQ's six subscale measurements of empathy, there were no statistically significant changes in *perception of emotional state in others that stimulates same self-emotion, emotion comprehension in others, sympathetic physiological arousal,* or *altruism*. There are a number of possible reasons for this. First, it could be that the sample of participants, first-year nursing students, already possess higher levels of emotional empathy, which is the ability to feel what another is feeling (Ursoniu et al., 2021). Ferri et al. (2017) found that empathy scores of nursing students using the Balanced Emotional Empathy Scale (BEES) were initially higher than standardized samples of adults ages 20-24 and licensed nurses. Additionally, it could be that the simulation experience did not affect emotional empathy as much as it did clinical and compassionate empathy.

The increase in total TEQ scores and subscale measures of assessment and prosocial helping are encouraging because those results indicate that the innovative simulation which put the participant in the patient's and family member's shoes was effective in increasing empathy in ways that will affect assessment and response in clinical settings while in the role of the nurse. Other explanations for the changes could be that the participants had other personal or educational experiences in the week between administration of the pre-intervention TEQ and the in-classroom pre-briefing and the post-intervention TEQ following the simulation experience at the simulation center. That the participants were self-selected could be a factor, and the scores may have reflected that.

Theoretical Framework

Self-determination theory (SDT) was selected as the theoretical framework for this scholarly project because it addressed the importance of creating space for learners to perceive and exercise autonomy, competence, and relatedness (Ryan & Decci, 2000). These elements are

important for supporting and developing a person's intrinsic motivation (Ryan & Deci, 2000). This is achieved in education settings by providing autonomy support including transfer of responsibility and actions which support proactive behaviors (Markwell et al., 2021; Orisini et al., 2016).

It was the goal of this project to develop an educational experience which provided supportive scaffolding to allow space for participants to have the opportunity to experience autonomy, competence, and relatedness which support intrinsic motivation to learn. Having a theoretical framework which supports intrinsic motivation was particularly important because empathy is fundamentally an intrinsic attribute. The SDT framework was helpful in guiding this project and aligned with the goals of addressing empathy in a way that allowed participants to find their intrinsic motivation.

Limitations

Although there were overall improvements in empathy scores of the participants in the empathy simulation, there were substantial limitations to this study. Notably, there was a small sample size n=28. Additionally this study was conducted at a single site at a single school of nursing in the southwest United States. This study was of short duration, taking place during a single cohort of students with measurements being taken once, pre- and post-intervention. Furthermore, the participants were self-selected, which may have impacted the resulting scores. Had the entire cohort participated, there may have been more variance in responses and results.

Implications for Evidence-based Practice and Research

This study has implications for nursing practice and nursing education. Results from the TEQ and short-answer reflective questions suggest that there is room for improvement in teaching empathy in nursing education and that supporting learning experiences which foster empathy in nursing students may have positive effects on subsequent nursing practice. There are opportunities to build impactful empathy education into curricula which do not take much time or resources – total time required in the classroom and simulation center was, for students who were participants, around two hours spread across two days.

Although the findings of this particular study may not be generalizable to nursing students in other settings, the findings do suggest that further research with larger samples and/or longer periods of study would be worth exploring. The findings of this study support previous studies of empathy in nursing students which support the importance of formal teaching of empathy to nursing students. Further, it would be helpful for further research across the curriculum to see whether empathy scores change as students progress through nursing education and where those changes are. Knowledge of this type would be useful to nursing education because it would help understand at which points in education empathy is most affected and where formal education supporting empathy would be most effective.

Dissemination of Findings

Findings from this project will be disseminated in several ways and will include the implementation process and measurable outcomes of the intervention. First, the information gleaned from this process will be shared via PowerPoint and in the form of a poster presentation which will be presented at Regis College. Findings will also be presented to the faculty body at the school of nursing at which the simulation was conducted. Additionally, the project and findings will be shared with the sister university of the school of nursing via a presentation of

findings at the nursing department's research meetings. This project will also be presented at the school of nursing's hospital system research council.

Conclusion

In summary, the outcome of this SPP is that formal instruction geared towards fostering empathy in nursing students is shown to be impactful. Guided by the principals of self-determination theory, learning experiences which support autonomy, relatedness, and competence can help students find intrinsic motivation to assess the emotional state of others and be moved to respond helpfully and empathetically. This project demonstrated the usefulness of using simulation with students in the roles of patient and family member to foster intrinsic empathy for patients and motivation to help others.

