EXPLORATION OF THE INFLUENCE OF REGISTERED NURSE AND NURSING ASSISTANT RELATIONAL QUALITY ON PATIENT SAFETY CULTURE

by

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This study used a framework derived from the Systems Engineering Initiative for Patient Safety to provide insight into how Registered Nurses (RNs) and Nursing Assistants (NAs) perceive relational quality in acute care systems. The study also explored the supervisor/manager's influence on this relationship and how all of these factors correlate with the professional outcomes of teamwork and communication as well as the organizational outcomes of overall perceptions of patient safety and patient safety grade of the unit.

The primary delivery of nursing care within acute care systems uses teams of RNs and NAs. Evidence posits that good relational quality, the effective interpersonal exchange between the RN and NA, is one avenue for improving patient safety culture and patient safety outcomes. Role clarity, differences in mental models, and the inability of the RN to successfully lead the NA create barriers to teamwork and communication; thus, compromising the quality of the interpersonal relationship and potentially placing patient safety outcomes at risk. In addition, few studies have been done to evaluate the quality of the RN and NA relationship and how perceptions of RN and NA relational quality (RQ) are correlated with supervisor/manager influence on safety and overall patient safety culture.

A cross sectional secondary analysis was used to examine relational quality among fulltime RNs and NAs engaging in clinical practice in an acute system. To meet the objectives of this study, data analysis was conducted using data collected from the completed Agency for Healthcare and Quality (AHRQ) Hospital Survey of Patient Safety Culture (HSOPSC) and seven questions the investigator posed to measure relational quality.

In the past, research has focused on the RN and Physician and hierarchical barriers. There has been little attention given to the manager's influence on the RN-NA relational quality. This study provided insight into the relational quality of RN and NA exchanges and how the quality was associated with professional and organizational levels of patient safety. This study was the first to look at the nature of the RN and NA person-to person interaction and how this interaction can be used to achieve a positive patient safety-culture.

Keywords: Agency of Healthcare and Quality (AHRQ), Hospital Survey of Patient Safety Culture (HSOPSC), Patient Safety, Registered Nurse (RN), Nursing Assistant (NA),Relational quality(RQ)

EXPLORATION OF THE INFLUENCE OF REGISTERED NURSE AND NURSING ASSISTANT RELATIONAL QUALITY ON PATIENT SAFETY CULTURE

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Amy Richmond Campbell

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DEDICATION

I dedicate this dissertation to my family. To my parents, who have always believed in me and made me limitless. I appreciate all the encouragement, kind words and “Richmond Tough” moments. To my brother, Dave, you may be one of the most positive people on the planet. You could coach penguins to fly. To my boys, Riley and Grant, you are my heart and soul. I could have never done this without all of your sacrifices and support. You have given me so much inspiration and strength when I thought I did not have any left. Remember, life is so short, and everything is temporary, but your education is forever. During this time, I struggled with work life balance and often failed. I learned failures are part of your story and they are stepping stones to your ultimate success. I had 101 reasons why I should not have finished this dissertation, but for every problem God offered me 1,000 solutions. I am thankful to my PhD rock stars and mentors for all their help over the last four years. To my Captain, for always keeping me grounded even when the waters were rough and thank you for taking a chance on me. To all my friends and family, I am so grateful and humbled by your love for me and endless support. During a time of uncertainty with the Coronavirus, all of you have taken time to help me finish this journey. For the student that is reading this, you will make it. Just remember it is your journey and your experience, make it epic.

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CHAPTER 1: EXPLORATION OF THE INFLUENCE OF REGISTERED NURSE AND NURSING ASSISTANT RELATIONAL QUALITY ON PATIENT SAFETY CULTURE

Introduction

Health care systems spend millions of dollars (Sammer et al., 2010) to build highly reliable systems where patients are safe, and the occurrence of adverse events is limited. Yet, the achievement of patient safety goals remain elusive (Aiken et al., 2018). Many variables influence patient safety, but studies are often weakened by the lack of a theoretical framework to guide their work (Lee et al. 2019). One model for understanding the complexity of patient safety is the Systems Engineering Initiative for Patient Safety (SEIPS) (Holden et al., 2013). The SEIPS 2.0 model proposes an interacting work system that influences care processes and ultimately contributes to both professional and organizational outcomes related to patient safety (Carayon et al., 2006). Derived from Donabedian's structure, process and outcome model, the SEIPS 2.0 framework characterizes the work system as the structural element influencing care and ultimately outcomes. The central component of the work system structure is person(s) who interact with tasks, the organization, tools and technology, and the environment (Carayon et al., 2006).

In this study, the Registered Nurse (RN), Nursing assistants (NAs), and unit-based manager are the persons of interest as depicted in the SEIPS Model (Holden et al., 2013). The quality of the RN and NA relationship, called relational quality, may be related to the unit manager's safety influencing behaviors and all are key factors influencing development of an effective patient safety culture. Establishing a patient safety culture characterized by strong teamwork and clear, effective, communication

among nursing staff has become the standard for minimizing errors in the acute care setting (Kalisch et al., 2007).

Patient safety culture is defined by the nursing team's individual and collective beliefs, attitudes, behaviors, and values related to safety (Sammer et al., 2010). Collaborative professional work in the form of high functioning teamwork and effective communication is key to enabling leaders to improve professional and organizational outcome behaviors related to patient safety culture (Holden et al., 2013). In the literature, there is strong support that manager behaviors impact patient safety and outcomes, including mortality, safety climate, and quality of patient care (Wong et al., 2013; Hughes, 2019). Leaders are responsible for setting expectations, fostering organizational learning and providing a positive practice environment in the reporting of errors (Anderson et al., 2019; Wick et al., 2015; Lachinger & Leiter, 2006). If this is true at the level of the unit manager, it is postulated that it will also be true at the level of the RN and NA. The purposes of this study is to identify variability in perceptions of relational quality of the RN and NA working in an acute care system, examine the relationship between RN and NA relational quality and safety composites as influenced by the supervisor/manager, and evaluate how RN and NA relational quality influence the overall patient safety culture of a unit.

Statement of the Problem

The work of the RN and NA is a cornerstone for patient safety (Roth et al., 2015) because they spend more time in direct patient care delivery than any other care provider. There is limited understanding of the relational quality between the RN and NA and how that relationship influences patient safety culture at the professional and organizational level. Furthermore, there is a scarcity of research examining how the level of RN and NA relational quality is correlated

with supervisor/manager influence safety composites, overall perceptions of patient safety culture and patient safety grade.

