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Relationships Among Nursing Presence, Openness, and Fatigue in Acute Care Nurses

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LOYOLA UNIVERSITY CHICAGO

RELATIONSHIPS AMONG NURSING PRESENCE, OPENNESS AND FATIGUE
IN ACUTE CARE NURSES

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

PROGRAM IN NURSING

BY
BARBARA T. PUDELEK
CHICAGO, IL
MAY 2021
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All our dreams can come true if we have the courage to pursue them.

—Walt Disney
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ABSTRACT

Nursing presence was first identified when Florence Nightingale established a physical nursing presence or “being” and providing compassionate care or “doing” in the military hospitals during the Crimean War (Watson, 1998; Boeck, 2014; Dossey, 2000). Nursing presence has been a central focus in nursing throughout the past several decades (Turpin, 2014) and has been positively linked to the development of nurse-patient relationships. Nursing presence has been hypothesized to transpire when a joint relationship develops between the patient and the nurse. The patient allows the nurse into a relationship in which the nurse recognizes the patient as a unique being and selects to intervene on the patient’s behalf. Although the concept of nursing presence has its origins within the writings of Florence Nightingale, it was not until 1966 when Valliot first defined nursing presence (Valliot, 1966). Since then, the concept has been incorporated into several nursing theories and its importance in nursing has begun to be explored. The Model of Nursing Presence (Kostovich, 2012) depicts the ability of the nurse to be a "focused observer" and openness between both the nurse and the patient, are antecedents to nursing presence. However, conditions necessary for the nurse to be a focused observer and display openness may not be conducive. Wolf & Perhats (2017) demonstrated that fatigue is a significant barrier to mental alertness and ability to focus in health care providers. Zellars, Perrewe, Hockwarter (2000) found individuals who have a higher level of the openness personality trait are less likely to depersonalize others and tend to empathize with them, thus suggesting openness may be a precursor to being present with others.
Furthermore, there is a gap in the literature identifying the influence of sleep impairment on the relationships among fatigue, openness, and nursing presence. If nursing presence is an important factor in the delivery of patient care, then it is important to examine the extent to which fatigue and openness contributes to or limit the development of nursing presence. The relationship between nursing presence, openness and fatigue has not been examined.

The purpose of this study was to examine the extent to which fatigue and openness predict nursing presence in bedside nurses in inpatient acute care settings. The Model of Nursing Presence (Kostovich, 2012) guided this study. The study used a descriptive correlational design to describe the extent to which fatigue and openness predict nursing presence in nurses caring for patients in medical-surgical and critical care units in three Midwestern hospitals. A cross-sectional sample of nurses (N=177) was recruited to complete an on-line survey that included the Presence of Nursing Scale-RN Version (PONS-RN), the Fatigue Assessment Scale (FAS), and the Big Five Inventory Openness Subscale. To control for sleep impairment, the PROMIS Sleep Related Impairment Scale was included in the survey.

Descriptive statistics summarized demographics and multiple regression was used to assess relationships among the key variables of nursing presence, openness, and fatigue while controlling for sleep impairment and years of experience. Results of this regression analysis indicate openness and fatigue explained 20.4% of the “being with” subscale ($R^2=.204, p<.001$) and 12% for the “doing for” subscale ($R^2=.117, p<.001$). However, the interaction term of openness and fatigue was not significant indicating that openness did not moderate between fatigue and “being with” ($\beta=-.061, p=.399$) or “doing for” ($\beta=.053, p=.495$). Analysis also revealed that openness was positively correlated with PONS-RN “being with” subscale ($r=.386, p=0.001$), and “doing for” subscale ($r=.275, p=.001$), and fatigue was negatively correlated
(r=.331, p=<.001) with the “being with” subscale and the “doing for” subscale (r=-.215, p=<.001). The findings suggest that nurses with higher levels of openness have a greater perception of being emotionally present with the patient and have a greater ability to perform those tasks needed for a patient. Additionally, nurses experiencing increased fatigued have a decreased perception of being emotionally present and a lesser ability to do for the patient. However, openness was not shown to moderate fatigue on either the “being with” or “doing for” subscales. These findings suggest optimizing openness traits and minimizing fatigue may increase nursing presence. A greater understanding of the factors which enhance or impede openness and fatigue related to nursing presence is necessary to strengthen the nurse-patient relationship and to enhance care to promote positive outcomes related to nursing presence.

Keywords: nursing presence, fatigue, openness, sleep impairment
CHAPTER ONE
INTRODUCTION

Patient experience and quality management have been two key driving forces in healthcare delivery, and both are directly tied to reimbursement, healthcare quality ratings, and healthcare policy (Congiusta, Solomon, & Conigliarro, 2019). Identifying and addressing ways to improve quality and the patient experience have become an increasingly important focus for both healthcare providers and patients.

Patients in the hospital require around-the-clock attention. Although care is provided by an interprofessional team, nurses play a key role in the care and safety of patients in the hospital. Bedside nurses have a primary responsibility in the care of patients in the hospital. Nursing is the only profession that has a predominant attendance during the patient’s inpatient acute care experience because of their 24 hour a day contact with patients. Therefore, nurses can greatly impact patient care quality outcomes and patient experience. While much attention has been given to improving quality outcomes through improving technology, standardized processes, and error analysis (Carayon, Wetterneck, Rivera-Rodriquez, Schoots Hundt, Hoonaker, Holden, et al., 2014; Chou, 2012), what has not been fully explored is the role the environment in which patient experience occurs has on the factors that impact the work of the nurse.

One key element of the patient experience that has been identified is patient-centered care (Wolf, Niederhauser, Marshburn, & Lavela, 2014; Hawthorne, Sansoni, Hayes, Marossezeky, & Sansoni, 2014). The nurse-patient relationship has been established as a core
component of patient-centered care (Sieger, Fritz, & Them, 2012; McCabe, 2004) and the concept of nursing presence has been positively linked to the development of the nurse-patient relationship and patient-centered care (Penque & Kearney, 2015; Turpin, 2014). The essence of nursing care is the connectedness formed between the nurse and the patient, yet the relationship of this connectedness to the many circumstances that occur within the nurse-patient care environment is insufficiently understood. While the concept of nursing presence has been identified as important to the development of the nurse-patient relationship, it is essential to gain a deeper understanding of the elemental qualities of both nursing practice and the nurse-patient environment in the development of nursing presence and subsequently the nurse-patient relationship.

Nursing presence is important to the development of the connectedness between a nurse and a patient. While nurses must possess a strong knowledge base, be able to critically think, and have technical expertise in the skills necessary to provide care, equally important is how the nurse provides this care and develops a nurse-patient relationship. Nursing presence has been recognized as the underpinning for nursing judgement (Manetti, 2019; McMahon & Christopher, 2011). Exercising good nursing judgment is dependent upon being fully present within the unique circumstances in which the judgment is to occur (Doona et al., 1997; McMahon & Christopher, 2011). In other words, the unique circumstances reflect the environment and interactions that occur in the distinctive nurse-patient interface. As good nursing judgment is essential in providing high quality and safe patient care (Thompson & Stapley, 2011; Hammond, 1996) so too is the ability of the nurse to be fully present while imploring nursing judgment.
Nurses must possess an openness to engaging in and developing a relationship that fosters patient-centered care (Newell & Jordan, 2015).

Nursing presence is also essential for providing both physical and emotional comfort, the competent performance of nursing care procedures, patient education and the coordination of the multidisciplinary team of healthcare providers (Kostovich, 2012; Kostovich & Clementi, 2014). Previous work has sought to explore the patient's lived experience of presence through phenomenological or quantitative methods (McMahon & Christopher, 2011; Finfgeld-Connett, 2008; Easter, 2000; Osterman, 1996). However, there is no research that explores the relationship of nursing presence with factors that nurses or patients experience within the nurse-patient encounter or within the environment that the encounter occurs.

There is a gap in the literature identifying the conditions needed for the nurse to develop a presence with the patient and to be mindful and aware of the unique circumstances and experiences of the individual patient when the nurse enters the patient's own personal environment at the bedside or point of care. It is important to gain a better understanding of this vital process and how nursing presence and the relationship of factors, such as fatigue and openness, are related to the development of nursing presence. Understanding which factors enhance or hinder the development of nursing presence can aid in shaping an environment and nursing role that supports the development of nursing presence. Although, studies have examined predictors of quality and safe patient care–such as staffing ratios and quality of nursing care (Sasichay-Akkadechanunt, Scalzi, Jawad, 2003), there is a lack of research examining the relationship of the nurse with the patient as contributing to the delivery of safe, quality care and patient satisfaction (Kutney-Lee, Lake, Aiken, 2009; Seago, Williamson & Atwood, 2006). A
clearer understanding of the factors that impact the development of nursing presence and the relationship of openness and fatigue to nursing presence is a first step to advancing the knowledge related to the role nursing presence has on quality, safety, and patient satisfaction.

**Concepts**

**Nursing Presence**

A nurse-patient interaction is a multidimensional phenomenon that has many facets and layers and is a central component to the profession of nursing. It can be the simple action of measuring a blood pressure or transcend into developing an interpersonal relationship. Curly (1997) stated, "nursing exists in the details of relationships (p. 208).” It is within this nurse-patient relationship that the concept of nursing presence resides.

Presence is a concept that has been a central focus in nursing throughout the past several decades (Turpin, 2014). Presence has often been identified as a concept that distinguishes nursing from other healthcare disciplines and has been the core of many early nursing theories (Benner, 1984; Ferlic, 1968; Leininger, 1991; Newman, 1986; Orlando, 1961; Parse, 1981; Paterson and Zderad, 1976; Peplau, 1952; Rogers, 1970; Swanson, 199; Travelbee, 1966; Vaillot, 1962, 1966; Watson, 1979). Presence has often been linked to other behaviors such as listening and touch, as well as other concepts such as caring. Although these linkages are useful to aid in creating a framework for the importance of the concept of presence, linking presence to other behaviors may complicate clearly defining, describing, and understanding the fundamental essence of nursing presence. However, the function presence plays within the nurse-patient relationship continues to be explored.
The concept of nursing presence has origins with Florence Nightingale when she established a physical nursing presence or “being” in the military hospitals during the Crimean War (Watson, 1998). Nightingale transcended this physical presence and provided compassionate care or “doing” by tending to the needs of the soldiers (Boeck, 2014; Dossey, 2000). By being physically present for the soldiers, walking the wards at night and staying with soldiers when others retired for the day, Nightingale provided a healing presence. She conversed with the soldiers using a calm voice, a gentle touch, and a pleasant smile to convey hope. The injured soldiers felt a healing presence that helped them endure pain and suffering (Dossey, 2000).

Paterson and Zderad (1976) identify presence as a goal directed encounter between the nurse and the patient. A similar description by Kostovich (2012) identified nursing presence as “a goal directed attendance encompassing both being with and doing for patients” (p. 169). Dochterman and Bulechek (2004) described presence as “physical closeness, eye contact, and appropriate touch” (p 508) which adds a physical and action-oriented component to the definition. Benner and Wrubel’s (1989) description of presence, as being available without preoccupation, emphasizes the need to be focused or attentive to be present. Covington (2003) used a relational perspective to describe presence as a way of being or relating within the nurse-patient relationship. Benner (1984) described presence in terms of communication as “a person-to-person kind of thing just being with somebody, really communicating with people” (p.57), and Easter (2000) built on Benner's definition of presence and described presence as listening with full attention. These definitions of presence describe presence as a physical closeness and attention, being with the patient, and communicating. Nursing presence allows the nurse to
make an inter-connection with the patient. It is this connectedness that is a key component of nursing presence and impacts other aspects of the nurse's role such as nursing actions. Situation-specific nursing actions occur as a result of multiple forms of knowledge (Finfgeld-Connett, 2008) and presence mediates an understanding of patient's subjective experiences allowing the nurse to gain knowledge of the patient to tailor nursing actions (Hawley & Jensen, 2007).

The presence of another human being has been found to have a great effect on the healing process (Watson, 1999). Nursing presence is an essential factor for an effective nurse-patient relationship and has been linked to positive patient outcomes such as decreased stress and sense of vulnerability, improved coping and adaptive behavior, and improved decision-making ability, as well as positive outcomes for the nurse, such as professional satisfaction and a positive and calm work environment. (Turpin, 2014). The nurse enters the patient's space to connect with the patient on a variety of levels. This connection allows for an ongoing exchange and relationship between the patient and the nurse and creates an opportunity for the nurse to be present with the patient and develop a sense of knowledge of and about the patient to provide supportive and healing interventions. (Doona, Haggerty, & Chase, 1997; Doona, Haggerty & Chase, 1999; McKivergin, 1994; Quinn, 1992; Watson, 1999).

Openness

Openness is an essential factor for presence to occur (Kostovich, 2012). The nurse caring for a patient forms a relational dyad (Scott, 1997). Within this relationship is an exchange of information, particularly as the nurse seeks information through both verbal and non-verbal communication. The sharing of information by the patient and the receiving of information on
the part of the nurse, is enhanced if the openness exist within this nurse patient dyad. (Heidt, 1990; Scott, 1997).

Openness is most commonly described as a personality trait (McCrae & Costa, 1997; John & Srivastava, 1999; Caligiuri, Jacobs, & Farr, 2000). Openness is also a multidimensional construct (Griffin & Heskerth, 2004) that has been described as intelligence, broad-mindedness, curiosity, creativity, and unconventionality (Barrick, Mount, & Judge, 2001). Openness has a strong impact on individual behaviors, particularly in how individuals interact and view the world (Chang et al., 2016). Nussbaum and Silvia (2011) found highly open individuals are more willing to accept new ideas and information.

Openness has been described not only as a quality of therapeutic presence (McKivergan & Daubenmire, 1994) but also as a necessary component of presence as an intervention within nursing and healthcare (Moch & Schaefer, 1992). Openness is a necessary requirement for the development of presence as a goal directed encounter between the nurse and the patient (Mohnkern, 1992, Mock & Schaefer, 1992). The requirement of openness as a key factor for presence to occur suggests the need to explore relationships between openness and those factors that can influence the existence of openness. Personality traits are often considered stable and unchanging. However, there is a growing body of knowledge that traits can be changed through interventions such as cognitive training and experiences such as cultural activities (Bleidorn, et al, 2019; Schwaba, Luhmann, Dennison, Bleidorn, 2018). Nurses experience varying levels of fatigue (Reineck & Furino, 2005; Bohle & Tiley, 1993). This leads to the question if fatigue experienced by a nurse can impact his or her level of openness. Currently, there is a lack of
research that links fatigue with a nurse's ability to demonstrate openness, particularly within the nurse-patient relationship.

**Fatigue**

Kostovich (2012) identifies in “The Model of Nursing Presence”, the ability of the nurse to be a “focused observer” is an antecedent to nursing presence. Barriers or conditions impacting the ability for a nurse to be a "focused observer" may also impact the nurse's ability to develop nursing presence. Fatigue is often categorized as physical fatigue, emotional fatigue, compassion fatigue, mental fatigue, alarm fatigue, cognitive fatigue, and total fatigue (Pigeon, Sateia, & Ferguson, 2003; Aarons, Teel, Cassmeyer, et al., 1999). What is not known is the role fatigue has in the role of the nurse as a focused observer in nursing presence. Fatigue is a complex phenomenon and involves multiple physical, psychosocial, and behavioral processes and can occur from a myriad of sources (Shen, Barbera, & Shapiro, 2006). Fatigue can occur in response to a variety of both personal and work demands and can interfere with the workers' physical and cognitive abilities and performance (Barker Steege and Nussbaum, 2013, Rogers, 2008).

Fatigue has been shown to slow down reaction time and cause deficits in cognitive processing, which can impact clinical judgement, the nurse’s ability to problem solve and impact the nurse’s ability to be attentive to details which can lead to patient errors (Institute of Medicine, 2004; Ruggiero, 2003; Williamson and Feyer, 2000). Demonstrating the important relationship of fatigue with presence, Finfgeld-Connett (2008) identified a nurse is best able to be present with a patient if they are free from burnout, compassion fatigue, tiredness, or preoccupation. A study by Nantz & Hines (2015) examining caring behaviors in nurses caring
for trauma patients identified family members were sensitive to signs of nurse fatigue and overburden and the ability of the nurse to be attentive and purposeful in their actions when providing care. Azzez, Abdulah, Piro, & Aihaken (2019) identified physicians with severe insomnia were more likely to have a negative relationship with patients thus supporting the notion that fatigue has a role in the relationship between patients and healthcare providers. The prevalence and resulting consequences of fatigue has highlighted the importance of minimizing and mitigating the conditions that can lead to fatigue to reduce or eliminate the negative impact fatigue has on the roles and day-to-day function of nurses and the impact on patient care and outcomes. Nursing organizations have developed and purported position statements and guidelines directed toward addressing nurse fatigue to promote and improve a culture of safety. The American Nurses Association's (American Nurses Association, 2014) position statement identifies recommendations and responsibilities for nurses and employers to address nurse fatigue. The recommendations for nurses include practicing healthy behaviors prior to the work shift, taking scheduled meals and breaks during the work shift, and managing overall health and stress. Recommendations for employers include establishing a culture of safety, implementation of evidence-based policies to promote healthy work environments and ensuring safe levels of staffing and scheduling policies.

**Sleep Impairment—covariate**

Sleep impairment is a contributing factor in fatigue (Kunert, King, Kolkhorst, 2007) and the terms sleep and fatigue are often used interchangeably. Quality sleep has become an increasingly important concern for many adults in today's society with an estimated 30% to 50% of adults experiencing insomnia or sleep disturbances (Sateia,Buyesse,Krystal,Neubauer,
People who suffer from sleep disturbances experience difficulty falling asleep, may wake up several times during the sleep cycle and can suffer from daytime fatigue. (Thorndike, et al., 2013). Sleep disturbances are frequently associated with working long hours, shift work, and occupational stress (Waage, et al., 2009; Sekeine, Chandola, Martikainen, Marmot, & Kagaminmori, 2006). While sleep disturbances are prevalent in a variety of professions, insomnia and fatigue occur especially in healthcare workers (Secosan, Virga, Crainiceanu, Bratu, 2020). The United States Department of Health and Human services (2010) has identified sleep health as a priority and identified goals of decreasing the number of vehicular crashes due to drowsy driving, increasing the number of persons with obstructive sleep apnea who seek medical evaluation, and increasing the number of adults and children who experience sufficient sleep. To control for the influence of sleep on fatigue and nursing presence, sleep will be measured as a covariate in this research study.

**Problem Statement**

Nursing is often described in terms an art as well as a science (Johnson, 1991). The essence of clinical nursing is the ability to provide healing and comfort by the assessment of the patients physical, emotional, and spiritual need and providing interventions to meet those needs. Nursing presence is an interaction that occurs when a nurse enters the patient’s physical, emotional, and spiritual world and characterizes the art of nursing. Highlighting the function nursing presence has in the execution of the role of the nurse, also highlights the need to explore the conditions needed to identify, characterize, and develop nursing presence. Presence has been discussed and defined within nursing literature, however, those factors that have an impact on the process of developing a nursing presence have not been well described. A review of the
literature reveals a lack of evidence exploring the relationship between nursing presence, openness, and fatigue. Nurses have an impact on patient outcomes such as medication errors (Rogers, Hwana, Scott, Aiken, Dinges, 2004) hospital acquired conditions of falls and pressure injuries (Staplers, de Brouuwer, Kaljouw, Schuumans, 2015) and patient mortality (Manojlovich & DeCicco, 2007). A clear understanding of the factors which affect the interface between a nurse and a patient at the point of care is central for promoting successful patient outcomes.

Healthcare providers increasingly rely upon technology to assist in monitoring patients. Cardiac monitors, automated continuous vital sign monitoring and the electronic health record alter the interactions between healthcare providers and patients (Vatandoost & Litkouhi, 2019; Archibald & Barnard, 2018). Technology to improve the precision of assessment and monitoring of patients has shifted the focus of nursing toward the collection of patient data and away from interacting with the patient as an individual person (Boeck, 2014). This has also led to negligence in communication and personal aspects of healthcare (Mohammadipour, Atashzadeh-Shoorideh, Parvizy, & Hosseini, 2017). As technologic advancement threatens to undermine the humanistic approach to care it is important to preserve the human interaction and explore the threats to the development and essential worth of nursing presence. Nursing has a duty to preserve the essence of the profession, to uphold the melding of the art of nursing with the science, and to clearly ascertain the uniqueness of nursing within healthcare. For this reason, understanding the factors that promote or hinder the nurse to develop nursing presence is an important area to explore. The consequence of nursing fatigue has been explored in other areas of the nurse’s role, but there is a gap in the understanding the impact fatigue has on developing nursing presence. Furthermore, there is a lack of information about how openness
may moderate the relationship between fatigue and nursing presence. To address the problem of understanding factors which inhibit or promote nursing presence, this study will explore two factors: openness and fatigue. Therefore, the purpose of this study is to describe the relationships between nursing presence, openness and fatigue in acute care registered nurses providing direct patient care in inpatient units and to examine the extent to which openness moderates the relationship between fatigue and nursing presence.