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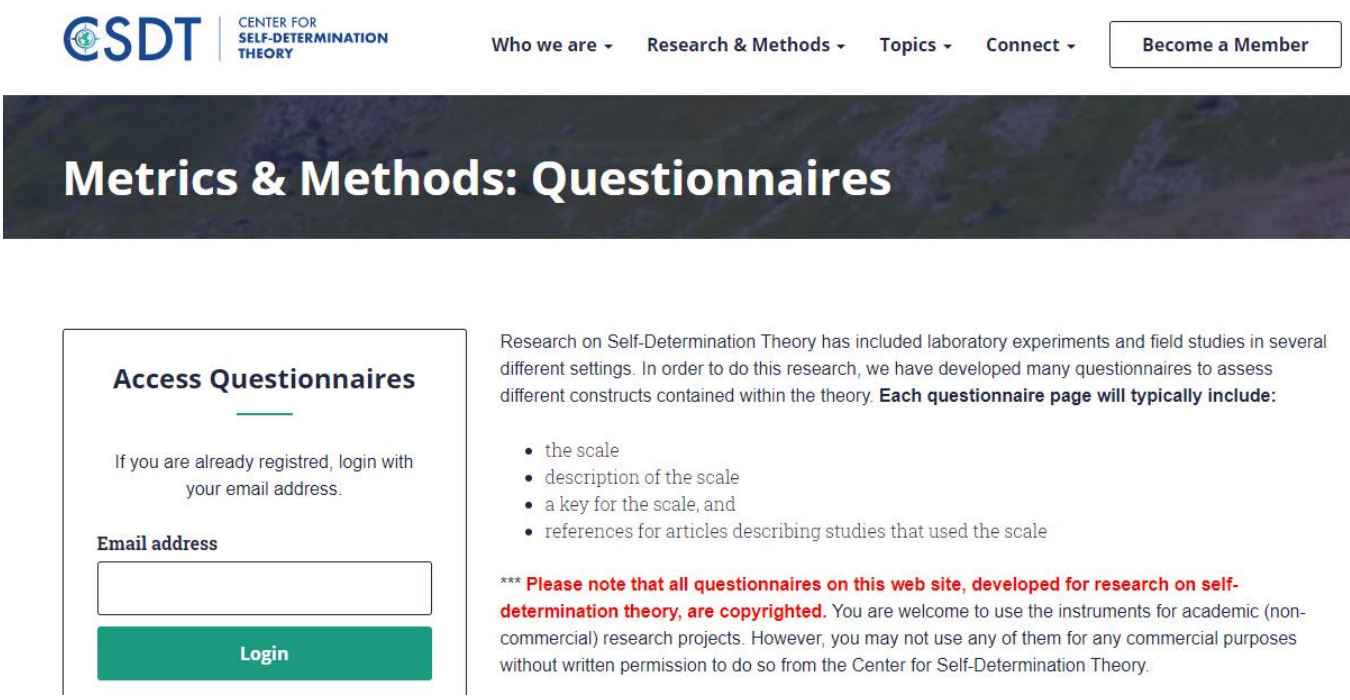
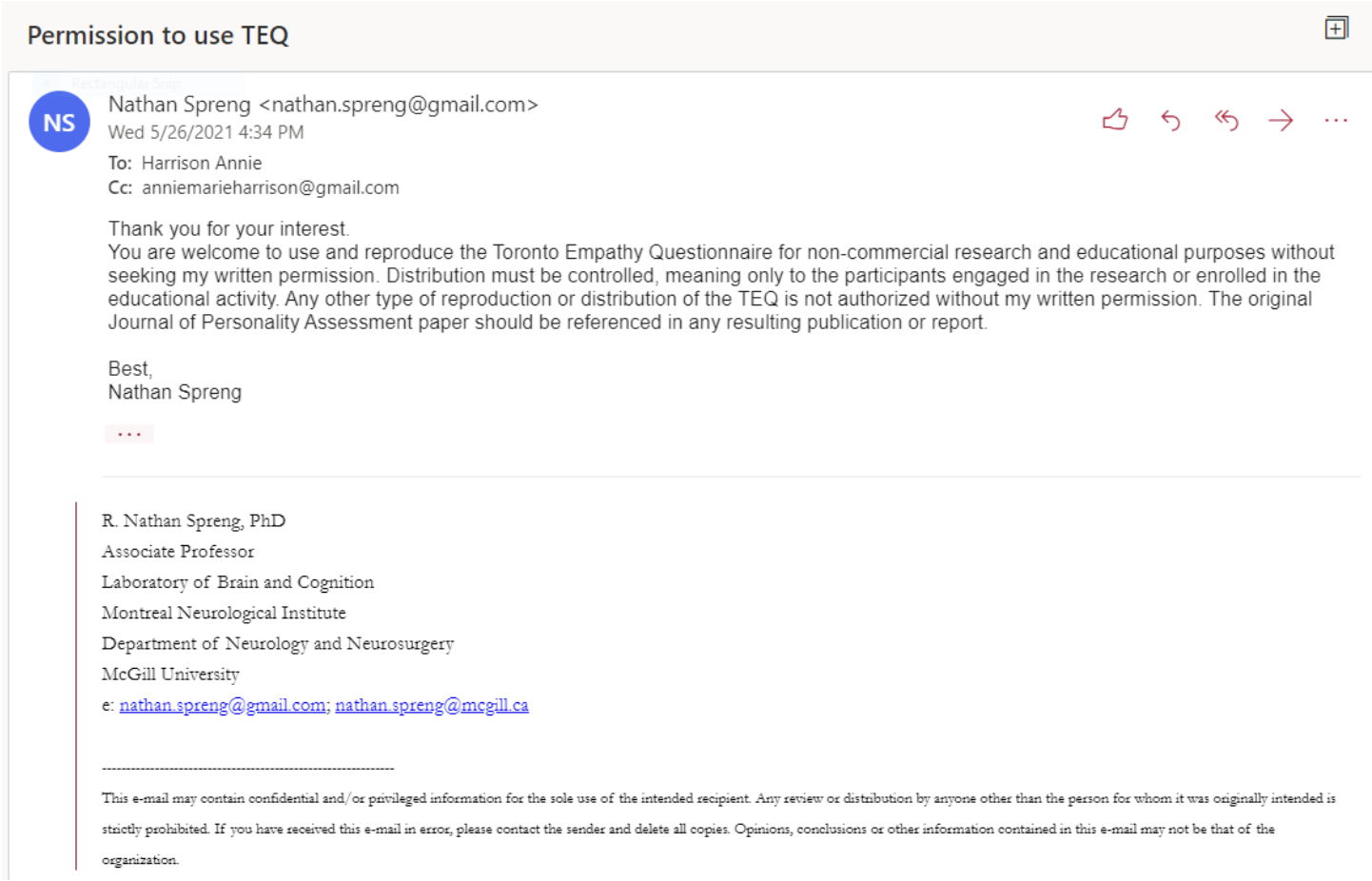
Appendix A: Self-determination Theory Permission