Background and Significance

Hospitals were deemed unsafe places in the late 1990's despite the advancements of modern medicine, Seminal work by the Institute of Medicine (IOM) reported staggering statistics related to mortality, which showed death due to medical errors in US hospitals was greater than from highway accidents, breast cancer, or AIDS (Kohn & Donaldson, 2000). The main goal of the IOM report (Kohn & Donaldson 2000)was to design a culture of safety that prevented errors, created psychological safety for employees, and fostered strong leadership (Talati & Griffin, 2014). In response, an interest emerged in how to promote patient safety culture and how to empirically measure the phenomenon (Emmanuel, Berwick, & Conway, 2008). Schein (1990) describes organizational culture as being inclusive of a discipline-focused culture, such as nursing culture, influenced by the work environment, and contributing to work related outcomes (Kennerly et al., 2012). In healthcare's case, organizational culture must include care processes and structure associated with patient and nurse safety. In applying Schein's principle of culture (1990), nurses develop coping behaviors to adapt to their surroundings on their unit. A breakdown in communication and teamwork may be due to how nurses develop their beliefs, values and attitudes about communication and teamwork. Over time, these beliefs and attitudes influence their behavior patterns and ability to provide safe care. Nurses must experience the elements of a positive culture such as teamwork, safety, and effective communication to provide safe patient care (Kennerly et al., 2012).

RN and NA Healthcare Delivery Team

Downsizing nursing staff, nursing shortages, and increased acuity have contributed to unrealistic expectations of hospital leaders for nurses to work with less yet not compromise patient care (Laschinger & Leiter, 2006). Increased acuity, staffing shortages, and quality concerns influence health care delivery models for providing nursing care (Havaei, Dahinten, & MacPhee, 2019). To address these challenges, RNs increasingly collaborate with NAs to accomplish patient care tasks and ensure patient safety. NAs are unlicensed assistive personnel with minimal training assigned to support the RN in the provision of patient care activities. NAs are considered an economical alternative to the limited supply of RNs because NAs can be educated in a six-week course with a minimum of 16 clinical hours in comparison to a two-year minimum investment to become an RN And the compensation for NAs is also less than RNs, making them more affordable to health care systems (Trinkoff, et al., 2017), 2017). The resulting model of care delivery with mixed skill level permits the NA to complete basic tasks such as routine care, vital signs, and ambulation in a healthcare setting and permit the RN to focus on more complex levels of care (Havaei et al., 2019). The RN and NA dyad is a work team that represents the backbone of most acute care health systems. The relational quality of this team is potentially critical to developing and maintaining a culture of safety.

Relational Quality (RQ)

Evidence shows that poor RN and NA teamwork may lead to an unsafe care delivery models (Kalisch, 2011). Achieving nursing care goals for patients requires nurses to hold themselves accountable for patient outcomes while collaborating with NAs to accomplish patient care activities (Sammer et al., 2010). Sammer et al.'s (2010) work applies the concept of relational quality to evaluate RN and NA relationship effectiveness. Positive relationships are

essential to improving patient safety culture and patient outcomes (Kalisch, 2011). Bellury, Hodges, Camp, & Aduddell (2016) examined perceptions of teamwork and found the RN and NA have different mental models of teamwork. A shared mental model is defined as "individually held knowledge structures that help team members function collaboratively in their environments" (McComb & Simpson, 2014). NAs perceived other NAs as the team members who aided them in completion of their assigned tasks, while RNs described teamwork as reminding NAs of necessary tasks to be completed. This difference in mental models could lead to poor relational quality, low functioning teams and ineffective communication (Bellury et al., 2016; Vessey et al., 2010).

Supervisor/Manager Influence on Relational Quality (RQ)

There are many theories of leadership, but two prominent styles, task-oriented versus relational, dominate the literature (Brady & Cummings, 2010). Historically, the RN and NA team was task-oriented, focusing on the completion of patient care activities through delegation of auxiliary services to the NA while skilled services were rendered by the RN (Bellury et al., 2016). Research on frontline nursing leaders shows relational leadership was associated with improved patient safety culture on units (Thompson et al., 2011). Few studies are reported that evaluate the quality of the RN and NA relationship and how perceptions of RN and NA relational quality correlated with the professional outcomes of teamwork and communication.

Professional Outcomes: Teamwork and Communication

Breakdowns in teamwork and communication account for three quarters of the deaths in hospitals (Joint Commission, 2019). Thus, the quality of the interpersonal relationship between the RN, who serves as the team leader, and the NA, is essential for optimizing patient safety culture (Kalisch, 2011); yet, limited research has explored how the relational quality of this team influences patient safety. Teamwork is an important element of collaborating towards achieving a common goal. Sharing of resources, expertise, and decision making are also important attributes of teamwork. The use of teams to counter challenging conditions is common in many professions. A premiere example of this is in aviation where the concept of safety culture was first conceptualized. In the late 1970's, aviation suffered from similar disruptions and distractions leading to catastrophic errors. The implementation of teamwork and communication training became a standard and made the airline industry a highly reliable organization (McCulloch et al., 2011).

Effective communication between the RN and NA is critical and involves transfer of information, responsibility and authority between the two parties (Santos et al., 2018). Each party needs to understand the message being presented. The RN and NA often communicate in one-way communication related to tasks needing to be completed (Bellury et al., 2016). Bellury et al. (2016) found both NAs and RNs understood the importance of communicating; however, due to work demands on the unit they conducted one-way communication or telling. RN-NA communication must be transparent and respective team members must respect and honor the contributions of each other in order to reach desired professional outcomes for patients (Thomson, et al., 2015).

Organizational Outcome: Patient Safety Culture

Patient safety and quality have become a global priority for health care (Ammouri et al., 2014). To improve the quality of care and patient safety, organizations focus on creating a culture of safety (Lee et al., 2019). Patient safety is defined as a discipline in health care with the goal of creating a system that does no harm. It is also defined as the part of health care that optimizes recovery and decreases adverse events (Emmanuel et al., 2018). Safety culture is defined as "the product of individual and group values, attitudes, perceptions, competencies and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's safety management" (Flin et al., 2006; Squires et al., 2010; Armstrong et al., 2017). Patient safety culture is an evolving concept with a multifactorial framework to prevent harm to patients. Part of this multifactorial framework includes strong leadership, psychological safety, and effective communication about safety concerns. In contrast, the lack of reporting systems, teamwork, and adequate knowledge about safety serve as barriers to developing strong patient safety culture. (Ammouri et al., 2014). An additional barrier is how to best empirically measure patient safety culture. For the purposes of this study, patient safety culture will be measured by Hospital Survey of Patient Safety Culture (HSOPSC) and the corresponding composites measuring teamwork, communication, and overall perceptions of patient safety. A composite is the 3 or 4 questions from the 42 item survey grouped together to measure a perception of patient safety culture (AHRQ, 2019). Although there is little in the literature to support a direct correlation, there is association with a robust patient safety culture and reduction in harm (Campoine & Famolaro, 2018).