**Significance of Study**

Patient centered care is a key focus in the provision of quality care and improving patient satisfaction. Therefore, it is important to develop patient-centered care models to incorporate care that is respectful of and responsive to individual patient preferences, needs and values. A patient-centered care model will aid in ensuring that patient’s values guide clinical decisions (IOM, 2001). The interaction between the patient and the nurse is important in forming a relationship intended to address the patient’s physical, clinical, spiritual, and emotional needs associated with providing nursing care. An attentive nurse who encounters the patient with a desire to understand and respond to all aspects of the patient’s needs and to promote well-being is reflected in the concept of nursing presence. Dimensions of nursing presence include the ability to actively listen, remain empathetic, understand, and comfort the patient (McKivergin, 2005). An understanding of the relationships of nursing presence, openness and fatigue will provide information to aid in the development and promotion of conditions that focus on the positive development of nursing presence.
Aims and Hypotheses

This study will aim to (1) describe the extent to which fatigue and openness impact nursing presence; and (2) examine openness as a moderator of fatigue and nursing presence. It is hypothesized that higher levels of fatigue and lower levels of openness will predict lower levels of nursing presence. In addition, it is hypothesized that openness will moderate the relationship between fatigue and nursing presence.
CHAPTER TWO

REVIEW OF LITERATURE

This chapter will review the Model of Nursing Presence (Kostovich, 2012). In addition, a review of literature relevant to the concepts of nursing presence, openness, and fatigue as these relate to nursing will be presented including the historical context of presence in nursing, the foundation and role within nursing theories, and a review of literature on presence within nursing practice will be discussed. The conceptual model of nursing presence developed by Kostovich (2012) and review of supporting literature will provide the foundation for the postulated relationships of the concepts of nursing presence, openness, and fatigue.

Conceptual Model

The nurse-patient relationship is the underpinning for nursing care and nursing plays a pivotal role in bridging the impersonal technological world of healthcare with the humanistic approach of nursing care (Mohammadipour, Atashzadeh-Shoorideh, Parvizy, & Hosseini, 2017). An essential component of this relationship is the concept of nursing presence. Nursing presence has been included in several nursing theories and efforts have been made to clearly define and characterize it. Kostovich (2012) utilized the work by Paterson and Zderad (1976), Gardner (1992), McKivergin and Daubenmire (1994) and McKivergin and Day (1998) to develop the Model of Nursing Presence to describe and illustrate the dynamic process of nursing presence (Kostovich, 2012). The Model of Nursing Presence (Figure 1) developed by Kostovich will
guide this study. In this model, the nurse and patient enter into a relationship to build confidence and trust. The patient is a vulnerable being but after establishing trust and confidence with the nurse, the patient invites the nurse into the relationship by sharing their needs and being open to the nurse (Finfgeld-Connett, 2006). The nurse is an educated, caring, compassionate, focused observer who is willing to give of one’s self and risk vulnerability. The role of the nurse as a focused observer underscores the importance of the nurse to provide attention in observing and assessing the many facets of the patient. The shared openness of this relationship is a catalyst for the development of nursing presence and a key component of the nurse-patient relationship within this model. Thus, nursing presence allows for the connectedness between the patient and the nurse.

Kostovich’s model (2012) depicts nursing presence as being a larger entity than the patient or nurse alone. Nursing presence is encompassed by four fluid and multidimensional experiential domains: behavioral, cognitive, affective, and spiritual. These domains exist simultaneously, ebbing and flowing in a fluidity of priority. As one domain becomes a priority, the other domains accede. These experiential domains reflect the role of the nurse within nursing presence.

The focus of this study was to explore the portion of the model that depicts the ability of the nurse, as a focused observer within the nurse-patient interaction, to be open and be present with the patient. The ability of the nurse to be a focused observer describes one role of the nurse in providing healthcare and interacting with the patient. Being a focused observer, allows the nurse to listen and assess and consequently take knowledge-based action. A better understanding
of the factors impacting the ability of the nurse to be a present will expand the body of knowledge in nursing science specific to understanding of nursing presence.

Figure 1. Model of Nursing Presence


A modified version of the Model of Nursing Presence to illustrate the exploration of relationships among nursing presence, openness, and fatigue was the focus of this study (Figure 2). In particular, the portion of the model in which the nurse, as a focused observer, enters into a relationship with the patient through a shared openness will be used. While the importance of nursing presence has been discussed in the literature, what has not been explored is the relationship of fatigue and openness with nursing presence. This study examined the extent to
which fatigue and openness predict nursing presence in nurses working in an acute care setting.

In this study, “focused observer” was operationalized as level of fatigue.

Figure 2. Modified Version of the Model of Nursing Presence

Search Strategy

Four databases were utilized for the literature review, including the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, SCOPUS, and PsychINFO. The search parameters included articles published from 1966 to present, in the English language and research and theoretical papers involving human subjects. The search process used the following keywords: presence, nursing presence, openness, fatigue, nursing fatigue, and nurse-patient dyad. Papers were selected based on the content, relevancy, and rigor of research process. Table 1 summarizes the literature results. The literature search identified 35 unique papers on nursing presence, 30 unique papers on openness in nursing, 40 unique papers for nurse fatigue and 23 unique papers on nurse-patient dyad. The focus of the literature search was aimed at identifying, defining, and describing the characteristics, and antecedents of nursing presence, openness, and the relationship of fatigue experienced by nurses. No articles discussing or linking the relationship of nursing presence and fatigue or openness and fatigue were identified. The gap in
the literature supported the need for conducting this research study to better identify the relationships between the concepts.

Table 1. Literature Search Results of Keywords for Each Database

<table>
<thead>
<tr>
<th>Database</th>
<th>Presence</th>
<th>Nursing Presence</th>
<th>Fatigue</th>
<th>Fatigue in Nurses</th>
<th>Openness</th>
<th>Nurse-Patient Dyad</th>
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</tbody>
</table>

Concepts

Nursing Presence

Much work has revolved around identifying what exemplifies nursing as a unique profession, distinct from the medical profession. This differentiation lies within the interrelationship and interaction between nurses and patients. Professional nurses are taught to care for patients within a holistic paradigm (Kostovich, 2012). The holistic paradigm emphasizes caring for the person's mind, body, soul, and experiences as a whole. The American Holistic Nurses Association (AHNA) identifies the focus of holistic nursing research on the helping healthcare practitioners to understand the human experiences of health, healing, and illness and to evaluate the effects of nursing actions on the patients' health, illness and recovery (AHNA, 2003). Presence is described as a holistic way of being within a relationship with another person (patient) interpersonally, transpersonally, and spiritually, and behaving with another within a reciprocal human-to-human experience (Covington, 2003). This description
promotes the notion of an interaction with another person through openness and sharing within the experience.

Nursing presence has historical roots dating back to the work of Florence Nightingale when she described nursing presence as a rare healing presence (Nightingale, 1860/1969). Nursing presence and interpersonal relationships are a central focus in several nursing theories (Turpin, 2014). However, the study of nursing presence as a phenomenon and its significance to nursing continues to be explored. While nursing presence has been studied with the goal to define and describe, the concept continues to be examined to gain a better understanding of how to actualize it within the role of the nurse.

The word presence comes from the Latin noun, præsen or being in front, and the verb, præsentare, meaning to place before (The American Heritage Dictionary, 2016). Sister Madeleine Clemence Valliot (1966) was the first to define presence in nursing and since then, several nurse theorists have incorporated presence as a concept within their theoretical frameworks (Benner, 1984; Ferlic, 1968; Leininger, 1991; Newman, 1986; Orlando, 1961; Parse, 1981; Paterson and Zderad, 1976; Peplau, 1952; Rogers, 1970; Swanson, 1991; Travelbee, 1966; Valliot, 1966; Watson, 1984). Valliot (1966) described the process of nurses becoming immersed in a situation, becoming part of the situation with the patient, and having the capacity to be with the patient, while referring to the word presence in this description. While Valliot does not label this phenomenon as nursing presence, future theorists utilized Valliot’s description to build and define the concept of nursing presence.

Patterson and Zderad (1976) define presence as “a mode of being available or open in a situation with the wholeness of one unique individual being” (p.132) within humanistic nursing.
Patterson and Zderad’s description reflect the mutuality and intimacy of presence. Each patient is unique, and the nurse must be able and open to engage with the patient. Hines (1991) discussed the importance of self-esteem within presence and identified as the act of "presencing" increases, so too does the person's self-actualization. This awareness and openness to the patient and their experience is also included in Dossey’s description of presence as being with or in collaboration with a state of mindfulness (Dossey, 2000). Presence is not simply the physical attendance of the nurse’s body beside the patient but rather, it is the actual connection felt within the nurse-patient relationship (Dochterman & Bulechek, 2004; McKivergin & Daubenmire, 1994).

Henderson (1960) described presence as the "capacity for feeling kinship with the patient" (p. 28) and Doona et al., (1997) defined presence as "a state in which the nurse is in the same place, near or in front of a patient, and in the same moment, holding out to the patient the gift of care" (p.6). In addition, Doona et al., described six features of nursing presence to include uniqueness, connecting with the patient experience, sensing, going beyond scientific data, knowing, and being with the patient. Hines (1991) identified presence as being wholly available or open within a situation so that the other person feels they are understood and assisted to their potential. Similarly, Parse (1999) described being present as involving a “dwelling with or a standing with during a journey” (p. 1). The role of the nurse in presence is to engage with the patient and attempt to immerse his or herself into the person’s space. Boeck (2014) identified being present requires a meaningful exchange between the patient and the nurse. Along the same lines, Kostovich (2012) described nursing presence as a human connectedness between the nurse and the patient that includes both direct and indirect physical availability. Being present with a
patient requires the ability to be open to the potentiality of the moment and necessitates the ability of the nurse to fully share and engage in the experience with the patient (Watson, 1999). These descriptions of nursing presence reflect the aspect of sharing in the patient’s experience or actively being with the patient during their healthcare experience.

Turpin (2014) described presence as nursing presence capability or a behavioral concept that is necessary for a successful relationship to occur between the nurse and the patient and leads to a positive effect. Nursing presence capability is described as the competency of a nurse in creating an inter-relational experience that leads to a positive patient outcome (Turpin, 2014). Nursing presence occurs when a mutually open experience occurs between the nurse and the patient and the nurse devotes themselves on behalf of the patient to meet the needs of the patient.

The concept of nursing presence has been the focus of many nursing scholars and the work of Doona, Chase and Haggerty (1997) have formed the most common and referenced definition of nursing presence. Through a secondary analysis of data from a previous study on nursing clinical judgement, Doona, Chase and Haggerty (1997) found nursing judgment was impacted by a connection with patients. As a result of this work, they defined nursing presence as:

Presence is an intersubjective encounter between a nurse and a patient in which the nurse encounters the patient as a unique human being in a unique situation and chooses to spend her/himself on the patient’s behalf. The antecedents to presence are the nurse's decision to immerse her/himself in the patient's situation and the patient's willingness to let the nurse into that lived experience. As a consequence, to nursing presence, both the nurse and the patient are changed. Both are affirmed as unique human beings, and the nurse is affirmed as a professional and the patient as a person in need. (Doona, Chase, & Haggerty, 1999, p.56)
Doona, Chase, & Haggerty (1999) described presence as an "all or none phenomenon" (p.64) that is a function of the expert nurse as described through the work of Benner (1982). This description of an “all or none phenomenon” refers to nursing presence in the context of existential tension (Doona, Chase, & Haggerty, 1999). This tension is relieved when the patient chooses to allow the nurse into their situation and the nurse avails his or herself to the patient and the context for presence is created. In addition, by attributing expertise as a factor within this description, Doona, et al., allude to the relationship of experience or advanced knowledge with presence.

Several authors have described presence in terms of skills or acts within the nursing domain. Benner (1984) identified presence or the verb, “presencing”, as one of eight key competencies comprising the helping role of the nurse, establishing presence as a fundamental component of nursing and Covington (2013) identified presence as a core relational skill in nursing. Iseminger, Levitt, & Kirk (2009) described the essence of clinical nursing as the provision of comfort and healing through the attendance of the patients' physical emotional and spiritual needs and the balance of the science of nursing with the art of nursing. Kostovich (2012) identified nursing presence as "being with and doing for" (p. 168) and implementing knowledge-based action. These descriptions are consistent with the Paterson and Zderad (1976) description of nursing presence as a goal directed encounter between the nurse and the patient and provide an action-oriented component to the concept of presence.

Nursing presence has been identified as an important component in the surveillance process. Dochterman and Belecheck (2004) identified behaviors of presence such as physical closeness, eye contact and appropriate touch, which are consistent with the surveillance process.
Both the physical closeness and the connectedness correspond with Schmidt’s (2010) definition for surveillance and reflect the importance of nursing presence in performing the surveillance process. The physical “being there” or “doing for” and the emotional “being there” was also described early in the history of nursing by Florence Nightingale (Nightingale, 1860/1969) and later reflected in Paterson and Zderad’s Humanistic Nursing Theory (Paterson & Zderad, 1976).

Osterman and Schwartz-Barcott (1996) through their field observations of nurses caring for ventilator dependent patients, described a progression of "being there" as presence, partial presence, full presence, and transcendent presence. Barrett (2017) conducted a grounded theory study utilizing semi-structured interviews to explore the use of telecommunication by nurses. An analysis of the interview data identified that even with the use of technological observation and teleconsultation, nurses performed roles which centered on the concept of "being there" for their patients (p. 3091). In this study, four interlinked subcategories of nursing presence emerged: operational presence, clinical presence, therapeutic presence, and social presence. The work by Osterman and Schwartz-Barcott, as well as Barrett's work, further describes the multidimensionality of the concept of presence.

These descriptions and definitions aid in identifying the importance of presence in the work of the nurse. The phenomenon of presence has significance within all nursing actions and interactions (Owen-Mills, 1998). The caring presence of a human being has a profound effect on the healing process (Watson, 1999) and patients and their families link nursing presence with quality of care (Fingeld-Connet, 2006). Markan (2008) identified the act of supporting someone in the healing process as an ethical and moral act that includes being present with the patient. This relationship of presence with quality of care, adds to the importance of the impact of
presence on patient outcomes. If presence, the ability to be present, and the impact of presence are seen as important components of nursing care, then a greater awareness and promotion of the role of presence in nursing is warranted.

Marsden (1990) described presence through a review of the literature as a commitment made within a relationship that includes the giving of oneself and receiving from the other and involves an openness and respect for the lived situation of the other person. Marsden suggests nursing presence is a skill that can be learned and includes making eye contact, speaking quietly and respectfully without interrupting the patient and being comfortable with silence. Easter (2000) conducted a concept analysis from her previous work on nursing presence to enable the teaching of "presencing" to students. Easter described four modes of being present to encompass the whole person in terms of physical presence, therapeutic presence, holistic presence, and spiritual presence. By identifying these four modes, Easter was able to define the nursing and patient attributes associated with each mode of presence, as well as the potential outcomes of presence for the nurse and the patient.

Nursing presence has been described in a variety of ways in the literature since it was first identified by Valliot in 1966. However, throughout the definitions, several commonalities in the attributes have emerged and for the purpose of this study, the following definition of nursing presence will be used:

Nursing presence is an intersubjective human connectedness shared between nurse and patient. It begins as both nurse and patient enter the relationship as vulnerable beings. Trust and confidence in the nurse evolve until both nurse and patient risk openness and enter into the relationship. The nurse responds as a compassionate and committed caregiver manifesting nursing presence. Nursing presence is a multi-dimensional unified whole, fluidly existing in the cognitive, affective, behavioral and spiritual experiential domains all at once. Nursing presence is revealed through direct and indirect physical availability, empathetic attention, the provision of physical and emotional comfort, competent
performance of nursing procedures, patient education, and coordination of care with other healthcare providers. It is listening and taking subsequent knowledge-based action. (Kostovich, 2012, p. 167).

Measurement of Presence

The concept of presence is important to the discipline of nursing and therefore, it is important to ground the concept within the everyday reality of nursing practice. The Presence of Nursing Scale (PONS) developed by Kostovich (2002) is the first instrument to measure the patient’s perception of nursing presence. The instrument consists of 28 items scored on a 5-point Likert-type scale. Content validity was established by expert reviewers including Paterson, Zderad and Gardner (Kostovich, 2012). Construct validity was established using a biserial correlation to compare the PONS to patient satisfaction with nursing care. The scale was tested on a sample of 330 patients and resulted in a point biserial correlation of 0.80 indicating a strong positive correlation between nursing presence and patient satisfaction with nursing care (Kostovich, 2012). Internal consistency reliability using Cronbach’s alpha was 0.95 to support internal consistency for the total scale (Kostovich, 2012).

To measure the perception of presence from a nurse's viewpoint, two instruments were identified in the literature. The first was developed by Hines (1991) from qualitative studies identified in the literature and through a secondary data analysis of phenomenological work on nursing presence by Pettigew (1988). The Measure of Presence Scale (MOPS) is a 60-question survey scored on a 5-point Likert-type scale. Six subscales were identified: time, unconditional positive regard, transaction, encounter that is values, connectedness, and sustain memory. The content validity for 135 items was analyzed by a group of 11 experts and reduced to 60 items.
Reliability coefficient of 0.93 for the total scale was established with a sample of 324 participants. The MOPS does not appear to be widely used or studied within the literature.

Kostovich (2012) also developed a Presence of Nursing Scale-RN version (PONS-RN) to measure nurses’ perception of their ability to be present to their patients. The 32-item instrument is scored using a 5-point Likert-type scale of "strongly disagree" to "strongly agree" for each item. Kostovich utilized Rasch analysis to evaluate psychometric properties, including principal components analysis of residuals to arrive at a two-dimensional model. Two subscales emerged, "being with" and "doing for" which is consistent with Paterson and Zderad’s Humanistic Nursing Theory (1976). Reliability for the "doing for" subscale and the "being with" subscale were excellent with Cronbach alphas of 0.91 and 0.87 respectively (Kostovich, 2012)

Although it is important to measure the perception of nursing presence by both the patient and the nurse, it is also important to gain an understanding of the factors that influence the perception of presence. For the purpose of this study, the PONS-RN (Kostovich, 2012) will be used to measure nursing presence by nurses. This instrument is congruent with the model that will guide this study.

Only one other instrument exists to measure presence from the nurse’s perspective, the Measure of Nursing Presence (MOPS) developed by Hines (1991) is a 60-question survey scored on a 5-point Likert-type scale. The scale was developed from qualitative studies identified in the literature and through a secondary data analysis of phenomenological work on nursing presence by Pettigew (1988). However, Kostovich (2002) reported this instrument was generic to general presence and not specific to nursing presence. The PONS-RN is consistent with the Model of
Nursing Presence that is guiding this study and therefore, the MOPS instrument was not used for this study.

**Openness**


Openness is also a multidimensional construct (Griffin & Heskerth, 2004) that has been described by intelligence, broad-mindedness, curious, creative, and unconventional (Barrick, Mount, & Judge, 2001). Openness has a strong impact on individual behaviors (Chang et al., 2016). Openness is one of the Big Five traits identified by John, Nauman & Soto (2008). This five-factor model is a widely used taxonomy of personality traits in psychology. Openness is the ability and propensity to explore sensory and aesthetic information through perception, fantasy, and artistic means (DeYoung, Quilty, Peterson, & Gray, 2014). McCrae & Costa (1991) described openness as a personality trait that is characterized as having a broad and deep awareness with a need to explore for deeper meaning. In addition, it is expressed as being curious, imaginative, and tolerant of ambiguity and being able to adapt to new experiences and ideas (Alarcon, Eschleman & Bowling, 2009). Openness does not bias an individual toward the experience with positive or negative emotions (Zellars, Perrew, Hockwarter, 2000). Persons exhibiting a high degree of openness are more accepting of new ideas and information and are more sensitive to and interested in learning (Nussbaum & Silvia, 2011). According to the signal detection theory (Wickens, 2002), sensitivity leads to a higher likelihood of detecting pertinent
messages. This sensitivity is essential during the surveillance process in nursing where it is important for the nurse to have the ability to detect and identify clinical cues in the patient's condition. Chang et al., (2016), conducted a cross sectional design study using self-reported work experience, perceived time pressure, measures of patient safety, and self-rated openness scores, and using a regression analysis, found a positive relationship ($\beta=0.08$, $\rho= 0.03$) supporting their hypothesis that nurse openness is positively related to patient safety.