CSDT
CENTER FOR SELF-DETERMINATION THEORY
Who we are
Research & Methods
Topics
Connect
Become a Member
Metrics & Methods: Questionnaires
Access Questionnaires
If you are already registred, login with your email address.
Email address
Login
Research on Self-Determination Theory has included laboratory experiments and field studies in several different settings. In order to do this research, we have developed many questionnaires to assess different constructs contained within the theory. Each questionnaire page will typically include:
the scale
description of the scale
a key for the scale, and
references for articles describing studies that used the scale
*** Please note that all questionnaires on this web site, developed for research on self-determination theory, are copyrighted. You are welcome to use the instruments for academic (non-commercial) research projects. However, you may not use any of them for any commercial purposes without written permission to do so from the Center for Self-Determination Theory.

Appendix B: TEQ Instrument Permission



Permission to use TEQ

NS

Nathan Spreng <nathan.spreng@gmail.com>
Wed 5/26/2021 4:34 PM

To: Harrison Annie
Cc: anniemarieharrison@gmail.com

Thank you for your interest.
You are welcome to use and reproduce the Toronto Empathy Questionnaire for non-commercial research and educational purposes without seeking my written permission. Distribution must be controlled, meaning only to the participants engaged in the research or enrolled in the educational activity. Any other type of reproduction or distribution of the TEQ is not authorized without my written permission. The original Journal of Personality Assessment paper should be referenced in any resulting publication or report.

Best,
Nathan Spreng

...

R. Nathan Spreng, PhD
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Appendix C: Informed Consent

Regis College School of Nursing
Informed Consent to Participate in Prelicensure Nursing Student Empathy Simulation
Researcher: Annie M. Harrison, MSN, RN PMH-BC

KEY INFORMATION

The following is a short summary of this study to help you decide whether to participate in this study. More detailed information is listed later in this form.

Why am I being invited to take part in this research study?

We invite you to take part in this research study because you:

- Are a prelicensure nursing student
- Are currently enrolled in *Nursing 1101 Health Promotion and Wellness*
- Have been oriented to the Covenant School of Nursing (CSON) nursing simulation center

You are not eligible to participate if you:

- Are not a prelicensure nursing student
- Are not currently enrolled in *Nursing 1101 Health Promotion and Wellness*
- Have not been oriented to the CSON nursing simulation center

What should I know about a research study?