Significance

This study provides insight into the relational quality of the RN and NA, how the quality of that relationship is associated with the Hospital Survey of Patient Safety Culture (HSOPSC) safety composites of teamwork and effective communication, overall perceptions of patient safety and self-reported patient safety grade. This study is the first to look at the nature of RN and NA interactions through the lens of relational quality and how those interactions correlate with the supervisor/MIs on patient safety.

Conceptual Framework

Figure 1 displays the explanatory model evaluating this research. This explanatory model is derived from the Systems Engineering Initiative for Patient Safety (SEIPS) 2.0. In the SEIPS model, a balanced work system with efficient processes improves the outcomes for the patient, employee and organization (Carayon et al., 2006). In the model, RNs and NAs are the persons of interest within the work system. Exchanges between persons, the RN and NA team in this case, can be further explored through analysis of dynamic interactions as described in Leader-Member Exchange (LMX) theory (Katrinli et al., 2008). LMX theory notes these exchanges between persons influences relational quality which is defined as the level of trust, communication and respect among leaders and their subordinates. According to LMX theory, leaders are responsible for delegating tasks, providing closed loop communication, and guiding the subordinate to the shared organizational goal (Katrinli, et al., 2008). This relationship directly affects the team member and can be a means for growth or seen as a barrier.

Relational quality is embedded in a collaborative work system which contributes to both professional and organizational outcomes. Processes are defined as a “set of interrelated or interacting activities that use inputs to deliver intended results” (Holden et al., 2013).

Collaborative professional work is a by-product of how the work system is designed and what values and behaviors are rewarded and required. In the model, the RN and NA exchange influences the collaborative professional work of teamwork (within and across units) and communication (clarity and openness). Teamwork and communication are also associated with positive managerial safety behaviors and with organizational outcomes of overall unit safety grade, and overall perceptions of patient safety. Likewise, the manager behaviors that influence patient safety affect care processes and ultimately all of these factors influence patient safety culture outcomes. The supervisor/manager's behaviors also influence the relational quality between the RN and NA. High quality leader member exchange correlates with motivated, engaged employees and greater organizational commitment (Babic, 2014).

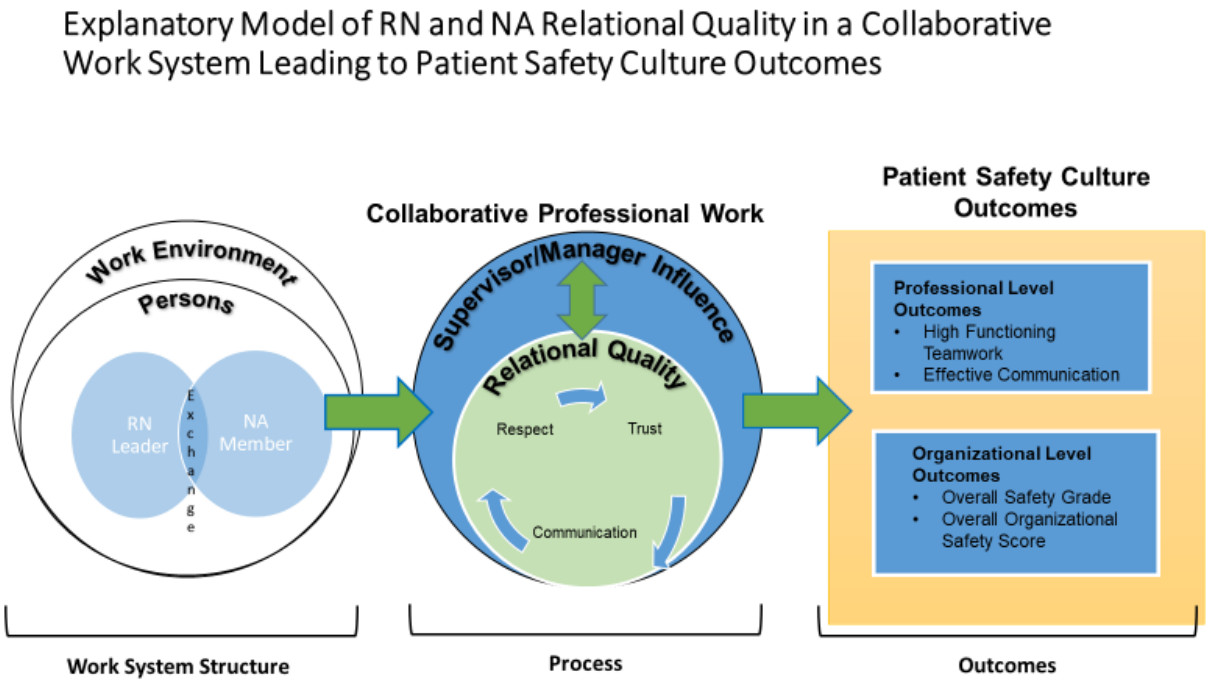

Figure 1. Explanatory Model of RN an NA Relational Quality in a Collaborative Work System Leading to Patient Safety Culture Outcomes.

Purpose Statement

The purpose of this study was to identify variability in perceptions of relational quality of the RN and NA working in an acute care system, examine the relationship between RN and NA relational quality and safety composites as influenced by the supervisor/manager, and evaluate how RN and NA relational quality influence the overall patient safety culture of a unit.

This study applied a researcher developed framework derived from the SEIPS framework to provide insight into how RNs and NAs perceive relational quality in acute care systems. The study further explored the supervisor/managers influence on this relationship and how all of these factors correlate with the professional outcomes of teamwork and communication as well as the organizational outcomes of overall perceptions of patient safety and patient safety grade of the unit.

Research Questions

Research Question 1: What variability exists between RN and NA perceptions of relational quality and the safety composites of teamwork and communication when working in an acute care system?

Research Question 2: What is the relationship between levels of RN and NA relational quality, perceptions of teamwork and communication, and patient safety grade when working in an acute care system?

Research Question 3: What is the relationship between levels of RN and NA relational quality and safety composite manager influence (supervisor/manager expectations and actions promoting patient safety, organizational learning, feedback and communication about error, and communication openness)?

Research Question 4: What is the relationship between levels of RN and NA relational quality and organizational level outcomes of overall perceptions of patient safety and is it moderated by safety composite manager influence (supervisor expectations and actions promoting patient safety, organizational learning, feedback and communication about error, and communication openness)?

Delimitations

The following are delimitations of the study

Time of the survey administration: Survey conducted March 16, 2018 through April 6, 2018.

Time of survey analysis: September-October 2020.

Location of the study: Large academic medical system.