Zellar et al., (2000) in a study of 188 nurses completing a questionnaire on role conflict, role ambiguity, role overload, job burnout, and five factor personality traits, found openness to be negatively related to depersonalization ($\beta=-0.11$, $\rho< .10$). Halldorsdottir, (2008) in a study that examined the nurse patient relationship, described openness in communication and connectedness equating to a "bridge" to building a nurse-patient relationship. While openness is often described as a part of nursing presence, there is no literature that examines the extent that openness predicts nursing presence. The psychotherapy literature identifies the need for the psychotherapist to be open to the patient’s experience as an important factor in establish a relationship with the patient (Moltu, Binder, Nielsen, 2010). Similarly, Bugental (1987) describes key factors of presence as being available and open to the patient and one’s own experiences.

Openness has been described not only as a quality of therapeutic presence (McKivergan & Daubenmire, 1994), but also as a necessary component of presence as an intervention (Moch & Schaefer, 1992). Openness is a necessary requirement of presence as a goal directed encounter between the nurse and the patient (Mohnkern, 1992, Mock & Schaefer, 1992). The requirement of openness as a key factor for presence to occur suggests the need to examine the
extent to which openness predicts nursing presence. Although no studies were found that examined openness and fatigue in relationship to nursing presence, evidence suggest that there is a relationship between fatigue and openness in other populations. Khodarahimi and Rasti (2015) conducted a study examining the relationship of males with multiple sclerosis and the big five personality traits. The study found males with chronic disease such as multiple sclerosis who score higher on the Fatigue Severity Scale (FSS) (M=51.87, SD=6.68, ρ=.0001) also score lower on the openness scale of the NEO-Personality Inventory-Revised (M=20.10, SD=4.26, ρ=.0001) than the healthy control group (FSS: M=19.73, SD=4.06; Openness: M=50.97, SD=3.73, ρ=.0001) suggesting a relationship between fatigue and openness. Currently, there is a lack of research that links fatigue with a nurse's ability to demonstrate openness, particularly within the nurse patient relationship.

**Fatigue**

Nursing presence includes the nurse as a focused observer. What is not known is the relationship of fatigue, openness, and nursing presence. Nurses have a finite amount of energy and time, and work in an environment that is often complex and chaotic (Ebright, Patterson, Chalko, & Render, 2003) while coping with competing demands (Gandi, Wai, Karick, & Dagona, 2011). Workload can vary widely, and the cognitive and physical demands experienced by nurses are directly dependent upon patient acuity, staffing, and multidimensional roles experienced by nurses. Patient turnover, acute changes in patient condition and the need for constant vigilance challenges the nurse to provide focused attention. At the unit level, the nurse may need to work within suboptimal staffing levels, physically demanding tasks, and busy
patient care assignments that prevent rest periods (Rogers, 2008; Rogers, Hwang, Scott, 2004; Scott, Rogers, Hwang, Zhang, 2006). All these factors can lead to fatigue.

Fatigue has been well defined in the literature especially within the transportation, aviation, and nuclear energy industry where the impact of worker fatigue on safety is a priority concern (Flin, Winter, Serac, Raduma, 2009). Fatigue is considered a possible factor in all accidents investigated by the National Transportation Safety Board (National Transportation Safety Board, 1999). In a 1999 Report, the Federal Aviation Administration identified that fatigue is a physiological mechanism that is related to sleep and circadian rhythms and is not a condition that can be overcome through employing discipline or improving motivation (National Transportation Safety Board, 1999). For drivers, such as truck drivers, fatigued driving with a sustained wakefulness for seventeen hours has been shown to be analogous to drunken driving with a blood alcohol level of 0.05 (Brookhuis, DeWaard, & Fairclough, 2003; Williamson & Feyer, 2000). In nursing, fatigue is a common complaint. Reineck and Furino (2005) reported in a survey of 800 nurses, 72% reporting exhaustion during a work shift. Fatigue among nurses is ascribed to ongoing work-related demands and job stressors due to the complex skill and knowledge needed to care for patients with high patient acuity levels, a fluid working environment with a high degree of churn (Kubo, 2013). Fatigue is also frequently reported by nurses working night shifts (Bohle & Tilley, 1993; Novak, & Auvil-Novak, 1996; Oginska, Pokorsski, & Oginski, 1993). Nurses that are experiencing fatigue may fail to recognize changes in the patient's condition or be unable to respond to these critical changes or life-threatening events in a patients’ condition that can lead to errors or failure to rescue events (Farid, Purdy, Neumann, 2020; Weaver, Stutzman, Supnet, Olson, 2016; Bosch & DeLange, 1987).
Medical errors are a key issue in healthcare. The Institute of Medicine (IOM) report, Crossing the Quality Chasm, (2001) identified that errors can occur in all stages of patient care processes. These errors can result in debilitating or even fatal outcomes. Errors can also impact patient satisfaction, trusting relationships between the patient and health care providers, as well as have a significant financial impact. The IOM report encouraged a focus on work conditions and the health and safety of the healthcare providers to improve patient safety. Fatigue is common complaint of nurses who work the night shift (Bohle & Tilley, 1993; Novak & Auivil-Novak, 1996; Oginska, Pokorski, & Oginski, 1993) and is considered an important precursor to medical errors (Institute of Medicine, 2000). Nurses have an essential responsibility in the assessment and monitoring of patients and need to be focused on their observations. Changes in the patient's condition can be overt and obvious, but often these are manifested by subtle cues, detectable only through attentive and concentrated assessment. Critical or life-threatening changes in the patients’ condition require immediate recognition and response by the nurse. A nurse, who is experiencing fatigue, may be more likely to be unable to recognize and respond appropriately to these changes (Bosch & DeLange, 1987).

Matthews (2008) described physical fatigue as a subjective feeling of feeling tired and experiencing discomfort with prolonged activity. Fatigue occurs in response to excessive burdens from work responsibilities especially within a chaotic environment and can interfere with a workers’ physical and cognitive abilities (Barker & Nussbaum, 2011; Rogers, 2008). In healthcare, fatigue can be induced by psychosocial stressors, heavy patient workloads, and multiple sensory stimuli (Triola, 1989) and is impacted by circadian rhythms (Piper, Lindsey, & Dodd, 1987). Nursing fatigue is often linked to rotating shifts, overtime, or scheduling
(Johnson, Chisholm & Weatherman, 2008) and is a common and frequent complaint of nurses, especially those who work a night shift schedule (Brookhuis, DeWaard, & Fairclough, 2003). Fatigue has been defined as a feeling of exhaustion, tiredness or lack of energy that can cause distress or burnout (Raftopoulous, Charalambous, Talias, 2012; Shen, Barbera, Shapiro, 2006). In nurses, fatigue is more than an unhealthy symptom. Fatigue can be manifested as a deficit in attention, perception and decision making (Cercarelli & Ryan, 1996). Nursing has a responsibility for vigilance and attention, particularly in the surveillance process. A decrease in attention or perception can lead to potential detrimental effects on patient outcomes as a result of the nurse missing important changes or cues in the patient's condition resulting in the inability or lack of response or intervention to critical or life-threatening situations (Bosch & DeLange, 1987). Fatigue in nurses can have disastrous consequences. The American Nurses Association (ANA) has recognized fatigue in nurses as a threat to both the safety of patients as well as the safety of nurses (ANA, 2014).

Several studies have demonstrated that fatigue due to long shifts can negatively impact patient safety and potential for errors due to sleepiness and reduced vigilance (Barker & Nussbaum, 2011; Braver, Preusser, Baum, Beilock, & Ulmer, 1992; Caldwell & Caldwell, 2005; Geiger-Brown et al., 2012; Olds & Clark, 2010). The Bell Commission Report (1989) identified sleep deprivation of resident physicians leading to judgement errors as a major contributor to the death of a patient and led to the restructuring of resident workdays. Increased fatigue from high demand work environments can impair the attentiveness and ability to recognize clinical cues or identify errors and react appropriately (Lockley, Barger, Ayas, Rothschild, Czeisler, & Landrigan, 2007; Smith-Miller & Shaw-Kokot, 2014). In addition, fatigue has been found to
impact healthcare workers’ performance of specific neurocognitive and simulated clinical tasks (Landrigan et al., 2004; Owens, 2001).

The Institute of Medicine Report (2004) has identified long work hours and the resulting fatigue in nurses creates a serious threat to patient safety. A quantitative survey of over 2000 nurses (Trinkoff, Geiger-Brown, Brady, Lipscomb, & Muntaner, 2006) identified that most nurses work 12 or more hours per day, and a third of the nurses surveyed work six or more days in a row. Additionally, many nurses reported working more than one job. Several studies have identified the more hours a nurse works, the greater the fatigue level (Barker & Nussbaum, 2011; Olds & Clarke, 2010; Rathore, Shukla, Singh, & Tiwari, 2012). In a study by Bae (2013), an increased risk for patient falls (OR=2.66, CI=1.09-6.50, p<0.001), pressure ulcer development (OR=4.32, CI 1.70-11.00, p<0.01), and development of nosocomial infections (OR=4.91, CI=1.99-12.12, p<0.01) was seen in patients cared for by nurses who worked overtime versus non-overtime nurses suggesting a relationship between hours worked and the potential for fatigue with adverse patient outcomes. Nurses working shifts of 12.5 hours or greater are more than three times more likely to commit an error (Narumi, Miyazawa, Miyata, Suzuki, Kohsaka, & Kosugi 1999; Rogers 2004). The effects of fatigue have been identified as detrimental on the performance of the nurse and can negatively impact the quality and safety of the care provided (Page, 2004; Tourgangeau, Cranley, & Jeffs, 2006).

Fatigue has been conceptualized in a variety of ways. Physical fatigue can occur throughout the body and presents as feelings of physical discomfort and a decreased ability to produce is a state of energy depletion in local muscle groups, cardiac and respiratory muscles (Grandjean,1979; Hart & Freel, 1982), and neural synapse conduction (Guyton, 1976).
Healthcare roles often require long working hours with little recovery time between shifts and physically demanding tasks such as prolonged standing, lifting, or walking, which can lead to physical fatigue.

Mental fatigue has been associated with decreased alertness and concentration and can negatively affect vigilance, decision-making and reaction time (Barker & Nussbaum, 2011). The work of a nurse is both physically and mentally demanding. Mental fatigue can be characterized by a lack of motivation to continue a task and can manifest in a variety of aspects including attention deficits as well as deficits in perception and decision-making (Ceracarelli & Ryan, 1996). The demands of psychosocial stressors, physically demanding workloads and increased amount of sensory stimuli in the Intensive Care units make critical care nurses more susceptible to fatigue (Triola, 1989). Fatigue is the perception of physical and psychological feelings of lack of rest, bodily discomfort, hesitancy to engage in exertion, aversion to effort (Holding, 1983) and reduced proficiency (Schreuder, 1966). Fatigue is an affective or mood state or weariness, inertia, low energy level, and reduced motivation (Lee, Hicks, & Nino-Murcia, 1991: McNair, Lorr, & Droppleman, 1981: Stone, Broderick, Porter, & Kaell, 1997).

Although two separate concepts, sleep and fatigue are often discussed together. Sleep deprivation is often discussed as an antecedent of fatigue. Insufficient sleep contributes to the development of fatigue and both are associated with poor attention and performance (Mullington, Haack, Toth, Serrador, & Meier-Ewert, 2009). Sleep is restorative and necessary for proper brain function. Sleep loss impacts the prefrontal cortex of the brain which is responsible for complex cognitive processes, particularly planning, coordinating and self-regulating actions (Killgore, 2010). Acute and chronic sleep deprivation has an adverse effect on
cognitive function, particularly working memory, alertness, attention, vigilance, and decision making (Alhola, Polo-Kantola, 2007; Van Dongen, Maislin, Mullington, & Dinges, 2003). Sleepiness in healthcare workers may be the result of insufficient sleep time, poor quality sleep, and excessive work hours. In a non-experimental descriptive study, Scott, Arslanian-Engoren, & Engoren et al., (2014) administered a questionnaire to full-time critical care nurses to examine sleep variables, impairment due to fatigue, and clinical decision regret. The authors found a majority of the 546 respondents experienced moderately high fatigue, significant sleep deprivation and daytime sleepiness and subsequent effects on their ability to be alert, vigilant, and safe. Rogers et al., (2004) found the risk of nurses making an error was three times higher when the nurse worked 12.5 hours or more and those working more than 40 hours a week were more fatigued and twice as likely to experience errors. Dorrian, Tolley, Lamond, Van den Heuvel, Pincombe, Rogers, & Drew, (2008) found the struggle to stay awake during a work shift and experiencing fatigue was a primary predictor for making an error. Scott, Rogers, Hwang, & Zhang (2006) examined the effects of work hours on vigilance and patient safety in critical care nurses found 65% of the nurses participating in the study reported challenges in staying awake during work hours and 20% reported feeling fatigued and falling asleep at least once during the work shift. (Scott, Rogers, Hwang, and Zhang, 2006). Recuperative and restorative recovery of fatigue occurs during the time between work shifts. However, inconsistent sleep patterns or the ability to achieve restorative sleep can affect recovery from fatigue (Scott-Miller, Shaw-Kokot, Curro, & Jones, 2014). Additionally, given the multidimensional components of fatigue, sleep or rest may inconsistently relieve feelings of fatigue (Rogers, 2008). In an environment in which
patients entrust their care and lives to healthcare providers, there is an expectation that the healthcare providers would remain awake and vigilant while monitoring their clinical status.

Aiken, Clarke, & Sloan (2002) found evidence of the negative effects of the workplace strain related to fatigue on the quality of patient care. Poor staffing levels are frequently associated with adverse outcomes; however, the factors that influence the utilization of staff such as additional nursing responsibilities or patient churn have not been examined in relationship to the surveillance process. Understanding the relationship of multiple factors occurring at the nursing unit level that promote fatigue in nurses can aid in identifying measures to prevent deleterious effects on patient care particularly regarding the nurse’s ability to be present with the patient. In a cross-sectional correlational study of 175 neonatal nurses (Kupp, Patteerson, Ford, Zurmehly, & Patrick, 2018), higher fatigue levels in nurses were significantly associated with greater hours worked, less hours of sleep, and distressing patient events.

In the chaotic, ever changing environment of providing healthcare at the patients’ bedside, nurses may experience physical, mental, or other dimensions of fatigue. However, there is a gap in the literature exploring the impact of fatigue on nursing presence. A better understanding of the interrelationship between nursing presence and fatigue is important in reducing fatigue and to creating working environments that support circumstances in establishing nursing presence. This work can be utilized to promote healthy work environments, particularly related to work schedules for nurses, to support quality and patient safety.

Conceptual and Operational Definition of Nursing Presence

The conceptual definition of nursing presence used for this study was:

An intersubjective human connectedness shared between nurse and patient. It begins as both nurse and patient enter the relationship as vulnerable beings. Trust and confidence
in the nurse evolve until both nurse and patient risk openness and enter into the relationship. The nurse responds as a compassionate and committed caregiver manifesting nursing presence. Nursing presence is a multi-dimensional unified whole, fluidly existing in the cognitive, affective, behavioral and spiritual experiential domains all at once. Nursing presence is revealed through direct and indirect physical availability, empathetic attention, the provision of physical and emotional comfort, competent performance of nursing procedures, patient education, and coordination of care with other healthcare providers. It is listening and taking subsequent knowledge-based action. (Kostovich, p. 169, 2012).

Kostovich Presence of Nursing Scale-RN Version (PONS-RN) (2016) was used to operationalize Nursing Presence for this study. Scores on the PONS-RN “being with” and “doing for” subscales were measured.

**Conceptual and Operational Definition of Openness**

Openness is defined as a personality trait that is characterized as having a broad and deep awareness with a need to explore for deeper meaning and does not bias an individual toward these experiences with positive or negative emotions and having sensitivity to detecting pertinent messages. (John, Robins, Pervin 2010).

The Big Five Inventory Openness Subscale (John, Naumann, & Soto, 2008). wase used to operationalize openness for this study.

**Conceptual and Operational Definition of Fatigue**

Fatigue is a multidimensional subjective, unpleasant symptom which incorporates total body feelings ranging from tiredness to exhaustion, creating an unrelenting overall condition which interferes with an individuals' ability to function to their normal capacity. (Devries, Michelsen, Van Heck, 2003; Ream & Richardson, 1996).

The Fatigue Assessment Scale was used to operationalize physical and mental fatigue with a total fatigue score for this study.
Conceptual and Operational Definition of Sleep Impairment

Sleep impairment is defined as a disruption in the normal neurobehavioral state of sleep and wakefulness by physiologic, behavioral and environment factors. The potential result of sleep deprivation is associated with changes in vigilance and psychomotor performance, mood and affect regulation, memory consolidation, moral reasoning, metabolic and appetite regulation, and immune function (Buyssee, Yu, Moul, Germain, Stover, Dodds, et al., 2010)

The PROMIS Sleep-Impairment measure was used to operationalize sleep-impairment for this study.
CHAPTER THREE

METHODOLOGY

Introduction

This chapter includes a review of study purpose and research questions, aims, and hypotheses, a description of the study methodology used to explore the proposed aims and hypotheses, study sites, participants and sampling size and sampling methods to obtain the sample size, conceptual and operational definitions of variables, the instruments utilized, data collection and management, the strategies for data analysis, and procedures for human subject protection. This study utilized a quantitative approach to examine the extent to which fatigue and openness predict nursing presence in nurses working in an acute care setting.

Study Purpose and Research Questions

The current body of literature supports the importance of nursing presence as a significant element to enhance the relationship between the nurse and patient. The connectedness that results from nursing presence allows for a more effective nurse-patient relationship and is linked to positive patient outcomes (Turpin, 2014). The importance of nursing presence and the factors which can positively or negatively impact the role of nursing presence needs further exploration.

The purpose of this study was to examine the extent to which fatigue and openness predicts nursing presence in nurses working in an acute care setting. The nursing profession must distinguish the fundamental characteristics of nursing practice, such as nursing presence,
that create the underpinning for exceptional patient care. Nursing presence is one such key characteristics of nursing practice that shapes the nurse-patient relationship. Nursing presence needs to be fully understood to better optimize its role within the health care delivery process. In addition to identifying its uniqueness and importance, it is equally important to explore those conditions that can enhance as well as provide a barrier to the actualization and optimization of nursing presence. Evidence demonstrates that the nurse's ability to be open is critical to supporting nursing presence (Chang, et al., 2016; Scott, 1997). Furthermore, Cercarelli & Ryan (1996) identified that fatigue can manifest as an insufficiency in attention and perception and therefore, may affect the ability of the nurse to be open thereby decreasing nursing presence. Nursing units are busy, often chaotic due to patient turnover and competing nursing care priorities. The nursing unit environment coupled with long work shifts for nurses, and multiple job demands can lead nurses to experience physical, emotional, and mental fatigue during their work shift (Laschinger, & Leiter, 2006; Potter et al, 2005). What is not explored within nursing research the extent to which fatigue and openness impact nursing presence and is openness a moderator of fatigue and nursing presence.

**Aims and Hypothesis**

Two aims exploring the relationships between nursing presence, openness, and fatigue guided study.

Aim 1: Describe the relationships among nursing presence, fatigue, openness.

H₁: Perceived fatigue will be inversely correlated with perceived nursing presence as measured on the "being with” subscale of the PONS-RN.
H₂: Perceived fatigue will be inversely correlated with perceived nursing presence as measured on the “doing for” subscale of the PONS-RN.

H₃: Openness will be positively correlated with perceived nursing presence as measured on the "being with” subscale of the PONS-RN.

H₄: Openness will be positively correlated with perceived nursing presence as measured on the “doing for” subscale of the PONS-RN.

H₅: Perceived fatigue and openness will be inversely correlated with one another.