- Whether or not you take part is up to you.
- Your participation is completely voluntary.
- You can choose not to take part.
- You can agree to take part and later change your mind.
- Your decision will not be held against you.
- Your refusal to participate will not result in any penalties.
- Your refusal to participate will not have any loss of benefits that you are entitled to.
- You can ask all the questions you want before you decide.
- You may choose not to take part.
- You may also choose to quit at any time.
- Your decision will not harm your relationship with any member of the research team.
- Your decision will not affect anyone else at work or CSON.

Why is this research being done?

We are conducting this study to understand the effects of simulation on nursing student empathy.

How long will the research last and what will I need to do?

If you agree to participate in this study, we will ask you to participate in one clinical simulation. The simulation will last from 45 minutes to one hour. Before and after the simulation, you will be asked to fill out a survey. The survey which can be completed on your phone or a device of

your choosing. A link to the survey will be emailed to you. The time required to fill out each survey is estimated to be 15-30 minutes.
More detailed information about the study procedures and questions being asked can be found under **"DESCRIPTION OF STUDY DETAILS".**

Is there any way being in this study could be harmful to me?

This study poses minimal risks to you. One potential but unlikely risk is that you may experience fatigue or anxiety. If you become fatigued or anxious, you may quit at any time. There may be unknown risks.

More detailed information about the risks can be found under **"RISKS AND DISCOMFORTS".**

Will being in this study help me in any way?

There are no direct benefits to you. However, what we learn from this study may help other nursing students.

What happens if I do not want to participate in this research?

It is your choice to participate. If you choose not to participate, it will not affect your current or future relations with Covenant School of Nursing. You are free to not answer questions. You may quit at any time, for any reason. There is no penalty for not taking part or for quitting.

Researcher: Annie M. Harrison, MSN, RN PMH-BC

Introduction

Please read this form carefully. You are being asked to participate in a research study. The study will be of the effects of clinical simulation on prelicensure nursing student empathy. You were selected to participate in this study because you are a nursing student. You are enrolled in *Nursing 1101 Health Promotion and Wellness* at Covenant School of Nursing (CSON). You are not eligible to participate if you are not a nursing student enrolled in *Nursing 1101 Health Promotion and Wellness* at CSON. You are not eligible to participate if you have not been through simulation center orientation. Please ask any questions you may have before you agree to participate in the study.

Purpose of the Study

The purpose of this study is to study the effects of clinical simulation on nursing student empathy.

Description of Study Details

If you agree to participate in this study, we will ask you to participate in a clinical simulation. The simulation will take place at the CSON simulation center. Prior to and after participating in the simulation you will be sent a survey via email to fill out on your own device. The time to participate in the simulation combined with the time it will take to fill out the surveys will be 1.5-2 hours. This includes briefing and setup time.

Benefits of Being in this Study

The benefits of being in this study are the potential to help understand the effects of nursing simulation on nursing student empathy. This may help future education regarding empathy to be more effective.

Risks and Discomforts of Being in this Study

The study has the following risk. Participants may get tired during the simulation. Participants may elect to discontinue participation at any time. Risk of getting tired will be minimized by:

- Keeping the simulation experience to a minimum length
- The simulation length will be the same as similar simulation activities.

To the extent the study requires or involves physical interaction with other people or otherwise occurs within space shared with other individuals there is a risk of transmission of and/or infection by communicable disease including, but not limited to, the 2019 Novel Coronavirus (COVID-19). The study will be conducted in compliance with local, state, and federal guidance related to COVID-19, but despite these efforts the risks of transmission and/or infection cannot be completely eliminated.

Payments

There is no payment for being in this study.

Cost

There is no cost to you for being in this research study**.**

Choosing to participate in the Study and Choosing to Quit the Study

- It is your choice to participate in this study.
- Your choice will not affect your relations with Covenant School of Nursing (CSON).
- Your choice will have no impact on your academic status.
- You are free to not answer questions.
- You are free to quit at any time.
- You may refuse to participate for any reason.
- You may quit for any reason.
- You may quit at any time.
- There is no penalty for not participating.
- There is no penalty for quitting.

Getting Dismissed from the Study

The researcher may dismiss you from the study at any time for these reasons:

- It is in your best interest.
- You no longer meet the criteria for participation in the study.
- The investigator has decided to discontinue the study.

Privacy

- The records of this study will be kept private.
- This study is anonymous.
- Data collected from the survey will be anonymous.
- Data collected will be encrypted.
- Data will be stored online on an encrypted password-protected server.
- Only the principal investigator involved in the study will have access to the data.
- No published reports will include any information that could identify you.