Sample of the study: Voluntary participants employed in a NC healthcare system who completed the Hospital Survey of Patient Safety Culture (HSOPSC).

Participants: The participants were RNs and NAs from inpatient nursing units (medicine, surgery, obstetrics, pediatrics, intensive care units, psychiatry, rehabilitation) and outpatient units (emergency department and observation).

Definition of Terms

For the purpose of the study the following terms are defined as:

Patient Safety Culture is the shared beliefs and practices of the organization's members regarding the organization's willingness to detect and learn from errors (Kohn & Donaldson, 2000). In this study, patient safety culture is measured by Hospital Survey of Patient Safety Culture (HSOPSC).

Teamwork a dynamic process involving two or more health workers with complementary backgrounds and skills, sharing common health goals and exercising concentrated physical and mental effort in assessing, planning, or evaluating patient care.

Communication is defined as the process of exchanging information to establish a mutual understanding and to share ideas to create a shared meaning.

Relational Quality is defined by the level of trust, communication and respect among leaders and their subordinates as measured by the cumulative score of the 7 questions adapted from the LMX-7 scale.

Inpatient Units are defined as medicine, surgery, obstetrics, pediatrics, intensive care units, psychiatry, and rehabilitation.

Patient Safety Grade is defined as the overall grade on patient safety in the unit/area worked as. Patient safety grade in the study is defined as A (Excellent), B (Very Good), C (Acceptable), D (Poor), and E (Failing).

The remainder of the dissertation is organized into Chapter Two - Review of the Literature and Chapter Three - Research Design and Methods. Chapter Four will be manuscript one addressing the findings related to research questions one and two. Chapter five will be manuscript two addressing the findings related to research questions three and four.

CHAPTER 2: REVIEW OF LITERATURE

This review is organized around the SEIPS model. The SEIPS model illustrates multiple work structures and different care processes and has made substantive contributions to current understanding of relational quality. The primary purpose of this review is to explore the state of evidence as it relates to the person components of a work system, more specifically, the RN, NA and nurse manager persons within a clinical unit. Care processes will be limited to exploring the relational quality between the RN and NA as well as the RN and NA perceptions of the nurse manager's behaviors that influence patient safety. These care processes will then be examined to determine the influence, if any, on the professional outcomes of teamwork and communication. Additionally, all these care processes will be examined for associations with the organizational outcomes of patient safety grade and overall perceptions of patient safety culture. The purpose of this study is to identify variability in perceptions of relational quality of the RN and NA working in an acute care system, examine the relationship between RN and NA relational quality and safety composites as influenced by the supervisor/manager, and evaluate how RN and NA relational quality influence the overall patient safety culture of a unit. The major concepts identified are RN and NA care delivery teams, supervisor/manager influence on relational quality, teamwork, communication, overall patient safety grade, and overall perceptions of patient safety culture. The intention of this literature review is to determine the current state, themes and gaps related to these concepts within the literature.

Work System Structure (Person): RN and NA Care Delivery Teams

Acute care hospitals are examining innovative ways to structure the RN and NA care delivery team to ensure safe care, optimal patient outcomes, and reduced costs in the midst of declining length of stay and resources associated with health care reform (Aiken et al., 2014). In

Europe, researchers found an 11% increase in the odds of mortality with every 10% reduction in proportion of RN staff (Aiken et al., 2014). Aiken et al. (2014) also reported a 21% increase in patient deaths for every 25 patients on a unit where a NA was substituted for an RN. These findings suggest that the NA is a separate role that compliments the RN but do not provide an equivalent substitution. Concerns also remain regarding whether or not an increase in the use of NAs allows for hiring fewer RNs (Li et al., 2017). Li et al.(2017) found in their five-year secondary analysis no evidence of substitution for RNs with NAs. The NAs hours declined and RNs hours remained stable with the number of patient days. The US still favors the RN and NA delivery model despite these startling findings due to overall cost reduction that offsets the costs due to increases in length of hospital stay and hospital acquired infections (Aiken et al., 2014). Alarm over staffing ratios has led two states, California and Massachusetts, to implement mandatory ratios, while 14 others states publicly report staffing levels. The unlicensed personnel or NA role is not taken into account when determining safe staffing levels (Li et al., 2017). There is a need to explore and examine if optimization of this team can be used to meet the needs of a complex system with limited resources while also assuring patient safety.

Work Process: RN and NA Relational Quality

Relational quality (RQ) is defined for this study as the effectiveness of exchanges between the RN and NA. Evidence suggests that positive relational quality and effective interpersonal leader-to-member exchange between the RN and NA (Sammer et al., 2010), is essential to improving patient safety culture and patient safety outcomes (Trybou et al., 2014; Kalisch, 2011). Hence, the level of teamwork and communication openness perceived by the NA and the RN is a key professional outcome for evaluating the effectiveness of nursing care. “Being able to model and create harmonious team-work through healthy and mutually beneficial

relationships is now considered to be the epitome of good leadership" (Branson & Marra, 2019, p.85). Thus, exploring the quality of the interpersonal relationship between the RN, who serves as the team leader, and the NA, who functions as a follower, is essential for optimizing patient care delivery processes and outcomes (Kalisch, 2011).

Work Process: Supervisor/Manager Influence on Relational Quality

Social exchange theory is the dominant framework used over the last 20 years for understanding positive work-related leader and follower relationships. According to the theory, employees reciprocate the treatment, attitude and behavior received from a positive work environment (Trybou et al., 2014). The research around the desired attitudes and behaviors for ideal employees led to two other concepts; employees' perceptions of organization support (POS) and (LMX). POS measures the degree to which the employee feels the organization cares about their well-being and contributions to the organization (Wayne et al., 2002). LMX focuses on the quality of the exchange between the leader and member (Liden & Maslyn, 1998). Previous studies have linked the power of this LMX to organizational identification (OI) and professional identification (PI). OI is defined as when an employee has a perception of organizational belonging, they feel part of the organization and are willing to modify behaviors to meet the expectations of the organization (Van Kippenger, 2011). PI is defined as the perception of how the individuals view their profession and the characteristics of their role (Wallace, 1995).

While professional and organizational identification is important, past research in nursing has focused primarily on understanding the client-nurse relationship (Byrd, 2006) and nurse-physician relationship (Narasimhan et al., 2006) rather than the RN and NA relationship that is the primary vehicle for care provision in the US. Interdisciplinary teams are a vital part of

healthcare, but there is little training for physicians and nurses in how to work in teams as colleagues with a shared goal (Leipzig et al., 2002). Nurse – physician as well as RN and NA teams are hierarchical and these power and cultural barriers have impeded team cohesion (McCulloch et al., 2011). Hierarchical barriers in teamwork have led to a lack of situational awareness and reduced acknowledgement of human error in adverse clinical events (AHRQ, 2018). Intimidation, delayed response to requests, and reluctance to work as a team are dangerous, disruptive hierarchical behaviors (Thomson et al., 2015). The danger in these behaviors is the link to breaks in teamwork and ineffective communication. The World Health Organization (2010) stated to ensure patient safety and quality of care; interdisciplinary teams must learn to practice as a unified team regardless of hierarchical or cultural differences (Thomson et al., 2015).