Aim 2: Examine the extent to which openness moderates the relationship between fatigue and nursing presence controlling for sleep impairment and years of experience.

H₁: Openness will moderate the relation between fatigue and nursing presence as measured by the "being with" subscale of the PONS-RN.

H₂: Openness will moderate the relation between fatigue and nursing presence as measured by the "doing for" subscale of the PONS-RN.

**Model**

A modified version of Kostovich’s Model of Nursing Presence (2012) illustrating the exploration of the relationship of nursing presence, openness, and fatigue the was used to guide this study. Figure 1 depicts how the aims identified for this study relate to the Model of Nursing Presence.

Figure 3. Modified Version of Kostovich’s Model of Nursing Presence
Description of Study Design and Methodology

This study was conducted utilizing a descriptive correlational design. Correlational designs are appropriate when describing relations between variables. In particular, this study examined the extent to which fatigue and openness predict nursing presence in nurses working in an acute care setting. Furthermore, openness was considered as a potential moderator of the relationship between fatigue and nursing presence.

Study Site

This study took place at three acute care hospitals in the Midwest that are part of a large national multi-institutional health system. The study sites include a 547-bed academic medical center with a large ambulatory network which is Magnet accredited by the American Nurses Credentialing Center, a 254-bed community hospital and a 374-bed community hospital. All three hospitals are based in the western suburbs of Chicago.

Study Participants

A convenience sample of inpatient registered professional nurses currently employed in the three identified hospitals was recruited for inclusion in the study. The potential pool of registered nurse participants had been estimated as 2170 across the three sites. The convenience sample included registered professional nurses providing direct patient care for at least 80% of their work schedule and who work greater than 20 hours per week. Exclusion criteria included non-registered professional nurses (LPN's, unlicensed assistive personnel), nurses on orientation during or within 6 months of the study period, nurses in non-direct patient care delivery roles (managers, assistant managers, educators, and advanced practice nurses), and nurses working less than 20 hours per week. Inclusion criteria for the study were as follows:
• Registered professional nurses working on inpatient medical-surgical or critical care inpatient units.
• Nurses working the day shift, defined as shift start time 0600-0800.
• Nurses working the PM shift, defined as shift start time in the afternoon and ending prior to midnight.
• Nurses working 8- or 12-hour shifts.
• Nurses must be in a role required to provide direct patient care for at least 80% of scheduled work time.
• Nurses working greater than 20 hours per week at the site hospitals.

Exclusion criteria for the study were as follows:
• Non-registered professional nurses (LPN’s, unlicensed assistive personnel).
• Nurses on orientation or completed orientation less than 6 months prior to study period.
• Nurses on inpatient units in non-direct care delivery roles, managers, assistant managers, nurse practitioners.
• Nurses working night shift only.
• Nurses who report a diagnosis of sleep apnea or chronic fatigue syndrome.
• Nurses currently pregnant.

**Sample Size**

A power analysis using G*Power (Version 3.1.9.4) was conducted to estimate the number of participants needed to provide adequate statistical power for each of the proposed aims using the guidelines provided by Tabachnick & Fidell (2013). Aim 1 was to describe the relationships among nursing presence, fatigue, and openness. It was hypothesized that lower
levels of fatigue would predict higher levels of nursing presence on both the "being with" and "doing for" subscales of the PONS-RN. A range of effect sizes from small to large was considered for this aim, and a conservative effect size of 0.10 was chosen as the smallest effect that would demonstrate a difference between groups. A sample size of N=102 would achieve 90% power to reject the null hypothesis that β=0 for fatigue in a multivariable linear regression analysis with adjustment for four covariates with alpha level of 0.05 (Table 2).

Aim 2 examined the extent to which openness moderates the relationship between fatigue and nursing presence. A range of effect sizes from small to large was considered for this aim, and a conservative effect size of 0.10 was chosen as the smallest effect that demonstrates a difference between groups. A sample size of n=146 would achieve 90% power to reject the null hypothesis that β=0 for fatigue in a multivariable linear regression analysis with adjustment for four covariates with alpha level of 0.05. The sample size was calculated to measure 3 tested predictors (openness, fatigue, and openness x fatigue). Aim 2 was powered to a higher sample size and therefore, recruitment was directed to achieve n=146 for both aims (Table 3).

Table 2. Power Aim 1 to describe the relationships between perceived nursing presence and perceived fatigue in bedside nurses.

<table>
<thead>
<tr>
<th>Option</th>
<th>Effect size</th>
<th># tested predictors</th>
<th>Total # predictors</th>
<th>Power</th>
<th>Total sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.02</td>
<td>1</td>
<td>5</td>
<td>.8/.9</td>
<td>389/522</td>
</tr>
<tr>
<td>2</td>
<td>.10</td>
<td>1</td>
<td>5</td>
<td>.8/.9</td>
<td>75/102</td>
</tr>
<tr>
<td>3</td>
<td>.15</td>
<td>1</td>
<td>5</td>
<td>.8/.9</td>
<td>55/73</td>
</tr>
<tr>
<td>4</td>
<td>.35</td>
<td>1</td>
<td>5</td>
<td>.8/.9</td>
<td>25/27</td>
</tr>
</tbody>
</table>
Table 3. Power Aim 2 to examine openness as a moderator of perceived nursing presence and perceived fatigue.

<table>
<thead>
<tr>
<th>Option</th>
<th>Effect size</th>
<th># tested predictors</th>
<th>Total # predictors</th>
<th>Power</th>
<th>Total sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.02</td>
<td>3</td>
<td>7</td>
<td>.8/.9</td>
<td>550/713</td>
</tr>
<tr>
<td>2</td>
<td>.10</td>
<td>3</td>
<td>7</td>
<td>.8/.9</td>
<td>106/146</td>
</tr>
<tr>
<td>3</td>
<td>.15</td>
<td>3</td>
<td>7</td>
<td>.8/.9</td>
<td>77/99</td>
</tr>
<tr>
<td>4</td>
<td>.35</td>
<td>3</td>
<td>7</td>
<td>.8/.9</td>
<td>28/46</td>
</tr>
</tbody>
</table>

An estimated pool of potential participants within the three study hospitals included 800 medical-surgical nurses and 425 critical care nurses for a possible total participant pool of 1225 registered professional nurses. The response rate for surveys is variable; Fulton (2018) identified the average response rate, for published studies that utilize surveys, is 34 percent (Nulty, 2008; Watt, Simpson, McKillop, & Nunn, 2002). Using this average response rate, an available pool of 1225 participants would potentially yield a response of over 400 participants. A sample size of n=146 was necessary to power both study aims. To account for missing data, data were collected until a response rate of 20% over the calculated sample size (n=177) was achieved.

**Sampling Methodology**

Permission to conduct the study and access the study site and participants was achieved by agreement from institutional administrators and stakeholders. The researcher met with the hospital nursing research committee, nurse leaders and nursing staff members to explain the study after approval was granted to conduct the research from the Institutional Review Board (IRB) at the University and academic medical center. The IRB provided approval to conduct the study at each of the three study sites. Participants were recruited using an internal e-mail list of
registered nurses at the selected hospitals, recruitment flyers, and announcements at unit meetings. A list of names of registered nurses working on inpatient medical-surgical and critical care units was obtained from the hospital upon agreement from the organization to participate. Nurses were invited to participate in the study via an email invitation that contained a link to the electronic survey. The electronic survey was conducted using a web-based survey system, Opinio 7.14 Survey Software. In addition to the email invitation, the investigator posted recruitment flyers in key areas and nursing units of each participating hospital. The investigator also attended nursing unit staff meetings at each participating hospital to introduce and explain the study. A site assistant was identified for each hospital to assist in the distribution of the email invitation.

The electronic survey remained open for 6 weeks until the required sample size was achieved. An email message, reminding the participants to complete the survey, if they chose, was sent every two weeks (up to three reminders) during the study period. The email contained the same unique link to the online survey to prevent participants from completing the survey more than once. In the introductory letter for the survey, an offer of a $5.00 e-gift card was provided as a token of appreciation for those who wished to participate and complete the survey. To collect the electronic gift card, at the completion of the survey, the respondent was redirected to a second survey that collected contact information for distribution of a gift card code. The electronic gift card was provided via an email directly to the participants. To ensure confidentiality, participants were reminded that contact information was kept separate and not associated with information provided in the survey.
Study Instruments

Instruments were identified to correspond to the constructs of this study. All instruments were administered electronically. Permission to use the Presence of Nursing Scale - RN Version (PONS-RN), Fatigue Assessment Scale (FAS), Big Five Inventory (BFI) Openness Subscale, and PROMIS Sleep Impairment measures were obtained from the authors of these instruments. The instruments were administered as originally designed and no modifications were needed.

Presence of Nursing (Dependent variable)

The Presence of Nursing Scale-RN version (PONS-RN) (Kostovich, Dunya, Schmidt, & Collins, 2016) was used to measure registered nurses’ perception of their ability to be present to their patients during the prior 2-week timeframe. PONS-RN is a 31-item instrument with two subscales, “doing for” the patient and “being with” the patient. The instrument is consistent with Paterson and Zderad’s Humanistic Nursing Theory (1976). The instrument reflects a variety of nursing care responsibilities and is completed by reflecting on the ability of the nurse to perform these care items over the prior 2-week timeframe using a 4-point Likert-type scale using the range of "I never seemed to have time to do this" to "I always made time to do this." The “Doing For” subscale consists of 19 items and the “Being With” subscale consists of 12 items.

A Rasch Rating Scale analysis to establish validity was completed for the PONS-RN (Kostovich, Dunya, Schmidt, Collins, 2016). The results support the reliability and validity of the PONS-RN to measure nurses’ perception of being present to their patients. Validity of a two-dimensional structure of the instrument was supported by the results of a principal component analysis. The content validity was supported through item quality indices (Kostovich, Dunya, Schmidt, Collins, 2016). Reliability for “Doing For” subscale was
established with a Cronbach’s alpha=0.92. Reliability for “Being With” subscale was established with a Cronbach’s alpha=0.88 (Kostovich, Collins, & Schmidt, 2011).

**Openness (Independent variable)**

The Big Five Inventory (BFI-44) developed by John and Srivastava (1999) is a self-report inventory designed to easily and quickly measure the Big Five dimensions of personality traits using basic phrases associated with conventional indices of the Big Five personality traits. The BFI-44 is the most widely used model of personality (Gosling, Rentfrow, & Swann, 2003). The 44-item inventory assesses five multidimensional personality traits of: extraversion, agreeableness, conscientiousness, neuroticism, and openness. Scoring of the BFI-44 consists of a scaled score for each of the five personality traits and is calculated as the mean of the items included for each trait. Scaled scores range from 1 to 5 with higher scores indicating higher levels of the trait.

Psychometric properties of the BFI-44 indicate strong internal consistency for the five personality types with significant convergent and discriminant validity results (John, Nauman, & Soto, 2008). The Cronbach-alpha reliabilities were calculated as Openness (α=.73), Extraversion (α=.77), Neuroticism (α=.80), Agreeableness (α=.72), and Conscientiousness (α=.75) (Dennisenm Geenan, Soto, John, Van Aken, 2019). The validity of the BFI-44 was found to have substantially high r-values for behavior observations (Thalmayer, Saucier, & Eigenhuis, 2011).

While the BFI-44 measures five personality dimensions, for the purpose of this study, only the Openness subscale was administered and scored. A benefit of using the BFI-44 over other personality inventories is its ease of use and time-efficiency in completing the inventory
which is estimated as requiring approximately five minutes to complete the entire inventory (John, Nauman, & Soto, 2008). The BFI-44 has been used in others studies examining personality in healthcare providers (Ntantana, Matamis, Savvidou, Giannaku, Gouva, Nakos, et al., 2017; Martinez-Zaragoza, 2018; Zaininotto, Rossi, Danieli, Frasson, Meneghetti, Zordan, et al., 2018)

**Fatigue (Independent variable)**

The Fatigue Assessment Scale (FAS) is a ten-question survey to measure total fatigue in the previous 2-week timeframe. Five questions reflect physical fatigue, and five questions reflect mental fatigue. The scale was developed to measure fatigue amongst the working population (Devries, Michielsen, and Van Heck, 2003). The instrument has shown to have high internal consistency and good convergent and divergent validity (Devries, Michielsen, & Van Heck, 2003). The items are rated on a five-point Likert-type scale and the overall score determines the degree of general fatigue. Devries, Michalesen, & Van Heck (2003) demonstrated reliability for the FAS total score with a Cronbach alpha=0.90 and a high internal consistency and good convergent and divergent validity.

**Sleep Impairment (Covariate)**

Fatigue and sleep impairment are often used interchangeably and therefore, sleep impairment was included as a covariate in this study. Fatigue and sleep impairment are two distinct phenomena that coexist as a result of sleep deprivation (Rogers, 2008). Sleepiness is characterized by the tendency to fall asleep, whereas, fatigue is an overwhelming sense of tiredness, lack of energy and is associated with impaired physical or cognitive functioning (Shen & Shapiro, 2006). Due to the confounding nature of sleep on the experience of fatigue, sleep impairment was identified as a covariate to aid in increasing the accuracy of the results of this
study. Sleep impairment was measured using the PROMIS Sleep-related Impairment short form instrument.

The PROMIS Sleep-related Impairment (PROMIS-SRI Short Form) instrument measures the participant's perception of sleepiness, alertness, and tiredness during normal wake hours, as well as the functional impairments that are attributed to sleep disorders or impaired alertness. The PROMIS-SRI Short Form questions measure the level of alertness and sleepiness during the wake cycle (Cella, et al., 2010). In a study to establish validity, Buysee et al. (2010) found the PROMIS-SRI to provide excellent measurement properties and to be useful in for assessing general aspects of sleep and sleep impairment in general populations. A study by Yu, et al., (2011) found a reliability of .90 for the PROMIS-SRI Short Form and demonstrated superiority over the Pittsburgh Quality Index and the Epworth Sleepiness Scale.

The PROMIS SRI-Short Form consists of eight questions asking the participant to reflect upon the previous 7 days and rate their answer using a 5-point Likert-type scale ranging from "Not at All" to "Very Much". The PROMIS-SRI Short Form contains one negatively worded question. Scoring for the PROMIS was based upon a summed or raw score of all questions in the instrument. A total score ranged from 8 to 40. Utilizing the tables provided in the scoring manual accompanying the instrument, the raw score is used to identify a T-score for each participant. The T-score rescales the raw score into a standardized score with a mean of 50 and a standard deviation of 10. A higher the score indicates a higher degree of sleep impairment.

**Years of Nursing Experience (Covariate)**

Years of nursing experience was identified as a covariate for this study. Years of nursing experience is frequently measured in demographic data and is important in evaluating how work
factors interact to affect work behaviors in nurses. The results of a study of 421 nurses examining the relationship of years of nursing experience, openness, and patient safety (Chang, Friesner, Lee, Chu, Chen, Wu, et al, 2016) suggest work experience was positively related to openness ($r=0.21, p=<0.05$). Openness was measured using six items by Teng et al., (2011). However, years of work experience reduced the positive association between nurse openness and patient safety ($\beta=-0.12, p=<0.01$). The authors suggest this is due to the automatic and intuitive responses experienced nurses may use when addressing specific clinical situations. Less experienced nurses tend to deliver nursing care based upon their academic training and personality and behavioral traits, such as openness, whereas more experienced nurses are accustomed to workplace customs, behaviors, and routines (Chang et al, 2016; Wickens 2002).

**Demographics**

In addition to measuring the key variables of nursing presence, openness and fatigue, a demographic form was included. Standard demographic data was collected including age, gender, ethnicity, education, years as RN, highest nursing academic degree, type of unit working on, hours worked during the prior pay period, and percentage of time spent in direct patient care. Demographic information provides data regarding research participants and was necessary for the determination of whether the individuals in the study were a representative sample of nurses for generalization purposes.

The survey consisted of 59 questions in addition to the demographic form. It was estimated the entire survey would take approximately 30 minutes to complete. Table 4 provides a summary of the concepts, measures, and number of questions for each measure.
Table 4. Measures for Study Concepts

<table>
<thead>
<tr>
<th>Construct</th>
<th>Instrument</th>
<th>Questions</th>
<th>Time to complete (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence</td>
<td>Presence of Nursing Scale-RN Version</td>
<td>31 questions (2 subscales)</td>
<td>10</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Fatigue Assessment Scale (FAS)</td>
<td>10 questions</td>
<td>5</td>
</tr>
<tr>
<td>Openness</td>
<td>Big Five Inventory-Openness subscale</td>
<td>10 questions</td>
<td>5</td>
</tr>
<tr>
<td>Sleep Quality (covariate)</td>
<td>PROMIS-Sleep Impairment</td>
<td>8 questions</td>
<td>5</td>
</tr>
<tr>
<td>Demographics</td>
<td>Demographic questions identified by researcher</td>
<td>23 questions</td>
<td>5</td>
</tr>
</tbody>
</table>

Data Collection and Data Management

The survey was administered using Opinio 7.14 Survey Software, an on-line survey tool. Questions for the instruments was formatted appropriately for data collection. The survey contained 59 questions plus a demographics form. It was estimated the survey would take approximately 30 minutes to complete. Screening questions to determine participant eligibility were asked in the opening screen of the on-line survey. The screening questions (Table 5) reflected the inclusion and exclusion criteria. Only participants eligible for the study were allowed to proceed to the survey. A pilot study with five participants was conducted using Opinio 7.14 Survey Software to assess the screening questions, consent, and survey for readability, time for completion and to identify any potential concerns not addressed. The participants confirmed the time to complete the survey was approximately 30 minutes and screening questions, consent, and survey were appropriate and easily understood. No concerns regarding the survey were raised by the pilot participants.
Participants were asked to not complete the survey during scheduled work time and encouraged to complete the survey after work, during break time. All materials collected were for research purposes only and data were kept in strict confidence. Responses to the survey were kept confidential. Data were exported to a Statistical Package for Social Science software 24.0 (SPSS) (Chicago, IL) data file which was used for analysis. No identifiable information was associated with the survey. Results and data were presented as aggregate data. Storage of all data was on a password protected encrypted research drive. Access to the data was limited to only those involved in this research project.

Table 5. Screening Questions to Determine Eligibility

<table>
<thead>
<tr>
<th>Screening Question</th>
<th>Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am a registered nurse</td>
<td>Yes = eligible</td>
</tr>
<tr>
<td></td>
<td>No = not eligible</td>
</tr>
<tr>
<td>I am on orientation</td>
<td>Yes = not eligible</td>
</tr>
<tr>
<td></td>
<td>No = eligible</td>
</tr>
<tr>
<td>I provide direct patient care at least 80% of scheduled work time</td>
<td>Yes = eligible</td>
</tr>
<tr>
<td></td>
<td>No = not eligible</td>
</tr>
<tr>
<td>I work greater than 20 hours per week at the site hospital</td>
<td>Yes = eligible</td>
</tr>
<tr>
<td></td>
<td>No = not eligible</td>
</tr>
<tr>
<td>I work the night shift only</td>
<td>Yes = not eligible</td>
</tr>
<tr>
<td></td>
<td>No = eligible</td>
</tr>
<tr>
<td>I have been diagnosed with sleep apnea</td>
<td>Yes = not eligible</td>
</tr>
<tr>
<td></td>
<td>No = eligible</td>
</tr>
<tr>
<td>I have been diagnosed with chronic fatigue syndrome</td>
<td>Yes = not eligible</td>
</tr>
<tr>
<td></td>
<td>No = eligible</td>
</tr>
<tr>
<td>I am currently pregnant</td>
<td>Yes = not eligible</td>
</tr>
<tr>
<td></td>
<td>No = eligible</td>
</tr>
</tbody>
</table>
Data Analysis

SPSS software 24.0 (Chicago, IL) was used for data analysis. Regression models were assessed for normality, homogeneity of residuals, linearity of independent variables with dependent variables, & multicollinearity. Only completed surveys were utilized for this study. Missing data for all items was <2.5% and no pattern to the missing data was identified. Since the amount of missing data was minimal and random, there was no need to impute missing data. If necessary, missing data would have been replaced using multiple imputations (Stem, White, Carlin, Spratt, Royston, Kenwood, et al., 2009). Descriptive statistics were presented to describe the demographic data. Cronbach’s alpha was calculated for each instrument. Correlational statistics were estimated to determine associations among the perceived nursing presence, openness, and perceived fatigue controlling for the covariate of sleep impairment.