COVID Statement

To the extent the study requires or involves physical interaction with other people or otherwise occurs within space shared with other individuals there is a risk of transmission of and/or infection by communicable disease including, but not limited to, the 2019 Novel Coronavirus (COVID-19). The study will be conducted in compliance with local, state, and federal guidance related to COVID-19, but despite these efforts the risks of transmission and/or infection cannot be completely eliminated.

Contacts and Questions

The researcher conducting this study is: Annie M. Harrison, MSN, RN PMH-BC. The researcher will be available to answer any questions about the study at:

- (806)224-3078
- ahar631@regiscollege.edu

If you have questions or concerns about your rights, you may contact the Regis Institutional Review Board Chair:

Dr. Colleen C. Malachowski, PhD
781-768-7373
colleen.malachowski@regiscollege.edu

Statement of Consent

I have read this form (or have had it read to me). I have been encouraged to ask questions. I have received answers to my questions. I give my consent to participate in this study. I understand the risks and discomforts associated with the above study. I understand that I may quit the study at any time without penalty.

Signature(s)/Date

Participant Printed Name: _____

Participant Signature: _____ Date: _____

Appendix D: Demographic Questionnaire

Demographic Survey

1. What gender do you identify as?
    a. Female
    b. Male
    c. Non-binary
    d. I prefer not to answer this question

2. What age range do you fall under?
    a. 18-24
    b. 25-34
    c. 35-44
    d. 45-54
    e. 55-64
    f. 65 and over

3. Please specify your race-ethnicity(ies) which best describe you. Select all that apply.
    a. American Indian or Alaska Native
    b. Asian or Asian American
    c. Black or African American
    d. Hispanic, Latino, Latina, or Latinx
    e. Middle Eastern or Northern African
    f. Native Hawaiian or Other Pacific Islander
    g. White
    h. Another option not listed here (please specify): _____
    i. I prefer not to answer this question

4. Do you have prior experience working in a health care setting?
    a. Yes
    b. No

5. Do you have any degrees? Select all that apply.
    a. Associates
    b. Bachelors
    c. Masters
    d. Doctorate
    e. None

6. Which option best describes your birth order in relation to your siblings?
    a. I am an only child (no siblings)
    b. I am the oldest child (first born)
    c. I am a middle child
    d. I am the youngest child (last born)

Appendix E: Toronto Empathy Questionnaire

The Toronto Empathy Questionnaire						
Below is a list of statements. Please read each statement *carefully* and rate how frequently you feel or act in the manner described. Circle your answer on the response form. There are no right or wrong answers or trick questions. Please answer each question as honestly as you can.		NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS
1.	When someone else is feeling excited, I tend to get excited too	0	1	2	3	4
2.	Other people's misfortunes do not disturb me a great deal	0	1	2	3	4
3.	It upsets me to see someone being treated disrespectfully	0	1	2	3	4
4.	I remain unaffected when someone close to me is happy	0	1	2	3	4
5.	I enjoy making other people feel better	0	1	2	3	4
6.	I have tender, concerned feelings for people less fortunate than me	0	1	2	3	4
7.	When a friend starts to talk about his\her	0	1	2	3	4

	problems, I try to steer the conversation towards something else					
8.	I can tell when others are sad even when they do not say anything	0	1	2	3	4
9.	I find that I am “in tune” with other people’s moods	0	1	2	3	4
10.	I do not feel sympathy for people who cause their own serious illnesses	0	1	2	3	4
11.	I become irritated when someone cries	0	1	2	3	4
12.	I am not really interested in how other people feel	0	1	2	3	4
13.	I get a strong urge to help when I see someone who is upset	0	1	2	3	4
14.	When I see someone being treated unfairly, I do not feel very much pity for them	0	1	2	3	4
15.	I find it silly for people to cry out of happiness	0	1	2	3	4
16.	When I see someone being taken advantage of, I feel kind of protective towards him\her	0	1	2	3	4

Appendix F: Open-Ended Qualitative Questions

Please answer each question briefly in one to three sentences.

1. How did your interaction with the nurse make you feel as a patient or family member?

2. How did the nurse's behavior impact your ability to relate to them?

3. How did you feel when you didn't have all of the answers to the questions the nurse was asking you?

4. When the other participant (family member or patient) was speaking to the nurse, describe what you felt about their interaction.

5. Describe how the nurse impacted your feelings of competence and autonomy as a patient or family member.

6. What would you have changed if you were in the position of the nurse?