Gittell et al., (2013) explored the critical elements in healthcare necessary for coordinating complex work such as care processes on a clinical unit. Gittell's Relational Coordination Theory posits that shared goals, shared knowledge and mutual respect among team members are essential for success (2011). Relational coordination is highly related to the frequency, accuracy and timeliness of communication among team members. LMX theory measures the exchanges between leaders and members to determine the degree of trust, respect and communication quality that exists (Katrinli et al., 2008). The LMX survey is measuring the relational quality between these individuals.

The term relational quality originates from relationship marketing research and examines how previous experiences influence future interactions. Min and Takai (2018) found emotional competence, "the way we identify, understand, express and regulate use of own and others' emotions", is a significant factor in the development of high relational quality. Nelis et al (2009)

proposed a tripartite model for emotional competence; understanding one's current emotions, determining current ability to handle emotions and natural dispositions towards certain emotions such as anger and coping mechanisms. The ability to handle highly emotionally charged situations is associated with high relational quality partnerships (Arino et al., 2001; Min & Takai, 2018). A key theme to "high relational quality" is a positive working relationship between two parties forming a two-party alliance with their organization. The most fundamental unit of bedside leadership on hospital units is the RN and NA team where the RN serves as the leader, directing and collaborating with the NA to assure patient care is rendered safely and appropriately.

The Institute for Healthcare Improvement (IHI, 2015) found leaders must commit to being visible, displaying safety behaviors, and making safety a priority regardless of the demands of the unit. Managers play an important role in coaching staff in best care practices and in introducing innovation into the workplace; leaders work to create a culture of trust, autonomy, and safety (Wick et al., 2015). Leaders can foster organizational learning by appreciating adverse events as opportunities to grow and learn. These near misses are viewed as system issues and are crucial data for organizational learning (Clarke et al., 2015). The manager creates mindfulness through response to error and understands human error is always a possibility. A positive practice environment directly influences the nurse's ability to provide safe care and prevent error (Lachinger & Leiter, 2006). In this blame free environment, the manager creates a just culture and rewards staff for reporting their near misses and errors.

Professional Level Outcome: High Functioning Teamwork

Teamwork is defined as desired professional outcome of patient safety culture. Professional outcomes are by-products of how structure and care processes interact to contribute

to a collaborative work environment (Holden et al., 2013). High functioning teams have been associated with increased job satisfaction. Trust, team awareness and job satisfaction are examples of professional outcomes (Holden et al., 2013). Nursing working together in teams lowers the burn out associated with high stress environments and promotes a sense of stability leading to higher quality of care at a decreased cost (Kalisch & Lee, 2011). In this study, teamwork was most influenced by staffing levels (Kalisch & Lee, 2011).

Positive, professional interactions result in high functioning teamwork. In a study by Leipzig et al., (2002, p. 1141), high functioning teamwork is defined by five fundamentals: appropriate goals, clear role expectations of members, a flexible decision-making process, the establishment of open communication patterns and leadership and the ability of the team to "treat" itself. Teams are challenged by role competition, the need to maintain professional authority and lack of confidence (Leipzig et al., 2002). A misconception with teamwork is team members collectively perform better than the individual. Two lethal threats to the psychology of teams are the concepts of "group thinking" and "group shift" (Voyer, 2015). In group thinking, the individuals lose their voice and fail to question. In "group shift", the members make extreme decisions out of proportion with reality. High functioning RN and NA teams improve patient satisfaction, job satisfaction, and overall delivery of care (Kalisch, 2011). .

The design of the work system, including the manner in which members of the healthcare team relate to each other, influences patient care processes. The care process is affected by the design of the system and organizational characteristics, such as the ability to work together as a team (Carayon et al., 2006). Patient safety culture and the benefits of working in teams are recognized as ways to decrease human error and improve patient outcomes (Kaiser & Westers, 2018; Graen & Uhl-Bien, 1995). Graen and Uhl-Bien (1995) discussed the importance of

understanding desired characteristics of a team to stimulate the desired outcome. These desired characteristics were defined as trust, respect and mutual obligation. The strength of this relationship and the ability of the leader to have behaviors reciprocated directly influenced patient care processes and outcomes (Graen and Uhl-Bien, 1995). An identified gap is in understanding the relational characteristics of strong RN and NA teamwork and how the interdependencies lead to improved patient care processes and perceptions of patient safety.

The use of teams to counter challenging conditions is common in many professions. A premier example of this is in aviation where the concept of safety culture was first conceptualized. The common theme between errors in aviation and health care is human error, characterized as human behavior leading to an adverse outcome. In aviation, fatigued crews with experience working together made fewer human errors than well-rested teams with limited experience working together (Carter & West, 1999). In addition to aviation, the military and nuclear industries have found teamwork to be paramount to building highly reliable processes in complex, dangerous environments (Baker, 2006; Salas et. al., 2008,). The effectiveness of these teamwork practices in other industries, led to health care organizations adopting these principles as mechanisms to build a patient safety culture (Sorra and Dyer, 2010).

Teamwork is an important attribute for collaboration towards a common goal. Sharing of resources, expertise and decision making also influence collaboration. An antecedent for RN and NA to work together as team is having the opportunity to collaborate and communicate well as a team. Unit design, unit layout, and frequency of shifts worked together can optimize teamwork among staff (Emich, 2018). RNs rank patient safety higher on units when there is adequate NA staffing on the unit (Duffield et al., 2016). Minimal research exists to support improved patient outcomes with this mixed staffing model (Duffield et al., 2016). Several themes exist within the

published evidence on teamwork. These themes include predictors of teamwork, increasing teamwork, environmental factors, the strength of the team and effect of missed nursing care and teamwork (Castner et al., 2013; Kalisch & Lee, 2011; Bellury et al., 2016). In Kalisch's (2009) qualitative analysis, her team discovered the concept/theme of missed nursing care were ambition, hygiene, intake, output, turning and surveillance among RNs and NAs. Missed nursing care leads to increases in falls, venous thromboembolisms (VTEs); catheter associated urinary infections and poor glycemic control (Kalisch, 2009). To meet the demands of the contemporary hospital environment, RNs and NA must learn to work together as a team.