Means and standard deviations, medians and interquartile ranges, counts and percentages were computed for each study variable as appropriate. Scatterplots were constructed to assess the form and strength of associations among continuous variables, and Pearson’s correlation coefficients were calculated to assess statistical significance. Significance was set at $p$ value of .05.

Moderation analysis was used to determine when, under what circumstances and the extent to which the independent variables of fatigue and openness predict the dependent variable of nursing presence. In addition, openness was considered as a moderator of fatigue and nursing presence by calculating the interaction term of fatigue x openness in the model. Covariates (sleep impairment and years of experience) were entered into the models as independent variables. Multicollinearity in the model was assessed using the variance inflation factor (VIF)
to identify correlation between independent variables and the strength of the correlation. Predictors with VIF greater than 10 would have been eliminated from the model (Field, 2018) however, none of the factors exceeded three. Multiple regressions were performed with all predictors in the model and then rerun with only the significant predictors in the model. Figure 4 identifies the equations for the regression models.

Figure 4. Equations for multiple regression models

<table>
<thead>
<tr>
<th>Model A: All predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equation 1:</td>
</tr>
<tr>
<td>$\hat{Y}_{being\ with} = \hat{\beta}<em>0 + \hat{\beta}<em>1 X</em>{fatigue} + \hat{\beta}<em>2 X</em>{openness} + \hat{\beta}<em>3 X</em>{fatigue}X</em>{openness} + \hat{\beta}<em>4 X</em>{years\ experience} + \hat{\beta}<em>5 X</em>{sleep\ impairment}$</td>
</tr>
<tr>
<td>Equation 2:</td>
</tr>
<tr>
<td>$\hat{Y}_{doing\ for} = \hat{\beta}<em>0 + \hat{\beta}<em>1 X</em>{fatigue} + \hat{\beta}<em>2 X</em>{openness} + \hat{\beta}<em>3 X</em>{fatigue}X</em>{openness} + \hat{\beta}<em>4 X</em>{years\ experience} + \hat{\beta}<em>5 X</em>{sleep\ impairment}$</td>
</tr>
</tbody>
</table>

**Potential limitations of study**

Several potential threats to internal and external validity are present in this study. A correlational design study is considered less powerful than an experimental design and does not allow for determining cause and effect. However, the purpose of this study was to determine the direction and strength of relationships between the variables and the inability to determine cause and effect was not a concern.

Threats to external validity in the study included the use of a convenience sample and selection bias. A convenience sample is a weak sampling method because the researcher cannot control for biases. A poor response rate by potential respondents can influence reliability and
validity of the study, however, potential limitations was managed by the available participant pool. The lack of variety by age, length of time employed as a nurse, or varying levels of fatigue in participants can also affect the generalizability of the data. Confounding variables for perceived nursing presence, openness, or perceived fatigue may not have been measured. Threats to external validity included the fact that the results may not be generalizable to other institutions or areas of the country.

A nonresponse error can affect the internal validity of the study. Electronic based methods have been shown to have a higher response rate than a paper-based survey (Greenlaw & Brown-Welty, 2009). In addition, use of an incentive increases response rate (Dillman, Smyth, & Christian, 2014).

Participants may provide inaccurate responses to the survey questions due to fatigue of a lengthy survey or misinterpretation of the question. This is considered a measurement error and is a threat to internal validity. To prevent this error, only instruments with the least number of questions and high reliability were used in this study. In this study, only the Openness subscale of the BFI-44 was used to avoid participant burden with the entire BFI-44 questionnaire.

**Protection of Human Subjects**

Approval to conduct the study was obtained through the university IRB associated with the site hospitals. Since the study was conducted at several hospitals within the same multi-institutional health system, under the health systems Research Integrity and Compliance policy, IRB approval from one setting within the system was sufficient for all settings within the study. IRB deemed this study to be exempt.
This study involved registered nurses from three Midwestern hospitals, Loyola University Medical Center, Gottlieb Memorial and MacNeal Hospital. These hospitals are a part of a larger healthcare system, Trinity Health. Participation in this study was voluntary. Participation did not impact the participants employment status. Managers and hospital administration were not be informed of who participated in the study or the individual results. All information was kept confidential and only aggregate data were reported.

An invitation to participate was sent to registered nurses at the three study sites. Participants completed an online questionnaire assessing perception of nursing presence, openness, fatigue, sleep impairment, and general demographics. Participant’s identity was protected through the use of a confidential electronic survey. There was minimal contact between the participants and the researcher other than presentation of the study at staff meetings and receiving an email invitation and reminder emails with instructions to participate in the survey. The survey contained demographic information about the participant. Computer IP addresses were not tracked. Participants received an electronic mail invitation to participate and were informed that the survey was completely voluntary and would in no way impact their employment. Participants who accessed the survey link were required to establish participation eligibility by completing eight screening questions. Only participants who meet the study eligibility requirements were able to proceed to the survey consent form. The consent form contained information regarding the nature of the study, its purpose, potential risks and benefits, and data collection procedures. A statement of confidentially was included to explain how participants rights to privacy would be upheld. No personal identification was attached to the survey.
Those who continued to the survey questions were providing implied consent. This information was included within the instruction for completing the survey. The online self-administered survey provided protection of human subjects since participants can choose whether to complete the survey and the researcher does not have direct contact with any of the participants or any identifiable personal information.
CHAPTER FOUR

RESULTS

This chapter will present a review of the results of this descriptive, correlational study examining the extent to which fatigue and openness predict nursing presence in nurses working in an acute care setting. Sample demographic characteristics will be presented followed by descriptive statistics for each of the variables. The results of the analysis of each aim will then be presented. The aims of this study were to: 1) Describe the relationships among nursing presence, fatigue, and openness and 2). Examine the extent to which openness moderates the relationship between fatigue and nursing presence while controlling for sleep impairment and years of experience. This chapter reviews the data analysis conducted using the Statistical Package for Social Science (SPSS software 24.0) (Chicago, IL). All analyses were conducted using the completed surveys. The survey was opened by 188 participants. Of the 188 responses, 177 participants completed the survey, and the remaining 11 surveys were not completed beyond the demographic data. Of the remaining surveys, <2.5% had missing data. No patterns were identified for the missing data and therefore, imputation of data was not required. Data were evaluated for outliers and extreme scores, and none were found.

Distributions of the data were examined using histograms. (see Figure 5 and Figure 6) The distributions for both the PONS-RN “being with” and “doing for” subscales indicate high levels of being with/doing for with a few respondents demonstrating below the central tendency.
Figure 5. Histogram for PONS-RN “Being With”

Figure 6. Histogram for PONS-RN “Doing For”
Each regression was evaluated for multicollinearity by examining the tolerance statistic and the variance inflation factor (VIF) for each pair of variables. The range for the tolerance statistic was .421-.950 for all regression models. A tolerance statistic less than 0.2 indicates a potential issue with collinearity (Field, 2018) and all tolerance statistics were greater than 0.2. VIF indicates whether a predictor has a strong linear relationship with the other predictors. A VIF statistic greater than 10 indicates a problem with collinearity (Field, 2018). The VIF statistics for this study ranged from 1.05 to 2.43. No severe problems of multicollinearity between variables were found in this study. Table 6 shows the Tolerance and VIF statistics for each of the predictor variables.
Table 6. Tolerance and VIF statistics for Regression Models “Being With” and “Doing For”

<table>
<thead>
<tr>
<th>Model 1 PONS-RN “Being With”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>95% Confidence Interval for β</td>
</tr>
<tr>
<td>Collinearity Statistics</td>
</tr>
<tr>
<td>Lower Bound</td>
</tr>
<tr>
<td>BFI Openness Subscale</td>
</tr>
<tr>
<td>.233</td>
</tr>
<tr>
<td>FAS</td>
</tr>
<tr>
<td>Sleep Impairment</td>
</tr>
<tr>
<td>-.056</td>
</tr>
<tr>
<td>Years of Nursing Experience</td>
</tr>
<tr>
<td>-.083</td>
</tr>
<tr>
<td>BFI x fatigue</td>
</tr>
<tr>
<td>-.034</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model 2 PONS-RN “Doing For”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>95% Confidence Interval for β</td>
</tr>
<tr>
<td>Collinearity Statistics</td>
</tr>
<tr>
<td>Lower Bound</td>
</tr>
<tr>
<td>BFI Openness Subscale</td>
</tr>
<tr>
<td>.100</td>
</tr>
<tr>
<td>FAS</td>
</tr>
<tr>
<td>Sleep Impairment</td>
</tr>
<tr>
<td>.039</td>
</tr>
<tr>
<td>Years of Nursing Experience</td>
</tr>
<tr>
<td>-.099</td>
</tr>
<tr>
<td>BFI x fatigue</td>
</tr>
<tr>
<td>-.021</td>
</tr>
</tbody>
</table>

Note:  
\( \text{PONS} = \text{Presence of Nursing RN Version}, \text{BFI} = \text{Big Five Inventory Openness Subscale}, \text{FAS} = \text{Fatigue Assessment Scale} \\

Sample

Participants were recruited from three acute care hospitals in the Midwest to participate in the study. Eligibility requirements were registered nurses who provided direct patient care for at least 80% of their work schedule and who worked greater than 20 hours per week. A total of 2170 registered nurses at the three site hospitals were contacted via electronic mail to participate
in the study. Three hundred and forty-one (15.7%) nurses opened the survey and of those who opened the survey, 177 (52%) nurses completed the survey during the 6-week recruitment period. An *a priori* power analysis estimated that 177 participants were required for adequate statistical power for each of the proposed aims. Thirteen (7.3%) were recruited from two community hospitals and the remaining 164 (92.7%) were recruited from an academic medical center. The number of nurses from each hospital is summarized in Table 7.

Table 7. Study Respondents by Hospital Type

<table>
<thead>
<tr>
<th>Hospital</th>
<th>N (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Hospitals</td>
<td>13 (7.3%)</td>
</tr>
<tr>
<td>Academic Medical Center</td>
<td>164 (92.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>177 (100%)</td>
</tr>
</tbody>
</table>

The hospitals included consisted of a 547-bed quaternary care academic medical center with ANCC Magnet designation, a 374-bed community hospital, and a 254-bed community hospital. The three hospitals are affiliated with a 92-hospital not-for-profit national health care system.

**Sample Characteristics**

Demographic data included age, gender, highest nursing degree held, years in nursing and type of patient care unit worked. The mean (SD) age of the participants was 38.33 (+11.4) years with a range of 23 to 65 years of age. Ninety-five percent of the participants were female, 4% were male and one participant preferred not to answer the gender question. Most of the participants had a baccalaureate degree (*n*=133, 75.1%) as the highest nursing degree held and 10.2% reported holding an associate degree in nursing. A high percentage of baccalaureate prepared nurses was expected since the academic medical center is also an ANCC Magnet
designated hospital and a high prevalence of baccalaureate prepared nurses is a criterion for ANCC Magnet designation. Fourteen percent of the respondents reported a master’s degree (n=25, 14.1%). The participants reported a mean of 13.3 (± 11.7) years in nursing. The distribution of patient care unit worked was 26.6% in the intensive care unit, 18.1% in a medical-surgical unit, followed by 15.3% in a procedural unit. Over 40% of the participants chose the “other” category for unit. The participants were asked to specify the nature of the unit when the “other” category was chosen. The units described included ambulatory, bone marrow transplant unit, cancer center, emergency department, float pool, labor and delivery, observation unit, operating room, post-anesthesia recovery room, and the progressive care unit. The mean timeframe working in the current patient care unit was 7.9 (± 8.4) years. The demographic data was similar among the three hospitals. Table 8 summarizes the characteristics of the participants.
Table 8. Descriptive Statistics of Study Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency/mean</th>
<th>Percent/standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>23-65 (range)</td>
<td>38.3 ± 11.4</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>169</td>
<td>95.5%</td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>4%</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Highest Nursing Degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>133</td>
<td>75.1%</td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>25</td>
<td>14.1%</td>
</tr>
<tr>
<td>Doctor of Nursing Practice</td>
<td>1</td>
<td>0.6%</td>
</tr>
<tr>
<td>Years in Nursing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years</td>
<td>9</td>
<td>± 11.6</td>
</tr>
<tr>
<td>Unit Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical-Surgical</td>
<td>32</td>
<td>18.1%</td>
</tr>
<tr>
<td>Intensive Care Unit</td>
<td>47</td>
<td>26.6%</td>
</tr>
<tr>
<td>Procedural Area</td>
<td>27</td>
<td>15.3%</td>
</tr>
<tr>
<td>Other</td>
<td>71</td>
<td>40.1%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>124</td>
<td>70%</td>
</tr>
<tr>
<td>Asian</td>
<td>18</td>
<td>10%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>23</td>
<td>13%</td>
</tr>
<tr>
<td>African American</td>
<td>5</td>
<td>3%</td>
</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>6</td>
<td>3%</td>
</tr>
</tbody>
</table>
Descriptive Analysis of the Variables

This section of the data analysis provides a summary of the findings of the primary study variables. The dependent variable of perceived nursing presence (“being with” and “doing for”), and the independent variables of fatigue and openness will be presented first, followed by a discussion of the co-variates of sleep impairment and years of nursing experience.

Nursing Presence

Kostovich’s Presence of Nursing Scale-RN version (Kostovich, Dunya, & Schmidt, 2016) was used to measure the nurses’ perception of their ability to be present with their patients. The PONS-RN is a 32-item instrument. The items fall into two subscales: “being with” subscale contains 12 items and “doing for” subscale contains 19 items. Total possible scores for the “being with” subscale range from 12 to 48 and the range for the “doing for” subscale was 19 to 76. Each subscale is scored separately by summing the number selected for each item by the respondent. Higher scores indicate higher levels of perceived ability to be present to patients. Cronbach’s alpha for the “doing for” subscale for this study was .94 and .89 the “being with” subscale consistent with excellent reliability for both subscales. For this study, the total scores for the “being with” subscale ranged 15 to 48 with a mean (SD) 37.7 (± 6.59). Total scores for the “doing for” subscale ranged from 24 to 76 with a mean (SD) 68.2 (±8.64). The higher scores for both subscales indicate moderate to high levels of perceived nursing presence.

Openness

The Big Five Inventory (BFI-44) (John & Srivastava, 1999) was used to measure openness. The BFI-44 is a self-report inventory that measures five personality traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness. For the purpose of
this study, only the Openness subscale was administered and scored. The Openness subscale consists of 10 items. Two items, number 7 and 9, are reverse scored. The score for the subscale is calculated as the mean of the items in the subscale for each trait. Scaled scores range from 1 to 5, with higher scores indicating higher levels of the trait. The total possible range of the mean score was 1 to 5. The Cronbach’s alpha for this study was .77, which indicates acceptable reliability (Salkind, 2015). For this study, the range of mean scores for the Openness subscale was 1.6 to 5.0 with a mean (SD) 3.64 (+ .58). The mean score in this study indicate moderate levels of openness for the participants.

**Fatigue**

The Fatigue Assessment Scale (FAS) (Michielsen, Devries, and Van Heck, 2003) was used to measure total fatigue in the previous 2-week timeframe. The FAS consists of 10 items rated on a five-point Likert-type scale. Five questions reflect physical fatigue, and five questions reflect mental fatigue. The total score determines the degree of general fatigue. Items 4 and 10 are reverse scored. Total scores range from 10, indicating the lowest level of fatigue, to 50 denoting the highest level of fatigue. Good reliability for this study for the FAS total score was indicated by a Cronbach’s alpha of .88. In this study, the range of total FAS scores was 11 to 42 with a mean (SD) 23.41 (± 6.85). The mean score indicates low to moderate levels of general fatigue experienced by the participants.

**Sleep Impairment**

The PROMIS Sleep-related Impairment (PROMIS-SRI Short Form) was used to measure the participants perception of sleepiness, alertness, and tiredness during normal wake hours. The PROMIS-SRI Short Form consists of eight questions asking the participant to reflect upon
the previous 7 days and rate their answer using a 5-point Likert-type scale ranging from “Not at All” to “Very Much.” One question is negatively worded. Scoring is based upon a sum of the raw score of all questions in the instrument for a total ranging from 8 to 40. Utilizing a table in scoring manual, the raw score is used to identify a T-score for each participant. The standardized scores have a mean of 50 and a standard deviation of 10. The higher the score indicates a higher degree of sleep impairment. The Cronbach-alpha for this study was good at .79. In this study, the range of scores was 38.70 to 73.40 with a mean (SD) 53.94 (+6.76) indicating moderate levels of sleep impairment experienced by the participants. Table 9 provides a summary of the descriptive statistics for the study variables.

Table 9. Summary of Descriptive Statistics for Main Tools and Subscales (N=177)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measure</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
<th>Cronbach alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Presence</td>
<td>PONS subscale “Being With”</td>
<td>37.71</td>
<td>+6.588</td>
<td>15.00-48.00</td>
<td>.89</td>
</tr>
<tr>
<td>Nursing Presence</td>
<td>PONS subscale “Doing For”</td>
<td>68.23</td>
<td>+8.64</td>
<td>24.00-76.00</td>
<td>.94</td>
</tr>
<tr>
<td>Openness</td>
<td>BFI total</td>
<td>3.64</td>
<td>+.575</td>
<td>1.60-5.00</td>
<td>.77</td>
</tr>
<tr>
<td>Fatigue</td>
<td>FAS total</td>
<td>23.41</td>
<td>+6.85</td>
<td>11.00-42.00</td>
<td>.88</td>
</tr>
<tr>
<td>Sleep Impairment</td>
<td>Sleep Impairment t-score</td>
<td>53.93</td>
<td>+6.76</td>
<td>38.70-73.40</td>
<td>.79</td>
</tr>
</tbody>
</table>

Note: *PONS* = Presence of Nursing RN Version, *BFI* = Big Five Inventory Openness Subscale, *FAS* = Fatigue Assessment Scale

**Data Analysis for Study Aims**

The purpose of this study was to explore the relationship among perceived nursing presence, openness, and fatigue in nurses working in an acute care setting. To better understand
the relationship among the variables, Pearson’s correlation coefficient was completed to assess the relationships among the primary variables (nursing presence, fatigue, openness). A regression analysis was then completed to examine the extent to which openness moderated the relationship between fatigue and nursing presence while controlling for sleep impairment and years of experience. The following is a discussion of the results for the two aims of this study.

**Aim 1**

The first aim was to describe the relationships among nursing presence, fatigue, openness. Five hypotheses related to each of the variables were identified for this aim. The first hypothesis was: perceived fatigue will be inversely correlated with perceived nursing presence as measured on the "being with” subscale of the PONS-RN. Pearson correlation analyses were used to examine the relationships among these variables. The “being with” subscale was negatively correlated with fatigue (FAS) ($r = -.331, p < .001$) indicating that nurses experiencing increased fatigue had a decreased perception of being emotionally present with the patient.

The second hypothesis for Aim 1 was perceived fatigue will be inversely correlated with perceived nursing presence as measured on the “doing for” subscale of the PONS-RN. Pearson correlation analyses were used to examine the relationships among these variables. “Doing for” and fatigue (FAS) were negatively correlated ($r = -.215, p < .001$) indicating that nurses experiencing greater fatigue had a lesser ability to do for the patient.

The third hypothesis for Aim 1 was openness will be positively correlated with perceived nursing presence as measured on the "being with” subscale of the PONS-RN. Pearson correlation analysis was used and identified the “being with” subscale of the PONS-RN was positively correlated with openness (BFI-Openness subscale) ($r = .386, p = 0.001$) suggesting that
nurses with higher levels of openness have a greater perception of being emotionally present with the patient.

The fourth hypothesis for Aim 1 was openness will be positively correlated with perceived nursing presence as measured on the “doing for” subscale of the PONS-RN. “Doing for” and openness (BFI-Openness subscale) were positively correlated ($r=0.275, p=0.001$) suggesting that nurses with a higher level of openness have a greater ability to perform those tasks needed for a patient.

The final hypothesis for Aim 1 was perceived fatigue and openness will be inversely correlated with one another. Pearson correlation analysis was utilized and identified fatigue and openness are inversely correlated ($r=-0.200, p=0.01$) suggesting that nurses with higher levels of perceived fatigue experience lower levels of openness.

Relationships among the primary variables of nursing presence (“being with” and “doing for”), fatigue, and openness and the covariate variables of sleep impairment and years of experience were considered. Sleep impairment (PROMIS Sleep Impairment) was negatively correlated with “being with” ($r=-0.168, p=0.05$), and positively correlated with fatigue ($r=0.742, p=0.01$). No significant relationships were identified among sleep impairment, “doing for” and openness. Table 10 lists the correlations among the primary variables and covariates.
Aim 2

Aim 2 was examining the extent to which openness moderates the relationship between fatigue and nursing presence (PONS-RN) subscales, “being with” and “doing for”, while controlling for sleep impairment and years of nursing experience. The relationships were examined using two models to account for each PONS-RN subscale “being with” and “doing for.” Two hypotheses were identified for Aim 2. The first hypothesis was openness will moderate the relation between fatigue and nursing presence as measured by the "being with" subscale of the PONS-RN. A multiple regression analysis was carried out to investigate the
extent to which openness (BFI-Openness subscale) and fatigue (FAS) predicted “being with.” All variables were entered simultaneously in the regression model. The results of the regression indicated that the model explained 20.4% of the variance in the dependent variable of “being with” \( R^2 = .20, \ F (5, 153) =9.12, \ p< .001 \). It was found that openness \( \beta=.40, \ p<.001 \) and fatigue \( \beta=-.35, \ p<.001 \) significantly predicted “being with.” Sleep impairment and years of nursing experience were not significant predictors in the model. In addition, the interaction term of openness and fatigue was not significant, indicating that openness was not a moderator in the model. The interaction term was computed by first centering the variables and then multiplying them to create the interaction. Table 11 summarizes the “being with” model.
Table 11. Multiple Regression Results: Predictors of “Being With”

<table>
<thead>
<tr>
<th>Predictor</th>
<th>b</th>
<th>SE</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFI-Openness Subscale</td>
<td>.400</td>
<td>.085</td>
<td>.349</td>
<td>.000</td>
</tr>
<tr>
<td>Fatigue</td>
<td>-.350</td>
<td>.107</td>
<td>-.359</td>
<td>.001</td>
</tr>
<tr>
<td>Sleep Impairment</td>
<td>.184</td>
<td>.122</td>
<td>.163</td>
<td>.133</td>
</tr>
<tr>
<td>Years of nursing experience</td>
<td>-.0002</td>
<td>.041</td>
<td>-.003</td>
<td>.969</td>
</tr>
<tr>
<td>BFI-Openness Subscale x Fatigue</td>
<td>-.010</td>
<td>.012</td>
<td>-.057</td>
<td>.433</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.204</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F(5, 153)$</td>
<td>9.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$p$</td>
<td>&lt;.001</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: b=unstandardized regression coefficient, SE = standard error, β = standardized coefficient, adjusted $R^2$=an unbiased estimate of the proportion of variance that the set of predictors as whole explains in the dependent variable

The second hypothesis for Aim 2 was openness will moderate the relation between fatigue and nursing presence as measured by the "doing for" subscale of the PONS-RN. A multiple regression was carried out to investigate the extent to which openness and fatigue predicted “doing for.” The results of the regression indicated that the model explained 12% of the variance in the dependent variable of “doing for” ($R^2 = .12, F (5,150) =5.1, p< .001$). It was found that openness ($β=.314, p<.001$) and fatigue ($β=-.452, p=.002$) predicted “doing for”. Sleep impairment and years of nursing experience were not significant predictors in the model. In addition, the interaction term of openness and fatigue was not significant, indicating that...
openness did not moderate between fatigue and “doing for.” Table 12 summarizes the “doing for” model.

Table 12. Multiple Regression Results: Predictors of “Doing For”

<table>
<thead>
<tr>
<th>Predictor</th>
<th>b</th>
<th>SE</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFI-Openness Subscale</td>
<td>.314</td>
<td>.108</td>
<td>.226</td>
<td>.004</td>
</tr>
<tr>
<td>Fatigue</td>
<td>-.452</td>
<td>.141</td>
<td>-.377</td>
<td>.002</td>
</tr>
<tr>
<td>Sleep Impairment</td>
<td>.361</td>
<td>.163</td>
<td>.257</td>
<td>.028</td>
</tr>
<tr>
<td>Years of nursing experience</td>
<td>.005</td>
<td>.053</td>
<td>.008</td>
<td>.923</td>
</tr>
<tr>
<td>BFI-Openness Subscale x Fatigue</td>
<td>.011</td>
<td>.016</td>
<td>.054</td>
<td>.492</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.117</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F$ (5, 150)</td>
<td>5.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$p$</td>
<td>&lt;.001</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: $b$=unstandardized regression coefficient, SE = standard error, $\beta$ = standardized coefficient, adjusted $R^2$=an unbiased estimate of the proportion of variance that the set of predictors as whole explains in the dependent variable.

The main effects of the model are easier to interpret without the non-significant interaction term. No significant differences in the results from the model including the interaction term were identified. Table 13 and 14 summarize the results for the model without the interaction term.
### Table 13. Multiple Regression Results: Predictors of “Being With” Without Interaction Term

<table>
<thead>
<tr>
<th>Term</th>
<th>b</th>
<th>SE</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFI-Openness Subscale</td>
<td>.395</td>
<td>.084</td>
<td>.344</td>
<td>.000</td>
</tr>
<tr>
<td>Fatigue</td>
<td>-.340</td>
<td>.106</td>
<td>-.348</td>
<td>.002</td>
</tr>
<tr>
<td>Sleep Impairment</td>
<td>.167</td>
<td>.120</td>
<td>.149</td>
<td>.163</td>
</tr>
<tr>
<td>Years of nursing experience</td>
<td>.003</td>
<td>.041</td>
<td>.006</td>
<td>.939</td>
</tr>
</tbody>
</table>

Adjusted $R^2$ .206

$F(4, 154)$ 11.274

$p$ <.001

Note: $b$=unstandardized regression coefficient, $SE$ = standard error, $\beta$ = standardized coefficient, adjusted $R^2$=an unbiased estimate of the proportion of variance that the set of predictors as whole explains in the dependent variable

### Table 14. Multiple Regression Results: Predictors of “Doing For” Without Interaction Term

<table>
<thead>
<tr>
<th>Term</th>
<th>b</th>
<th>SE</th>
<th>β</th>
<th>p</th>
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<tr>
<td>BFI-Openness Subscale</td>
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<td>.108</td>
<td>.230</td>
<td>.004</td>
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<tr>
<td>Fatigue</td>
<td>-.465</td>
<td>.139</td>
<td>-.389</td>
<td>.001</td>
</tr>
<tr>
<td>Sleep Impairment</td>
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<td>.160</td>
<td>.272</td>
<td>.018</td>
</tr>
<tr>
<td>Years of nursing experience</td>
<td>.001</td>
<td>.053</td>
<td>.002</td>
<td>.978</td>
</tr>
</tbody>
</table>

Adjusted $R^2$ .120

$F(4, 151)$ 6.302

$p$ <.001

Note: $b$=unstandardized regression coefficient, $SE$ = standard error, $\beta$ = standardized coefficient, adjusted $R^2$=an unbiased estimate of the proportion of variance that the set of predictors as whole explains in the dependent variable
No violations of assumptions were identified in the regression model. The first assumption is the relationship between the independent variables and the dependent variables are linear. Figures 7 to 10 depict the scatterplots that show this assumption has been met. The second assumption is there is no multicollinearity in the data. Analysis of the collinearity statistics show this assumption has been met as VIF scores were well below 10 and tolerance scores above 0.2. The third assumption was the values of the residuals are independent. The Durbin-Watson statistic shows this assumption has been met, as the obtained value was close to 2. The fourth assumption is the variance of the residuals is constant. The plot of standardized residuals versus standardized predicted values showed no evidence of funneling, suggesting the assumption of homoscedasticity has been met. The fifth assumption is the values of the residuals are normally distributed. The P-P plot for the model suggests the assumption of normality of the residuals have not been violated. The sixth assumption is there are no influential cases biasing the model. Cook’s Distance values were all under 1 suggesting individual cases were not unduly influencing the model. Table 15 summarizes the results for the assumptions.

Figure 7. Scatterplot for “Being with” subscale and FAS
Figure 8. Scatterplot for “doing for” subscale and FAS

Figure 9. Scatterplot for “being with” subscale and BFI openness
Figure 10. Scatterplot for “doing for” subscale and BFI Openness

![Scatterplot for “doing for” subscale and BFI Openness](image)

Table 15. Summary of Assumptions of Regression Model

<table>
<thead>
<tr>
<th>Collinearity Statistics</th>
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<td></td>
<td>Tolerance</td>
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<td>“Being with” Model</td>
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<td>Fatigue</td>
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<td>“Doing For” Model</td>
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<td>Openness</td>
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<tr>
<td>Fatigue</td>
<td>.965</td>
</tr>
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</table>
Figure 11. P-P Plot of Regression Standardized Residuals for “Being With”

Figure 12. P-P Plot of Regression Standardized Residuals for “Doing For”
Figure 13. Scatterplot for “Being With“

Figure 14. Scatterplot for “Doing For”
Summary of Results

Two aims with corresponding hypotheses to examine the extent to which fatigue and openness predict nursing presence in bedside nurses in acute care settings were investigated for this study. The following is a summary of the results presented in this chapter.

The first aim was to describe the relationships among nursing presence, fatigue, and openness. This aim was met, and all hypotheses were supported by the results of the Pearson correlation analyses. Openness, measured by the BFI-Openness subscale, was positively correlated with both PONS-RN subscales, “being with” and “doing for” suggesting that nurses with a higher level of openness had a greater perception of being emotionally present with the patient and a greater ability to perform tasks or do for the patient. Fatigue, measured by the FAS, was negatively correlated with both PONS-RN subscales, “being with” and “doing for”. This suggests that nurses with higher levels of fatigue had lesser perception of being emotionally present with the patient and a lesser ability to perform or do for the patient.

The second aim was to examine the extent to which openness moderates the relationship between fatigue and nursing presence (PONS-RN) subscales, “being with” and “doing for”, while controlling for sleep impairment and years of experience. The results of the multiple regression analysis for the first model, PONS-RN “being with”, explained 20.4% of the variance and were fatigue and openness were significant predictors in the model. Greater fatigue was associated with lower levels of “being with” and “doing for” and higher levels of openness was associated with higher levels of “being with” and “doing for”. However, the interaction term of openness and fatigue was not significant. Therefore, the hypothesis that openness will moderate the relation between fatigue and nursing presence as measured by the “being with” subscale was
not supported. Sleep impairment and years of nursing experience were also not significant predictors in this model.

The second multiple regression analysis for the PONS-RN “doing for model, explained 12% of the variance of “doing for” and fatigue and openness were predictors in the model. However, the interaction term of openness and fatigue was not significant in this model. The second hypothesis that openness will moderate the relation between fatigue and nursing presence as measured by the “doing for” subscale was not supported. Sleep impairment and years of nursing experience were also not significant predictors in this model. The second aim in this study was not supported by the data.
CHAPTER FIVE
DISCUSSION

This chapter provides a discussion of the key findings of this descriptive correlational study, how these findings relate to previous findings in the theoretical and empirical literature, a discussion of the strengths and limitations of this study, implications for nursing practice, administration, and education, and recommendations for future research.

There is a paucity of research that examines the environment and factors related to the ability of the nurse to be present with the patient. Presence is more than simply the physical existence or nearness with a patient. Nursing presence is the human connectedness shared with a patient that allows for and includes the emotional “being with” and the physical “doing for” the patient (Kostovich, 2012). Examining, describing, and gaining a better understanding of nursing presence and the factors that enhance or inhibit its existence is an important step toward creating the conditions needed to optimize and promote nursing presence.

The Model of Nursing Presence (Kostovich, 2012) guided this study. This study focused specifically on the portion of the model in which the nurse, as a focused observer, enters into a relationship with the patient through a shared openness. Three constructs were examined: nursing presence, openness, and fatigue. As this portion of the model illustrates, nursing presence can occur when the conditions of a shared openness between the nurse and the patient exist and the nurse has the capacity to be a focused observer. Fatigue was identified as the construct to
explore as a proxy of a focused observer. Fatigue and the detrimental effects of fatigue on a person’s physical ability, cognitive abilities, and their ability to be attentive is well documented in the literature. A report in the transportation industry identifies the impact of worker fatigue as a priority safety concern (Flin, Winter, Seracc, Raduma, 2009). Bosch and DeLange (1987) found nurses experiencing fatigue may fail to recognize changes in a patient’s condition. Therefore, this study explored the relationships between nursing presence, openness, and fatigue by (1) describing the relationships among nursing presence, openness, and fatigue and (2) examining the extent to which openness moderates the relationship between fatigue and nursing presence controlling for sleep impairment and years of experience. This study will add to the body of nursing knowledge by examining the factors associated with the development of nursing presence.

**Study Participants**

**Gender, Age, and Years of Nursing Experience.** The study was conducted at three acute care hospitals in the Midwest. The participants of this study consisted of registered nurses providing direct patient care for at least 80% of their work schedule and who worked greater than 20 hours per week. The demographic data revealed that participants were predominately female (95.5%). The mean age of the participants was 38 years (SD ±11.4) with a mean which represents a young nursing workforce. The participants had a mean years of nursing experience of 13.3 years (SD+11.7). The study participants represent a younger, less experienced nursing workforce than described by the 2017 National Nursing Workforce Study (National Council State Boards of Nursing, 2017). The National Nursing Workforce Study which provides data on the characteristics of the nursing workforce across the United States through a collaboration
between the National Council of State Boards of Nursing and The National Forum of State Nursing Workforce Centers, found nationwide, 90.9% of nurses were female with the average age of all respondents being 51 years of age which is a slightly older average age of nurses (average of 51 years versus 38 years in this study) and with more years of work experience (21 years) than the participants in this study (13.3 years). The difference in age and years of nursing experience can be accounted for by the fact that the National Nursing Workforce Study included over 48,700 nurses working in all types of healthcare employment settings across the United States versus this study, which only included 177 nurses working in the three acute care hospital sites.

**Highest Academic Degree.** The highest nursing degree achieved was reported as a baccalaureate in nursing by 75.1% of the participants in this study. The higher percentage of baccalaureate prepared nurses participating in this study could be reflective of the work environment. Of the 177 participants who completed the survey, 92.7% of the participants were employed at an ANCC Magnet designated academic medical center, while the remaining worked at the community hospitals. A criterion for ANCC Magnet designation is a nursing workforce that is predominantly baccalaureate prepared. The differences in demographics of the participants to that of overall national nursing demographics should be taken into consideration when generalizing the findings of this study.

**Nursing Presence**

This study examined the nurse’s perception of their ability to be present with their patients while providing direct patient care on acute-care nursing units. Nursing presence is a fundamental component within the nurse-patient interaction (Gardner, 1991; Covington, 2005;
Watson 2008) and the purpose and importance of presence within the nurse-patient relationship continues to be explored. Nursing presence for this study, was measured with the PONS-RN (Kostovich, Dunya, Schmidt, 2016) and included two subscales, “being with” and “doing for.” The PONS-RN was chosen for this study because it measures the nurse’s perception of their ability to be present with their patients and was congruent with the Model of Nursing Presence (Kostovich, 2012) that guided this study.

In this study, the mean scores for both the PONS-RN subscales of “being with” (37.7, ±6.59) and “doing for” (68.23, ±8.64) which indicates high levels of perceived nursing presence and suggest the nurses in this study had a good capacity to be present with their patients. Unfortunately, there is a paucity of research studies using the PONS-RN and only one study was found in the literature to use for comparison. Kostovich (2017) measured pre- and post-PONS-RN scores in a study that explored the impact of utilizing an internet mantram repetition program (I-MRP) for nurses caring for hospitalized Veterans to facilitate patient centered care. The mean PONS-RN scores for both subscales increased following the I-MRP intervention. Post I-MRP intervention, scores on the PONS-RN “being with” subscale demonstrated a mean increase of 2.3 (±4.98), and a mean increase on the PONS-RN “doing for” subscale had a mean increase of 0.73 (±7.41). The mean post I-MRP intervention scores on the “being with” subscale was 38.8 (+ 4.27) and the “doing for” subscale was 66.1 (+6.1) suggesting the nurses had a high perception of being emotionally with the patient. The post I-MRP intervention PONS-RN scores reflect high levels of perceived nursing presence and are similar to the PONS-RN scores in the current study which also indicate high levels of perceived nursing presence.
Openness

Openness is an important component of nursing presence. Kostovich (2012) describes nursing presence as occurring through a shared openness between the nurse and the patient. Openness has been described as a necessary requirement of nursing presence and within the goal directed encounter between the patient and the nurse (Kostovich, 2012; Mohnkern, 1992; Mock & Schafer, 1992). The requirement of openness as an important factor for presence to occur supports the need to examine the relationship of openness and nursing presence. Openness was measured using the Big Five Inventory (BFI-44) (John & Srivastava, 1999). The BFI-44 scale is the most extensively used instrument to measure personality traits (John, et al., 2008; Gosling, Rentfrow, & Swann, 2003) and has been widely used to examine personality in healthcare providers (Ntantana, Matamis, Savvidou, Giannaku, Gouva, Nakos, et al., 2017; Martinez-Zaragoza, 2018; Zaininotto, Rossi, Daieli, Frasson, Meneghetti, Zordan, et al., 2018). Only the openness subscale of the BFI-44 was used in this study.

The mean BFI-Openness subscale scores of the participants in this study was 3.64 (SD=+ .575, range 1-5) indicating on average, the participants reported a moderate to higher degree of openness. Low scores would indicate traits of nonconformity and rigidity and closed to experience, while higher scores indicate imagination and creativity and an openness to experience. (John, Naumann & Soto, 2008). There is no published research measuring the connection between openness and nursing presence and thus, indicates a need for increased research.

In a descriptive correlational study of 116 obstetrics and gynecology physicians, the authors examined the influence of environmental and personality factors on the development of
burnout syndrome (Iorga, Socolov, Muraru, Dirtu, Soponaru, Ilea, et al., 2017). The study participants included 116 physicians, 70% were female, age range was 25 to 68 years with 34.5% less than 30 years old, and the mean years of experience was 12.94 (SD=±10.94). Using the BFI-44 Openness subscale, Iorga, et al (2017) reported openness scores of 3.60 (± 0.57) indicating moderate levels of openness in both male and female participants. In addition, the study found depersonalization scores negatively correlated with openness ($r = -.231$, $p = .019$) but emotional exhaustion did not significantly correlate with openness ($r = -.148$, $p = .112$). Both depersonalization and emotional exhaustion were measured with the Maslach Burnout Inventory. This result suggests participants with higher levels of openness exhibit lower depersonalization factors leading to burnout, including emotional coldness and impersonal reactions. The participants of this study were predominately female and had mean openness score of 3.64 (±.57). However, in the current study, Pearson correlation analysis demonstrated a significant negative correlation between openness and fatigue ($r = -.200$, $p < .001$) which differs from the results found by Iorga et al. While the current study measured general fatigue using the FAS, and Iorga et al, (2017) measured depersonalization and emotional exhaustion using the Maslach Burnout Inventory. Depersonalization has been characterized as resulting from mental and emotional fatigue (Kahill, 1988; Jackson & Maslach, 1982). The results of both studies suggest a negative relationship between openness and emotional fatigue.

Emotional fatigue is often associated with depersonalization. In a study of 188 registered nurses, Zellars, Perrewe, & Hochwarter (2000) used the BFI-44 to measure openness and found openness negatively predicting depersonalization ($\beta = -.11$, SE = .13, $p < .10$) but did not significantly predict emotional exhaustion ($\beta = -.01$, SE = .15). The 188 participants were
predominately female (90%), with a mean age of 40 years (SD=± 8). The mean BFI-Openness subscale score was 3.37 (SD=± .47) which was similar to the mean openness score found in the current study. As previously described, depersonalization has been characterized as resulting from mental and emotional fatigue (Kahill, 1988; Jackson & Maslach, 1982) suggesting a negative relationship between openness and fatigue.

The results of these studies suggest that the personality trait of openness is related to depersonalization which may be a result of emotional and mental fatigue. Doona (1997) suggested that depersonalization can be used as a proxy for openness. A person experiencing depersonalization has feelings of being detached from their personal self (Porter & Kaplan, 2018) and may be unable to give of themselves to others (Permarupam, Mamun, Hayay, Saufi, & Sang, 2020; McMahon & Christopher, 2011). This supports the need for further research to explore a relationship between nursing presence, level of depersonalization experienced by nurses, and levels of openness.