Professional Level Outcome: Effective Communication

A component of team effectiveness is the ability to communicate, trust and collaborate (Kalisch & Lee, 2011; Graen and Uhl-Bien, 1995). Teams cannot function or thrive without successful communication (Keyton & Beck, 2008). As the work demands of the RN and NA increase, clear and open communication is an essential component of work system design affecting patient safety. In the literature, there is a theme of examining team communication as an underpinning for how the team functions (Salas et al., 2008; Bedwell et al., 2012). Communication varies depending on the team make up and job role (Tscholl et al., 2015; Rowlands & Callen, 2013). The delivery, tone of voice and content is adjusted for each role. Situational stressors, cognitive artifacts and communication media are identified as factors influencing communication (Tiferes & Bisantz, 2018). The literature acknowledges communication as a vital part of safe care and fostering a safe culture, however little research has been done to formulate what is best practice or effective communication methods (Rosenburg & Yates, 2007). In an Australian study (Chapman et al., 2017), communication problems were a leading cause of morbidity and mortality for over 14,000 patients. Almost 25 years later, there

continues to be social and hierarchical problems related to successful communication and hand off.

Bellury et al. (2016) found both NAs and RNs understood the importance of communicating; however, due to the work demands on the unit they exercised one-way communication or telling. The RNs reported they needed more time to fully communicate and follow up when the unit demands increased (Bellury et al., 2016). Using structured communication such as “time outs”, “read backs” and “short briefings” has been seen as an integral component of patient safety (Sammer et al., 2010). NAs reported a break in communication and often being the voice for the patient to deliver messages to the nurse.

Anthony and Vidal (2010) found mindful communication and mutual trust are two relational characteristics of “right” communication. To provide safe care the RN must learn to delegate effectively with the “right” communication to improve quality and safety outcomes (Anthony & Vidal, 2010). The “wrong communication” leads to ineffective delegation practices (Gravlin & Bittner, 2010; Potter et al., 2010). The nurse must learn how to delegate successfully in order to meet the demands of a chaotic environment. Role confusion and staff unsure of responsibilities (Rosenburg et al., 2010) hinder the process of communication and delegation. There is a theme in the literature showing nurses are hesitant to delegate to NAs not because of lack of ability, but due to not wanting to appear lazy to the NA (Bittner & Gravlin, 2009). Poor communication skills and ineffective delegation lead to conflict and poor relational quality between the RN and NA., the RN and NA must learn how to delegate, communicate, and critically think together, not in separate delivery systems to ensure patient safety (Bittner & Gravlin, 2009).

Organizational Outcome: Patient Safety Culture

Multicomponent interventions, such as team-based learning, and unit focused projects improve patient safety culture and organizational outcomes (Hofman & Mark, 2006; Morello et al., 2013, Thompson et al., 2011). Hence, the level of high functioning teamwork and effective communication openness perceived by the NA and the RN is a key professional outcome of patient safety culture. The literature is replete with explanations of patient safety as an organizational subculture (Morello et al., 2013), but little attention is given to the larger organizational culture and the unit level culture in which it is realized. Patient safety culture is affected by the overarching beliefs, values and norms of a clinical unit's nursing culture that infuses enthusiasm for and a commitment to implementing evidence-based care practices associated with patient safety principles. In turn, implementation of these practices directly or indirectly influences patient safety outcomes (Sorra et al., 2012). Positive perceptions of nursing and safety cultures along with a strong organizational infrastructure support implementation of evidence-based practices and enhance the likelihood that nursing staff will accept and integrate safety principles into care delivery (Weaver et al., 2017; Merrill, 2015).

Organizational Level Outcome: Patient Safety Grade

Patient safety grade is a staff-reported measure of safety used to evaluate overall safety within a hospital unit. As previously noted, the process of understanding patient safety culture begins by examining how human factors in the work environment contribute to the prevention of error. Underlying behaviors and modifying these behavioral patterns to ensure safety practices without error is the focus of human factors research. First recognized in aviation, human factors are associated with 80-90 % of all errors rather than experience or skill level (Odell, 2007). Human factors are non-technical skills that influence quality and safety such as decision-making,

situational awareness and teamwork. Human factors focus on recognizing the behavior and modifying it for the desired outcome. The inability to cope in a stressful environment influences the human factors and impacts patient safety

Organizational Level Outcome: Overall Patient Safety Score

Work design, dysfunctional culture and absent management are common themes in the work system that contribute to unsafe safety behaviors (Lachinger & Leiter, 2006). Kazanjian, et al. (2005) found the taxing work environment affects the nurse's ability to make decisions and critically think, leading to an increase in mortality. Aiken et al. (2014) studied the effects of work environment on outcomes across nine different countries and found stressful work environments were common and attributed to poor quality outcomes. Inappropriate patient assignments, inadequately trained staff, poor teamwork and stressful environments are associated with poor patient outcomes.

Overall perceptions of patient safety as well as the safety grade assigned to the unit is also closely associated with the level of relational quality of staff on a unit. Squires et al. (2010) found that relationships were a large contributor to patient safety culture. Modeling safety behaviors, engaging staff in safety solutions, and transparency about safety issues nurture ownership and development of a positive patient safety culture (Kalisch, 2011). When staff perceive relationships as positive, they are intrinsically motivated to meet the needs of patients and the goals of the organization.

Conclusion

There is limited empirical research that examines the perceptions of the relational quality between the RN and NA and how the supervisor/MIs those relationships. Furthermore, whether or not these relationships influence patient safety at the professional and organization level needs

more examination. The literature recognizes the need for the RN and NA to work together as a strong team, however role clarity, differences in mental models, and the inability of the RN to lead the NA create barriers to teamwork and communication. Past research has focused on teamwork and communication between interdisciplinary teams, however, although the research has not specifically examined the RN to NA delivery model Nurse Managers are responsible for creating a culture of safety and fostering strong relationships. Therefore, it's important to understand the influence of the nurse managers relationship on the RN and NA and patient safety culture (Thompson et al., 2011).

CHAPTER 3: RESEARCH DESIGN AND METHODS

The purpose of this chapter is to outline the methods used to answer the research questions addressed in this two-manuscript dissertation format. Manuscript one addresses the relationship between levels of RN and NA relational quality and perceptions of teamwork and communication when working within an acute care system. Manuscript two explores the relationships between the RN's and NA's overall perceptions of patient safety, RN-NA relational quality, and RN and NA perceptions of the unit manager's expectations and behaviors promoting patient safety. The research design, population and sample, setting, instruments, measurements, data collection, and data analysis procedures used in each is discussed in relation to the respective manuscript: manuscript 1 (chapter 4) and manuscript 2 (chapter 5).