**Fatigue**

The Model of Nursing Presence includes the nurse as a focused observer and levels fatigue was used a proxy. Nurses that experience fatigue may be unable to focus leading to a failure to recognize changes in the patient’s condition and the inability to respond quickly or correctly (Boscch & DeLange, 1987). For the purpose of this study, total fatigue was measured with the Fatigue Assessment Scale (FAS), a criterion referenced measure that includes both physical and mental fatigue in the total score (Michielsen, Devriess, and Van Heck, 2003). The FAS measures total fatigue in the previous 2-week timeframe and has been widely used to measure fatigue in patients with chronic illnesses (Ramirez-Moreno, Munoz-Vega, Alberca, &
Peral-Pacheco, 2019; Devries, Michielsen, Van Heck, & Drent, 2004), shift workers (Sagherian, Geiger-Brown, 2016), and mental health professionals (Tzeletopaulou, Arikari, Krikelis, Zyga, Tsirani, Lavdaniti, et al., 2019). However, there is a gap in the literature utilizing the FAS to examine fatigue in nurses.

The mean FAS total fatigue score in the current study was 23.3 (SD=± 6.85) which is consistent with substantial fatigue, while ten participants (5.7%) scored within the extreme fatigue range. FAS total fatigue scores of 10-21 indicate no or low levels of fatigue, scores of 22-50 indicates substantial fatigue, with scores > 35 indicating extreme fatigue. The results of this study indicate a majority of the participants experienced fatigue in the significant range.

Fatigue is a common complaint by nurses and is often associated with ongoing work-related demands and job stressor (Kubo, 2013). Fatigue is also a common complaint by nurses working the night shift (Kunert, King, Kolkhorst, 2007; Bohle & Tilley, 1993; Novak & Auivil-Novak, 1996; Oginska, Pokorski, & Oginski, 1993).

Adkins (2018) utilized the FAS to measure fatigue in registered nurses for the purpose of developing an evidence-based organizational fatigue climate assessment tool to understand the current culture of an acute care hospital as it relates to fatigue. The study population was small and consisted 41 registered nurses. 96.8% of the participants were female between the ages of 35-44 years. The mean FAS total fatigue score was 25.5 (SD=±4.8). Over 77% reported FAS total fatigue scores consistent with the substantial fatigue range and 1 participant scored in the extreme fatigue range. Johnston et al. (2018) reported progressively increasing fatigue levels in nurses while working a 12-hour shift. Using a 4-item energetic arousal scale of the UWIST mood scale, nurses were asked to rate their fatigue level every 90 minutes. All participants in the
study showed increased fatigue over the work period with slightly greater increase for nurses working the overnight shift. The study found that fatigue increased over the 12-hour shift but did not correlate with increasing energy expenditure. These results suggest that fatigue that increases over time can be a result of the length of the work shift and not always correlated with energy expenditure. The results of both studies indicate the presence of moderate to high levels of fatigue amongst nurses and is consistent with the fatigue levels experienced by the nurses of the current study.

Fatigue has been demonstrated to impact a person’s cognitive ability as well as the ability to perform tasks (Xing, Zhong, Luo, Rose, Antwi-Afari, 2020; Barker & Nussbaum, 2011; Rogers, 2008; Landrigan et al., 2004, Owens, 2001). Xavier, Ting, & Fauzan (2019) explored fatigue in relationship to EEG patterns among post-call physicians. Seven physicians participated in this study including 2 female and 5 male physicians with a mean age 30.1 years (SD= 1.57). All physicians were assessed post call. The mean hours being awake was 33.3 hours (SD=± 1.88) with a mean sleep duration of 1.5 hours (SD=±0.87). The FAS total fatigue score post-call for all participants was > 22 indicating significant fatigue. EEG results measuring alpha, beta and theta waves demonstrated more strain while carrying out a task. These results suggest that physicians with higher fatigue scores had an increased difficulty in carrying out tasks. While task performance in the Xavier, et al. study was measured differently than the PONS-RN “doing for” subscale, the results of both studies suggest a decreased ability to perform tasks or “do for” the patient as a result of fatigue.
Covariates

Years of Nursing Experience Years of nursing experience was included as a covariate in this study. Years of nursing experience were obtained from the demographic data. The participants in this study had a mean of 13.3 years (SD=± 11.7) of nursing experience. This mean years of experience in this study is lower than the years of experience from the National Nursing Workforce Study (National Council State Boards of Nursing, 2017) which was reported as a median of 21 years indicating that the participants in this study were less experienced than the national median.

Total fatigue was found to be negatively correlated with years of experience ($r = -0.227$, $p=.003$) which suggests nurses with greater number of years of experience report lower levels of total fatigue. These results are similar to a study by Yu, Sommerville, and King (2019) which found years of nursing experience was moderately negatively correlated with acute fatigue in critical care nurses ($r^2=-0.27$, $p=0.03$) and indicates nurses with greater years of experience lower levels of fatigue than nurses with less years of experience.

Sleep Impairment. Sleep impairment scores were measured using the PROMIS Sleep-related Impairment (PROMIS-SRI Short Form). Sleep requirements vary for each person and therefore, solely controlling for hours of sleep would not be indicative of sleep impairment. The PROMIS-SRI Short Form is a universal measure of the level of alertness, sleepiness, and function within the context of overall sleep-wake function during the wake-cycle (Cella, et al., 2010). The scores for the PROMIS-SRI Short Form range from 30 to 81. A higher score indicates a higher degree of sleep impairment. The mean PROMIS-SRI Short form score in this
study was 53.93 (SD=±6.76) indicating the participants reported moderate degree of sleep impairment (Yu et al., 2011).

In a study demonstrating a link between sleep impairment and fatigue, examining sleep quality, fatigue and cognitive performance in nurses working the night shift, Kaliyaperumal, Elango, Alagesan, & Santhanakrishanan (2017) examined the relationship between sleep quality, fatigue and cognitive performance in nurses working the night shift. Poor sleep quality, led to fatigue in 69% of nurses and resulted in a higher level of mathematical errors, vigilance, and memory tests. Impairment in cognitive performance, measured by the Montreal Cognitive Assessment questionnaire, was statistically significant (p<0.001) among nurses working the night shift.

**Discussion of Major Findings Related to Aims and Hypotheses**

Kostovich’s Model of Nursing Presence (2012) guided this study. In particular, the portion of the model in which the nurse, as a focused observer, enters into a relationship with the patient through a shared openness guided the study aims. This portion of the model is depicted in Figure 15. The following section will discuss the results for each of the study aims and corresponding hypotheses.

Figure 15. Modified Version of Kostovich’s Model of Nursing Presence
Discussion of Aim One

The first aim was to describe the relationships among nursing presence, fatigue, and openness. This aim reflects the portion of the Model of Nursing Presence (Kostovich, 2012) which describes the process of nursing presence where the nurse, as a focused observer, enters into a relationship with a patient through a shared openness. For this study, only nurse openness was operationalized, and openness of the patient was not measured.

Significant correlations were found between the variables with openness being positively correlated to the PONS-RN subscales “being with” and doing for”, fatigue was negatively correlated with the PONS-RN subscales “being with” and “doing for”, and fatigue and openness were inversely correlated with one another.

Fatigue and Nursing Presence

The first hypothesis was perceived fatigue will be inversely correlated with perceived nursing presence as measured on the “being with” subscale of the PONS-RN. Pearson correlation analysis was performed to examine the relationship of fatigue and the PONS-RN “being with” subscale. The mean FAS total fatigue score in this study was 23.10 (SD +6.68) indicating the participants experienced significant levels of total fatigue. The Pearson correlation for FAS total and “PONS-RN “being with” subscale was negatively correlated (r=-.331, p=0.01). This finding suggests that nurses experiencing increased fatigue had a lesser ability to be emotionally present with the patient. The results support the first hypothesis and the Model of Nursing Presence (Kostovich, 2012) in which the nurse needs to be a focused observer in order to be present to the patient.
The second hypothesis was perceived fatigue will be inversely correlated with perceived nursing presence as measured on the “doing for” subscale of the PONS-RN. Pearson correlation between the PONS-RN “doing for” subscale and the FAS Total fatigue score was negatively correlated ($r = -0.215, p = 0.01$). This suggests that nurses with higher levels of fatigue have less ability to do for the patient. The second hypothesis was supported.

The relationship between fatigue and nursing presence is important in having a connectedness or presence with patients and to be able to be aware of changes in the patients’ condition. Nurses that experience fatigue may be unable to possess the cognitive and attentive focus needed to recognize changes in the patient’s condition and therefore, be unable to respond quickly or correctly leading to missed cues or failure to rescue events (Bosch & DeLange, 1987). Mental fatigue has been linked to a decrease in motivation for activity that requires effort as well as impaired task performance (Hopstaken, Van der Linden, Bakker, Kompier, 2015). In a study looking at the moderating effects of a psychosocial safety culture on fatigue and work engagement in teachers, acute fatigue was found to be significantly negatively related to work engagement ($r = -0.32, p < 0.01$) (Garrick, Mak, Cathcat, Winwood, Baker, & Lushington, 2014) indicating fatigue workers are less engaged in their job performance or responsibilities. Work engagement was described as a cognitive-affective state of vigor, dedication, and absorption to meet the daily demands of job and is strongly related to employee well-being and job performance. Work engagement is similar to the emotional and physical connectedness and the ability to be emotionally present and do for the patient that occurs in nursing presence.

This study demonstrated a significant negative relationship between fatigue and nursing presence on both subscales. While there are no other studies looking at the relationships between
fatigue and nursing presence, there is evidence of related constructs, such as work engagement and cognitive and attentive focus, that support the findings of this study.

**Openness and Nursing Presence**

The third hypothesis examined was openness would be positively correlated with perceived nursing presence as measured on the “being with” subscale of the PONS-RN. Kostovich’s model (2012) states a shared openness is necessary between a nurse and a patient for nursing presence to occur. Pearson correlation analyses showed the PONS-RN “being with” subscale significantly positively correlated with openness \( (r=.386, p=<.001) \). This finding suggests that nurses with higher levels of openness have a greater capacity to be emotionally present with the patient. This supports Kostovich’s (2012) Model of Nursing Presence in which the nurse, as a focused observer, enters into a relationship with the patient through a shared openness. This is also consistent with Halldorsdottir (2008) who examined nurse patient relationships and described openness in communication as building a bridge to a nurse-patient relationship. This hypothesis was supported.

The fourth hypothesis was openness will be positively correlated with perceived nursing presence as measured on the PONS-RN “doing for” subscale. The Pearson correlation analysis showed a positive correlation between the PONS-RN “doing for” subscale and openness \( (r=.275, p=<.001) \) which suggests that nurses with higher levels of openness have a greater capacity to perform the tasks needed for a patient. The fourth hypothesis was supported.

A shared openness is a necessary component for nursing presence in The Model of Nursing Presence (Kostovich, 2012). In this study, openness as measured on the BFI-44
Openness subscale, was positively correlated with both the “being with” and the “doing for” subscales on the PONS-RN which supports the Kostovich model.

Employees with higher levels of openness have higher motivation and energy to be engaged at work. A study exploring the relationship of the Big Five Personality traits, and work engagement in 1050 adult workers, openness and work engagement were significantly related \((r=.31, p=.01)\) (Akhtar, Boustani, Tsivrikos, Charmorro-Premuzic, 2015). Another study by Ongore (2014) looking at the relationship of personality traits and work engagement in personal at an academic university. Openness, measured by the Five Factor Personality Scale, was found to be a significant predictor of physical engagement \((r=.40, p<.01)\), emotional engagement \((r=.431, p<.01)\), cognitive engagement \((r=.518, p<.01)\), and overall job engagement \((r=.534, p<.01)\). These findings support the role of openness on engagement for workers in professional roles. For nurses, physical, emotional, and cognitive engagement reflects the emotional connectedness and doing for patients in the Presence of Nursing Model. In a study of 166 nurses in Pakistan, openness was significantly related to high patient satisfaction \((r=.106, p<.01)\). Nurses with higher levels of openness are better able to deal with patients and explore diverse opportunities in tough situations (Vitello-Ciccu, 2002).

While there is no research exploring openness and nursing presence, concepts reflecting similar characteristics to the “being with” and “doing for” subscales of the PONS-RN can be used to support the role of openness in nursing presence. The concepts of physical, emotional, and cognitive engagement, patient satisfaction, and connectedness can be reflected in the Model of Nursing Presence and have been shown to be significantly related to openness. Further research examining the relationship between these concepts and nursing presence is warranted.
Fatigue and Openness

The final hypothesis for Aim 1 was perceived fatigue and openness would be inversely correlated with one another. The Pearson correlation analysis showed a negative correlation ($r=-.200, p=<.001$) which is significant and supports this hypothesis. This indicates that nurses with higher levels of fatigue have a lesser capacity for openness.

Personality traits such as openness, while predominately stable characteristics of a person, are inherently dynamic and can interact with a person’s experience with opportunities and challenges (McCrae & Costa, 1994). The results of this study suggest openness is susceptible to the influence of fatigue. However, this study measured fatigue and openness only at one point in time. A longitudinal study would be needed to examine the influence of differing fatigue levels over time on one nurse’s degree of openness.

The relationship between openness and fatigue is not well understood. In a study examining the relationship of personality traits and sleep disturbances of undergraduate students, the authors hypothesized openness, measured with the BFI-44, would be positively associated with sleep since openness is a positive personality trait characterized by attentiveness to feelings and new ideas (Emert, Tutek, Lichstein, 2017). The participants had a mean openness score of 3.35 ($\pm 0.6$). However, the results were inconsistent with the hypothesis and demonstrated participants higher in openness had more severe insomnia symptoms ($\beta=.08, p= <.05$). The authors of the study speculated the inconsistency of their hypothesis was because persons with higher openness traits may experience poor sleep hygiene due to engaging in stimulating or spontaneous activities that disrupt sleep schedules (Emert, Tutek, Lichstein, 2017). Further
research exploring the relationship of openness and sleep impairment over time is warranted to gain a better understanding of this relationship.

**Discussion of Aim Two**

The second aim for this study was to examine the extent to which openness moderates the relationship between fatigue and nursing presence controlling for sleep impairment and years of experience. Moderating variables affect size or direction of the relationship between two other variables (Field, 2018).

The first hypothesis was openness will moderate the relation between fatigue and nursing presence as measured by the “being with” subscale of the PONS-RN. The multiple regression to examine the extent to which openness and fatigue predicted PONS-RN subscale “being with” indicated that the model explained 20.4% of the variance ($R^2=.204$, $F (5, 153) = 9.12, p<.001$).

Furthermore, it was found that individually, openness ($\beta=.40, p<.001$) and fatigue ($\beta=-.35, p<.001$) significantly predicted “being with”. However, the interaction term of openness and fatigue was not significant ($\beta=-.06, p=.433$) indicating that openness was not a moderator in the model. Therefore, this hypothesis was not supported. This finding can indicate that fatigue is a state and is not influenced by the nurse’s degree of openness which is a personality trait. Fatigue may be the overarching factor in determining the nurse’s ability to be emotionally present with the patient. When fatigue is present, openness does not have an influence on nursing presence.

The second hypothesis for Aim 2 was openness will moderate the relation between fatigue and nursing presence as measured by the “doing for” subscale of the PONS-RN. The results of the multiple regression indicated that the model explained 12% of the variance in the dependent variable of “doing for” ($R^2 = .117$, $F (5,150) =5.12, p < .001$). It was found that
openness ($\beta=.314, p<.001$) and fatigue ($\beta=-.452, p=.002$) predicted “doing for”. This result was significant. However, the interaction term of openness and fatigue was not significant ($\beta=.06, p = .492$) and this hypothesis was not supported. This finding indicates that fatigue is not influenced by the nurse’s degree of openness and fatigue may be the overarching factor in determining the nurse’s ability to do for the patient.

As previously discussed, openness as a personality trait is considered relatively stable over time and can influence behavior. Personality traits have also been described as being dimensional across a spectrum (Muhammad, Mahrulk, Yasar, Asim, Irfan, 2016). Fatigue is a common symptom and is a result of situational experiences such as extended awake times, inadequate recuperation time, stress, physical strain, and overwork. As a symptom, fatigue levels can change overtime in relation to the experiences impacting an individual person. For example, a person experiencing a situation in which they are working overtime or have a heavier than normal workload may develop fatigue resulting from the specific situation even when the individual does not normally experience fatigue. In addition, individuals have differing neurobehavioral performance in response to fatigue, despite inherent personality traits (Dorrian, Wagganor, Centofanti, Roma, et al., 2019). Individuals may not be aware of their vulnerability to fatigue and think they are functioning well in response to fatigue and in congruence with their personality traits. More research is needed to better understand the relationship of fatigue on personality traits such as openness.

**Summary of Major Findings**

A positive correlation exists among the study variables of nursing presence and openness suggesting nurses with higher levels of openness have a greater capacity for “being with” and
“doing for” patients as described in the Model of Nursing Presence. Fatigue is negatively correlated with “being with” and “doing for” suggesting that nurses with higher levels of fatigue have a decreased capacity to be emotionally present with the patient and a lesser capacity to do for the patient.

In the regression models, openness and fatigue significantly predicted the nursing presence subscales, “being with” and “doing for.” However, the interaction term of openness and fatigue was not significant. This indicates that the effect of one predictor variable (openness) on dependent variable (nursing presence) does not affect the other predictor variable (fatigue). While individually, openness and fatigue are correlated with nursing presence, they function independently. Openness does not moderate the relationship between fatigue and nursing presence. Sleep impairment and years of experience were also not significant predictors in these models.

This study was novel not only in exploring the relationships between nursing presence, openness, and fatigue, but also in exploring openness and fatigue as predictors of nursing presence. There is a scarcity of research to support or dispute the relationships or predictive value of these constructs. However, comparisons can be drawn from research examining similar or associated concepts, such as depersonalization or emotional fatigue, to help develop future research. The importance of nursing presence in providing quality care and improving patient experience has been supported in the literature. Continued research examining environmental, physical, and emotional factors which influence the development of nursing presence will provide important information to aid in enhancing the role and work milieu of the nurse.
**Study Limitations**

This study adds to the body of nursing knowledge by exploring relationships of conditions which impact the ability for the nurse to be present with patients. There are limitations in all research studies and the findings of this study should be interpreted with caution due to study limitations. An important limitation of a correlational design is the inability to draw conclusions about the casual relationships of the measured variables. A positive correlation will only support the hypothesis but will not demonstrate causation (Stanger & Walinga, 2019). The sample was a convenience sample of nurses at an academic medical center and two community hospitals. Participants were primarily female, baccalaureate prepared nurses. There was limited representation from male nurses and associate/diploma prepared nurses.

A second limitation was related to the use of self-report data. Participants were asked to complete the survey questions honestly and completely. Self-report data has the potential to be inaccurate (Yu, 2018). Participants may have answered the questions according to what they thought was the correct answer or may have interpreted the question or answer different from the intent.

A third limitation is the nursing unit type due to the use of a nonrandom convenience sample. A larger proportion of critical care nurses (26.6%) compared to medical-surgical nurses (18.1%) participated in the study. While the difference between the number of participants in each group is 8.5%, the relational process of nurses may differ with each of these types of nursing units. In a critical care unit, the nurse patient ratio is less than on a medical-surgical unit and therefore, the time spent with a patient differs. In addition, the reliance upon technology to assist in monitoring patients in the critical care area may decrease nursing presence. Patients in
critical care areas may have altered levels of consciousness which may alter the interaction between the nurse and patient.

The fourth limitation is this study is the tool used to measure fatigue and openness. This study utilized the FAS to measure fatigue and the BFI-44 Openness subscale to measure openness however, few studies were reported that used the FAS and BFI in registered nurses providing bedside care in acute care environments. Additionally, the FAS measures both physical and mental fatigue for a total general fatigue score. Focusing on only one dimension of fatigue may produce differing results. Unlike physical fatigue, mental fatigue may not be relieved by sleep or rest. Mental fatigue has higher negative correlations with performance measures than physical or total fatigue (Barker & Nussbaum, 2011). In addition, measures of mental fatigue have been examined with depersonalization and depersonalization has been studied in relation to openness.

Implications for Nursing Knowledge and Practice

This study adds to the body of nursing knowledge by examining relationships of the factors, openness, and fatigue, which impact the ability of the nurse to demonstrate nursing presence with patients in an acute care setting. Fatigue negatively correlated with both the “being with” and “doing for” PONS-RN subscales. This suggests that nurses with higher levels of fatigue have a lesser ability for nursing presence. These results are supported by other literature that described healthcare providers who experienced compassion fatigue found it harder to engage with patients with compassion or empathy (Austin, 2011; Stewart, 2009). Exploring ways to mitigate nursing fatigue, such as changes in nurses’ schedules or nurse’s workload, may reduce this barrier to nursing presence. The American Nurses Association’s position statement
(American Nurses Association, 2014) stresses the importance of reducing fatigue amongst nurses through encouraging the practice of healthy behaviors, taking scheduled meals and breaks during the work shift, and managing overall health and stress. The statement also includes recommendations for employers to establish a culture of safety, utilize evidence-based practice policies to promote healthy work environments and ensuring safe levels of staffing and scheduling policies to minimize the risk of fatigue from strenuous schedules. Increased awareness of factors contributing to mental and compassion fatigue is another area that can aid in optimizing conditions for nursing presence. Nurses should be educated on the causes, signs, and interventions of mental and compassion fatigue. Nurse leaders and administrators need to ensure systems are in place to help identify and allay symptoms of fatigue for their employees.

Several nursing theorists describe the ability for nursing presence (Watson, 1999; Henderson, 1960). A better understanding of the workload and work roles of the nurse is important in exploring the nurse’s capacity for nursing presence and to optimize the circumstances that promote nursing presence.

Nursing care and the nurse patient interaction play a role in the patient’s perception of quality of care, as well as patient experience. In addition, the lack of nursing presence and focused care has been shown to be related to the development of nursing errors (Rainbow & Steeege, 2017; Roth, Brewer, & Wieck, 2017). An understanding of the impact nursing presence has on both quality metrics and patient experience can lead to designing improved healthcare service environment and processes that enhance interactions between nurses and patients.

It is important to study the environment within which nurses interact with patients to gain a better understanding of the forces which impact the care and interactions that occur between
nurses and patients. This knowledge can be used to create healthy work environments which support positive interactions between the nurse and patient and to decrease adverse events such as medical errors. A component of nursing presence is the nurse as a focused observer who develops a connectedness with the patient. Being a focused observer and having a connectedness with the patient aids the nurse in identifying subtle cues related to changes in the patient’s condition and allows for earlier identification of adverse events (Turpin, 2014; Dochtermann & Belecheck, 2004). Identifying those factors which promote nursing presence and allows the nurse to be a focused observer can potentially improve patient safety and patient satisfaction.

**Implications for Future Research**

Nurses have a primary responsibility for the care of patients during acute care inpatient hospitalizations and provide a predominant attendance with the patient. Nursing presence is an important component in providing nursing care. Factors that enhance or inhibit the ability of the nurse to provide nursing presence are important to identify and study. This study is the first study to show a relationship between nursing presence, openness, and fatigue. Further research is needed to explore these relationships with a wider, more diverse nursing population to explore cultural and gender influences on nursing presence. In addition, this study warrants further research to explore the relationship between nursing presence and cognitive performance measures. Does a higher degree of nursing presence impact the nurse’s cognitive performance measures and improve patient outcomes? The cognitive performance by nurses could include early awareness and identification of subtle changes in the patient condition to prevent adverse events or failure to rescue. This may also include the nurses heightened awareness and
understanding of the patient’s response to illness and therapeutic interventions to aid nursing judgement in developing an individualized plan of care to best treat the patient and improve patient satisfaction with care.

This study is significant because it is showed a relationship between degree of openness and perceived nursing presence by nurses. While personality factors such as openness are inherent to a person (Han & Pistole, 2017) and relatively stable, personality traits are also dynamic and malleable. Understanding how openness can be impacted by factors within the work environment and exploring opportunities to increase or enhance a nurse’s ability to be open is an important area of research. Employing non-psychopharmacological interventions for volitional personality trait changes (Hudson & Fraley, 2015; Jackson, Hill, Payne, Roberts, Stine-Morrow, 2012) is an emerging area of research. For example, exploring if being aware of one’s own level of personality traits such as openness and utilizing guided interventions to increase the trait. Or if a simple awareness of one’s own level of openness allow for more informed interventions to minimize personal reactance and improve the effectiveness of developing a presence or relationship with patients.

Fatigue is a common complaint by nurses and is manifested through a variety of dimensions such as compassion fatigue, physical fatigue, or work stressors leading to mental fatigue and burnout (Flores & Sasangohar, 2018). This study demonstrated a relationship between general fatigue and nursing presence. Further research is needed to explore a relationship between nursing presence and other specific dimensions of fatigue (emotional fatigue, compassion fatigue, or burnout). In addition, exploring the impact of appropriate
interventions to mitigate factors leading to different dimensions of fatigue should be studied to aid in reducing barriers to nursing presence.

This study examined the relationship between nursing presence, openness, and fatigue. While the results demonstrated a relationship among the variables other factors occurring within the environment where the nurse-patient interaction occurs such as patient churn, nursing roles (charge nurse, preceptor) and staffing levels, and the impact on nursing presence, are also worthy of further investigation.

The patient’s perspective is equally worthy to study. A comparison between the patient’s perspective of nursing presence and the nurse’s perspective of presence is important to examine. The current study was conducted only from the nurse’s perspective. Turpin (2014) identified that nursing presence is an essential factor for an effective nurse-patient relationship and has been linked to positive patient outcomes such as decreased stress and sense of vulnerability. Improved coping and adaptive behavior, and improved decision-making ability. Nursing presence has also been shown to improve the patient experience and impact patient satisfaction. Patients expect healthcare provider to demonstrate respectful and caring behaviors, to be physically and emotionally present (Issel & Kahn, 1998; Gilje, 1992) and to be treated as unique individuals (Williams, 1997). Examining the relationships between nursing presence and patient satisfaction, patient stress level and coping ability would add to the body of knowledge regarding patient experience.
APPENDIX A

DEMOGRAPHIC QUESTIONNAIRE
Appendix A – Demographic Questionnaire

1. Please indicate the type of unit that you work in:
   a. Medical-surgical unit
   b. Intensive care unit
   c. Procedural area
   d. Other (please indicate) ____________________

2. Indicate the highest nursing degree you have earned:
   a. Associate degree/diploma
   b. Baccalaureate degree
   c. Master’s degree
   d. Doctor of Nursing Practice (DNP)
   e. Doctoral degree (PhD)

3. Indicate how many years you have been in nursing
   a. ____________________

4. How many years have you been working on your current unit:
   a. ____________________

5. What is your age?
   a. ____________________
   b. I prefer not to answer

6. Please indicate your racial background (check all that apply)
   a. American Indian or Alaska Native
   b. Asian
   c. Black or African American
   d. Native Hawaiian or other Pacific Islander
   e. White
   f. Do not care to answer

7. Please indicate your ethnicity
   a. Hispanic or Latino
   b. Not Hispanic or Latino
   c. Do not care to answer

8. What is your gender?
   a. Female
   b. Male
   c. Prefer not to answer

9. What is your current marital status?
   a. Single, never been married
   b. Married or in significant relationship
   c. Divorced/Separated/Widowed

10. What is your current living situation?
    a. Living alone
    b. Living with family/friends
11. How many hours do you usually work during a 2-week pay period?
   a. 8-12 hours
   b. 13-35 hours
   c. 36 hours-39 hours
   d. 40 hours
   e. 41-71 hours
   f. 72-80 hours
   g. Greater than 80 hours

12. What is your current employment status:
   a. Working part-time (35 or less hours per week)
   b. Working full time (greater than 36 hours per week)

13. What shift do you usually work?
   a. Days 8 hours (7 am to 3 pm)
   b. Days 12 hours (7 am to 7 pm)
   c. Evenings (3pm to 1100 pm)
   d. Nights 8 hours (1100pm to 7 am)
   e. Nights 12 hours (7 pm to 7 am)
   f. Rotating Day and Evening
   g. Rotating Day and Nights
   h. Rotating Evening and Nights
   i. Rotating Day, Evening and Nights

14. Do you usually work the same shift?
   a. Yes
   b. No

15. How many children living with you are less than 18 years of age?
   a. ________________

16. How many children living with you are 18 years or older?
   a. ________________

17. During the PAST 12 MONTHS, about how many days did you miss work because of illness or injury (do not include maternity leave).
   a. 0
   b. 1-3
   c. 4-7
   d. 8-12
   e. Greater than 12

18. During the PAST 12 MONTHS were you on maternity/paternity leave?
   a. Yes
   b. No

19. Are you currently in school to obtain a degree or professional certification?
   a. Yes
   b. No
20. Do you currently have a second job?  
   a. Yes  
   b. No  
21. Do you consume beverages such as coffee, energy drinks, soda to stay awake while at work?  
   a. Yes  
   b. No  
22. How many beverages (coffee, energy drinks, soda)/shift do you consume?  
   a. 1-2  
   b. 3-4  
   c. 5-6  
   d. Greater than 6  
23. Please identify which hospital you work at:  
   a. Loyola University Medical Center  
   b. Gottlieb Memorial Hospital  
   c. MacNeal Hospital
APPENDIX B

PRESENCE OF NURSING SCALE – RN VERSION
Presence of Nursing -RN version (PONS-RN)

Think about the patients that you have cared for during the last 2 weeks. Exclude comatose patients. Read the following statements which reflect a variety of nursing care responsibilities. Indicate how often you performed each of these nursing responsibilities when you cared for your patients by circling the number that matches the frequency. There are no right or wrong answers. Your answers will NOT be shared with patients. Your response will be kept confidential.

<table>
<thead>
<tr>
<th>(1). I taught my patient/s what they needed to know</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) I addressed the spiritual needs of my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(3) I provided physical comfort measures to my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(4) I planned my patient/s’ care so that it was more efficient for them</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(5) I provided care that met my professional organization’s standards for nursing practice</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(6) I organized my patient/s’ care to maximize their benefits</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(7) I emotionally comforted my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(8) I opened myself up to my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td></td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td>(9) I took nursing action when I needed to do so</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(10) I showed confidence in my ability to care for my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(11) I felt a connection with my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(12) I recognized what would work to make my patient/s better</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(13) I acted to intervene when I knew what would make my patient/s better</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(14) My patient/s and I worked together in a partnership</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(15) I intervened when I sensed my patient/s needed it</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(16) I was able to prioritize the care of my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(17) I treated my patient/s as individual/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(18) The care I provided to my patient/s met my standards</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(19) I communicated honestly with my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(20) I was my patient/s link to information from other care providers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(21) I recognized the significance that patient/s gave to their experience</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(22) I shared my feelings with my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(23) I talked to my patient/s about non-health related topics</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(24) When interacting with my patient/s, I listened for meaning in the words my patient/s spoke</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(25) I acted as an advocate on behalf of my patient/s with other care providers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(26) I held my patient/s’ hand or patted their arm when I felt they needed a human touch</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(27) I was sensitive to the beliefs of my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(28) I was emotionally engaged with my patient/s when I card for them</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(29) I helped to calm my patient/s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(30) I contacted other supportive personnel if my patient/s needed them</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(31) I listened attentively to my patients</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Scoring

Each subscale is scored separately by summing the number selected for each item by the respondent. Higher scores indicate higher levels of perceived ability to be present to patients.

BEING WITH subscale (12 items):
Items# 1, 2, 7, 8, 11, 21, 22, 23, 26, 27, 28, 31

DOING FOR subscale (19 items):
Items# 3, 4, 5, 6, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 24, 25, 29, 30
APPENDIX C

FATIGUE ASSESSMENT SCALE
Fatigue Assessment Scale (FAS)

The following 10 statements refer to how you usually feel. For each statement you can choose one out of five answer categories varying from Never to Always.

1=Never; 2=Sometimes; 3=Regularly; 4=Often; 5=Always

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Regularly</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am bothered by fatigue</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. I get tired quickly</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. I don’t do much during the day</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I have enough energy for everyday life</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Physically, I feel exhausted</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I have problems to start things</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. I have problems to think clearly</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. I feel no desire to do anything</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Mentally, I feel exhausted</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. When I am doing something I can concentrate quite well</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Scoring:

Each item of the FAS is answered using a five-point, Likert-type scale ranging from 1 (“never”) to 5 (“always”).

Items 4 and 10 are reverse-scored.

Total scores can range from 10, indicating the lowest level of fatigue, to 50, denoting the highest.
APPENDIX D

BIG FIVE INVENTORY
Big Five Inventory (BFI)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

<table>
<thead>
<tr>
<th>Disagree strongly</th>
<th>Disagree a little</th>
<th>Neither agree nor disagree</th>
<th>Agree a little</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I see myself as Someone Who…

_____1. Is original, comes up with new ideas
_____2. Is curious about many different things
_____3. Is ingenious, a deep thinker
_____4. Has an active imagination
_____5. Is inventive
_____6. Values artistic, aesthetic experiences
_____7. Prefers work that is routine
_____8. Likes to reflect, play with ideas
_____9. Has few artistic interests
_____10. Is sophisticated in art, music, or literature

Scoring:

BFI scale scoring: reverse-scored items 7 and 9

BFI SCORING INSTRUCTIONS

To score the BFI, first reverse-score all negatively-keyed items: Openness to Experience: 35, 41

To recode these items, you should subtract your score for all reverse-scored items from 6. For example, if you gave yourself a 5, compute 6 minus 5 and your recoded score is 1. That is, a score of 1 becomes 5, 2 becomes 4, 3 remains 3, 4 becomes 2, and 5 becomes 1.

Next, you will create scale scores by averaging the following items for each B5 domain (where R indicates using the reverse-scored item).

Openness to Experience: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44

COMPUTE bfi0 = mean(bfi5,bfi10,bfi15,bfi20,bfi25,bfi30,bfi35r,bfi40,bfi41r,bfi44) .

VARIABLE LABELS bfi0 'BFI Openness to Experience scale score' . EXECUTE .
APPENDIX E

PROMIS SLEEP RELATED IMPAIRMENT SHORT FORM
Please respond to each item by marking one box per row.

In the past 7 days.....

<table>
<thead>
<tr>
<th>Sleep Item</th>
<th>Description</th>
<th>Not at all 1</th>
<th>A little bit 2</th>
<th>Somewhat 3</th>
<th>Quite a bit 4</th>
<th>Very much 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep 10</td>
<td>I had a hard time getting things done because I was sleepy.......</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sleep 119</td>
<td>I felt alert when I woke up .....</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Sleep 18</td>
<td>I felt tired .....</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sleep 25</td>
<td>I had problems during the day because of poor sleep .....</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sleep 27</td>
<td>I had a hard time concentrating because of poor sleep .....</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sleep 30</td>
<td>I felt irritable because of poor sleep .....</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sleep 6</td>
<td>I was sleepy during the daytime .....</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sleep 7</td>
<td>I had trouble staying awake during the day .....</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
APPENDIX F

ONLINE SURVEY CONSENT FORM
Online Survey Consent Form

You are being invited to participate in an online survey as part of a research study titled the *Relationships Among Nursing Presence, Openness and Fatigue*. I am currently pursuing a PhD in Nursing from Loyola University Chicago and am writing to request your participation in my dissertation research. Specifically, I am studying the relationship among nursing presence, openness, and fatigue in medical-surgical and critical care nurses. This study has been approved by the Trinity Health Senior Vice President and CNO, your hospital CNO and the Trinity Health Institutional Review Board.

If you agree to take part in this study, you will be asked to complete an online survey. This survey will ask you to provide information about demographics, fatigue, nursing presence, openness, and sleep. It is estimated the survey will take approximately 30 minutes to complete.

This survey is confidential. Your survey answers will be stored in Opinio 7.14 a web-based survey software platform. Your identifying information such as your name, email address, or IP address will not be requested or collected. Therefore, your responses will remain confidential. No one will be able to identify your answers, and no one at your organization will know whether you participated in the study.

A $5.00 e-gift card will be provided as a stipend for those who wish to participate and complete the survey. To collect the e-gift card, at the completion of the survey, you will be redirected to a second survey that will collect contact information for distribution of a gift card code. The incentive will be provided via an email link directly through the survey system and you will receive an electronic gift card. To ensure confidentiality, contact information will be kept separate and not associated with information provided in the survey.

You may not directly benefit from this research; however, your participation will contribute to knowledge surrounding the relationship between nurse’s ability to have a presence with patients and the impact of fatigue experienced by nurses on developing this presence. I value your input. Your decision to participate in this survey will not in any way affect your status in the organization. I believe there are no known risks associated with this research study. While you will not directly benefit from this research; however, I hope that your participation in the study will assist in advancing nursing research on this topic.

The study window will be open from July 1 to August 31, 2019.

For any questions about this study, please email me at bpudele@luc.edu

Thank-you for your consideration to participate,

Barbara Pudelek MSN, RN
PhD Student
Loyola University Chicago
APPENDIX G

SCREENING QUESTIONS
### Screening Questions for Eligibility

<table>
<thead>
<tr>
<th>Screening Question</th>
<th>Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am a registered nurse</td>
<td>Yes = eligible</td>
</tr>
<tr>
<td></td>
<td>No = not eligible</td>
</tr>
<tr>
<td>I am on orientation</td>
<td>Yes = not eligible</td>
</tr>
<tr>
<td></td>
<td>No = eligible</td>
</tr>
<tr>
<td>I provide direct patient care at least 80% of scheduled</td>
<td>Yes = eligible</td>
</tr>
<tr>
<td>work time</td>
<td>No = not eligible</td>
</tr>
<tr>
<td>I work greater than 20 hours per week at the site</td>
<td>Yes = eligible</td>
</tr>
<tr>
<td>hospital</td>
<td>No = not eligible</td>
</tr>
<tr>
<td>I work the night shift only</td>
<td>Yes = not eligible</td>
</tr>
<tr>
<td></td>
<td>No = eligible</td>
</tr>
<tr>
<td>I have been diagnosed with sleep apnea</td>
<td>Yes = not eligible</td>
</tr>
<tr>
<td></td>
<td>No = eligible</td>
</tr>
<tr>
<td>I have been diagnosed with chronic fatigue syndrome</td>
<td>Yes = not eligible</td>
</tr>
<tr>
<td></td>
<td>No = eligible</td>
</tr>
<tr>
<td>I am currently pregnant</td>
<td>Yes = not eligible</td>
</tr>
<tr>
<td></td>
<td>No = eligible</td>
</tr>
</tbody>
</table>
APPENDIX H

RECRUITMENT FLYER
**Study Recruitment Flyer**

A Study of Nursing Presence, Openness and Nursing Fatigue

You are invited to participate in an on-line study looking at the relationship between nursing presence and nursing fatigue among medical-surgical and critical care nurses.

- Are you a Registered Nurse?
- Do you work more than 20 hours/week?
- Do you work on a medical-surgical or critical care unit?
- Do you provide direct patient care for at least 80% of scheduled work time?
- Do you work the day or evening shifts?

An email invitation with a link to complete an on-line survey was sent to eligible participants. If you received this email, please consider participating in this research study.

For questions about this study or the survey contact:

Barb Pudelek MSN, RN  
Doctoral Student  
Loyola University Chicago  
Marcella Niehoff School of Nursing  
bpudele@luc.edu
REFERENCES


Shen, J., Barbera, J., & Shapiro, C. M. (2006). Distinguishing sleepiness and fatigue: focus on definition and measurement. *Sleep Medicine Reviews, 10*(1), 63-76.


VITA

Dr. Pudelek graduated with a diploma in nursing from the Evangelical School of Nursing in Oak Lawn, Illinois in 1982. She continued with her education and earned a Bachelor of Science in Nursing in 1987 and a Master of Science in Nursing in 1992, both from Loyola University Chicago. While completing her academic work, she worked in various staff nurse roles at Loyola University Medical Center. In 1994, Dr. Pudelek completed a post graduate degree as an Acute Care Nurse Practitioner and began working as a nurse practitioner with the Trauma and Surgical Critical Care Service and subsequently became the Trauma Program Coordinator. Dr. Pudelek has held several nursing clinical instructor roles with both Lewis University, Romeoville, Illinois, and Loyola University Chicago.

In 2011, Dr. Pudelek became the manager of the Medical Intensive Care Unit at Loyola University Medical Center. In 2018, she advanced to the role of Director for Professional Practice and Development with oversight of nursing education for Loyola University Medical Center, MacNeal Hospital and Gottlieb Hospital. In addition, Dr. Pudelek has authored two articles and has presented several abstracts at national and international symposiums. She is a member of several professional organizations including the American Organization of Nurse Leaders and Sigma Theta Tau International.