Research Design

A cross sectional secondary analysis was used to examine relational quality among fulltime RNs and NAs engaging in clinical practice in an acute system. The study was conducted using responses from the Agency for Healthcare and Quality (AHRQ) Hospital Survey of Patient Safety Culture (HSOPSC) and an investigator developed survey, guided by the LMX (Gerstner, 1997) which measures relational quality.

Population and Sample

The population for this study was RNs and NAs working in a seven-hospital regional health care system in the southeastern U.S. The regional healthcare system serves 29 counties and over 1.4 million people. The system was comprised of one tertiary academic medical center with over 900 beds and six community hospitals. The sample for this study included all RNs and NAs meeting inclusion criteria, working in one of the patient units (53 units), and who responded

(n=1152) to a hospital-wide survey of 14,000 fulltime employees within academic medical center and community hospitals. The total survey response rate for all hospitals in this study was 70% for full time RN and NA employees. Pharmacy, laboratory, radiology, anesthesiology, outpatient areas, or other areas not classified in selected nursing areas listed were excluded from the sample.

Ethical Considerations

Human subjects' approval was granted through the University Medical Center and University institutional review boards prior to study start. Participants and hospital units were de-identified and assigned a numerical code by an outside agency to protect identity of study participants.

Instruments

A two-part survey comprised of the AHRQ HSOPSC and additional questions about relational quality was the primary instrument for data collection. Part one of the survey was the AHRQ HSOPSC, a 42-item questionnaire that measured 12 composites of patient safety culture (Appendix B). The AHRQ sponsored development of the HSOPSC to determine patient safety culture in hospitals. In 2004, the AHRQ released the HSOPSC instrument after rigorous piloting examining item statistics and the reliability and validity of safety culture subscales (AHRQ, 2018). In addition, respondents are asked to provide limited background demographic information. Part two of the survey examined RN and NA relational quality through seven investigator developed questions. These questions were adapted from the LMX-seven questionnaire, which was developed based on LMX theory exploring the two-way (dyadic) relationship between leaders and followers (Graen & Uhl-Bien, 1995). In the original questionnaire LMX-7, each item asked about relationships from the perspective of leader

(follower), while the adapted questions changed the perspective to registered nurse (nurse assistant). The survey questions adapted from leader member exchange to reflect relational quality between the RN and NA use a five-point Likert type response for each question (Graen & Uhl-Bien, 1995).

Survey Development

Development of the HSOPSC

The HSOPSC was developed by the Agency of Healthcare Research Quality who conducted a review of the literature on safety management and accidents in several areas including nuclear and manufacturing industries, employee health and safety, safety and organizational climate and culture, and medical error and event reporting. The researchers (Sorra & Nieva, 2010)also reviewed current published and unpublished climate and culture instruments. Sorra & Nieva (2010) used two existing health care safety culture surveys for psychometric analysis (. One was developed and administered by Westat for the Medical Event Reporting System for Transfusion Medicine (MERS-TM), which consisted of 100-item safety culture data set of 945 staff from 53 hospital transfusion services across the U.S. and Canada. The second survey developed by the Veterans Heath Administration (VHA) consisted of a 120-item data set comprised of 6,161 staff from 160 analyses VHA hospitals nationwide. The data sets were analyzed independently and the psychometric analyses were written as specialized reports that had significant influence on the safety culture composites and types of items that were included in the pilot version of the HSOPSC (Sorra & Nieva, 2010). Cognitive testing was conducted to better assess the respondents comprehension and interpretation of the terms used and the items being asked to determine how they arrived at their answers in order to identify potential problems with the items and/or survey instructions. The cognitive interviews were conducted

with a variety of healthcare workers from nurse managers, nurses, physicians, dieticians, etc. and also from different U.S. hospitals. Based on findings, additional changes were made to the survey composites resulting in amending the pilot survey to 79 items measuring 14 composites of safety culture. The pilot contained primarily 5-point Likert response scales of agreement (1 = "Strongly Disagree" to "Strongly Agree") or frequency ("Never" to "Always"). The pilot also included two single item outcome measures used as validity checks and 14 multiple item composites of patient safety. The pilot survey was administered to 21 hospitals in the U.S., the sample of the hospitals varied by geographic region, teaching hospital, and hospital size to ensure a diverse sample. A total of 4,983 surveys were administered in the 21 hospitals with a 29% response rate (1,47 responses). The survey administration method varied hospital to hospital from random to purposive sampling. The average response rate within each hospital was 37% and the average number of respondents per hospital was 68. To maintain confidentiality, the survey contained a few demographic questions including gender, direct or indirect contact with patients, age, years of service, and tenure in specific hospital or work area.

Psychometric Evaluation of the HSOPC

The goal of Sorra & Nieva's research (2010) was to eliminate items that were highly skewed or items that had high amounts of missing data in efforts to provide a shorter revised survey instrument based on conceptually meaningful, independent, and reliable safety culture composites with three to five items measuring each composite. First an exploratory factor analysis was conducted to explore the dimensionality of the survey data. The analysis found 14 factors with eigenvalues greater than or equal to 1.0 and the total variance explained by the 14 factors was 64.5%. A confirmatory factor analysis was conducted to take into consideration the *a priori* safety culture composites. Following the analyses of several confirmatory factor models,

the final survey features 12 composites and two outcome composites. Three or four items measure each composite, for a total of 42 items. Most of the survey items ask respondents to answer using 5-point response categories in terms of (Strongly agree, Agree, Neither, Disagree, Strongly disagree) or frequency (Always, Most of the time, Sometimes, Rarely, Never). The survey also includes two questions that ask respondents to provide an overall grade on patient safety for their work area/unit and to indicate the number of events they reported over the past 12 months. Table 1 displays the HSOPSC patient safety culture composites and definitions.

Table I

HSOPSC Patient Safety Culture Composites and Definitions

Patient Safety Composites	Definitions: the extent to which …
1. Communication openness	Staff freely speak up if they see something that may negatively affect a patient and feel free to question those with more authority.
2. Feedback and communication about error	Staff are informed about errors that happen, are given feedback about changes implemented, and discuss ways to prevent errors.
3. Frequency of events reported	Mistakes of the following types are reported: (1) mistakes caught and corrected before affecting the patient, (2) mistakes with no potential to harm the patient, and (3) mistakes that could harm the patient but do not.
4. Handoffs and transitions	Important patient care information is transferred across hospital units and during shift changes.
5. Management support for patient safety	Hospital management provides a work climate that promotes patient safety and shows that patient safety is a top priority.
6. Nonpunitive response to error	Staff feel that their mistakes and event reports are not held against them and that mistakes are not kept in their personnel file.
7. Organizational learning—Continuous improvement	Mistakes have led to positive changes and changes are evaluated for effectiveness.

8. Overall perceptions of patient safety	Procedures and systems are good at preventing errors and there is a lack of patient safety problems.
9. Staffing	There are enough staff to handle the workload and work hours are appropriate to provide the best care for patients.
10. Supervisor/manager expectations and actions promoting patient safety	Supervisors/managers consider staff suggestions for improving patient safety, praise staff for following patient safety procedures, and do not overlook patient safety problems.
11. Teamwork across units	Hospital units cooperate and coordinate with one another to provide the best care for patients.
12. Teamwork within units	Staff support each other, treat each other with respect, and work together as a team.

Development of Additional Survey Questions

Seven investigator developed questions were adapted from the LMX (reference) seven items added to the HSOPC survey in order to gather RN and NA perceptions of relational quality in a regional health system and examine how that relational quality influences perceptions of patient safety culture in the inpatient health care setting. The seven questions added to the HSOPC survey were:

Table II

RN and NA relational quality-seven questions adapted from LMX-seven (Graen & Uhl-Bien, 1995)

Questions	**Scale**
1. Do Nurse Assistants on your unit know how satisfied Registered Nurses are with their work?	Rarely – Very often
2. How well do Registered Nurses understand the demands and stressors of Nurse Assistants on your unit?	Not a bit – A great deal
3. How well do Registered Nurses on your unit recognize potential in Nurse Assistants?	Not at all - Fully

4. Regardless of years of experience or level of education, what are the chances Registered Nurses on your unit would use their power and knowledge to help Nurse Assistants solve problems at work?	None – Very high
5. Again, regardless of the amount of formal authority the Registered Nurse has, what are the chances that he or she would "have a Nurse Assistant's back" at the RN's expense?	None – Very high
6. Do Nurse Assistants on our unit have enough confidence in the Registered Nurse that they would defend and justify the RNs' decision if the RNs were not present to do so?	Strongly disagree – Strongly agree
7. How would you characterize the working relationship between the Nurse Assistant and Registered Nurse on your unit?	Extremely ineffective – Extremely effective

Data Collection

Data used in this study for a secondary analysis were collected between March 16, 2018 and April 2, 2018. Human subjects' approval was granted through the University Medical Center and University institutional review boards prior to study start. Identity of study participants was protected Participant and hospital unit identity was protected by having an outside agency de-identify data and assign a numerical code prior to making data available to the research team.

Data Analysis

All the HSOPSC and the LMX adapted question responses, unit information, and demographic data were analyzed descriptively to look for out-of-range values, missing values, or other data anomalies. Negatively worded (reverse worded) questions in the HSOPSC were recoded so that a positive response was indicated when a strongly agree response was given.

Psychometric testing was performed to determine if each scale was unidimensional and statistically sound.

Relational Quality Analyses

The seven LMX adapted items comprising Relational Quality were similarly analyzed by calculating percentage of positive responses and the overall composite score. Positive item response for the seven RN and NA relational quality items is defined as a respondent selecting the response code of 4 or 5 on the items. A composite score for RN and NA was computed as the average of the positive item responses on the seven items. Internal consistency reliability was computed using Cronbach's alpha for the Relational Quality composite.

HSOPC Composites of Interest Analyses

The percentage of positive responses was calculated for HSOPC individual items and for each of the 3 composites of interest: Teamwork within Units, Communication Openness, and Overall perceptions of Patient Safety. A positive item response is defined as a respondent selecting 'Strongly agree/Agree' on those items using Likert agreement choices or 'Always/Most of the time' on those items using Likert frequency responses. A composite percent positive score is defined as the average of the positive item responses comprising the respective composite. For example, a 3-item composite with the item-level percent positive of 50 %, 55 %, and 60 % would produce a composite-level percent positive response of 55 percent positive based on averaging of these three percentages. Internal consistency reliability was computed using Cronbach's alpha for each of the composites.

Patient Safety Grade Analyses

Patient Safety Grade is comprised of a single self-reported item on the HSOPC. In the study a positive response was defined as a descriptive variable, A (Excellent) or B (Very Good). Patient safety grade was used to stratify the RN and NA into groups in relation to the positive responses reported on the teamwork and communication composite.

Manager Influence Analyses

Supervisor/manager expectations and actions promoting patient safety, organizational learning, feedback and communication about error, and communication openness composites were combined to form a new variable of interest, Manager Influence. First, a percent positive score was computed for each of the four composites on the HSOPSC (supervisor/manager expectations and actions promoting patient safety, organizational learning, feedback and communication about error, and communication openness) used in the study for each RN and NA participant. Second, the percent positive score was the average percent of positive responses to each item in the composite. Third, an average percent positive score on each composite was averaged to form a new variable labeled Manager Influence (MI). Individuals were classified as having high MI if they had a majority of positive responses on each of the four composites or classified with having low MI if they did not provide a positive answer on a majority number of items in each composite.

Research Question (RQ) 1: What variability exists between RN and NA perceptions of relational quality and the safety composites of teamwork and communication when working in an acute care system?

Analysis of RQ 1: Percent positive scores were computed for each of the 7 RQ items, and for the items in the Teamwork within Units and Communication Openness composites. A

composite average percent positive score was computed by averaging the individual percent positive scores for each composite item. Independent-sample t-tests were used to compare the mean positive responses of the seven RQ items and the RQ total score between the RNs and NAs. The η2 statistic was used to describe the strength of the t-test comparisons. Independent-sample t-tests were also used to compare mean percent positive scores between RNs and NAs on the HSOPSC composites of teamwork within units and communication openness.

Research Question (RQ) 2: What is the relationship between levels of RN and NA relational quality, the safety composites teamwork and communication, and self-reported patient safety grade when working in an acute care system?

Analysis of RQ 2: Independent-sample t-tests were also used to compare mean percent positive scores between RNs and NAs on the HSOPSC composites of Teamwork within units and Communication Openness. Pearson correlations were used to investigate the relationship of RQ with teamwork and communication openness within units with the same patient safety grade and for the total RN and NA .

Research Question (RQ) 3: What is the relationship between levels of RN and NA relational quality and safety composite Manager Influence (supervisor/manager expectations and actions promoting patient safety, organizational learning, feedback and communication about error, and communication openness)?

Analysis of RQ 3: Pearson correlations analyses were used to investigate the intercorrelations among the four Manager Influence (supervisor/manager expectations and actions promoting patient safety, organizational learning, feedback and communication about error, and communication openness). The average percent positive responses between high and low relational quality groups and high and low MI groups were evaluated using the independent-

samples t-test. The eta-squared statistic (η^2) was used to describe the strength of the effect size after testing for statistical significance with the t-statistic.

Research Question (RQ) 4: What is the relationship between levels of RN and NA relational quality and organizational level outcomes of overall perceptions of patient safety and is it moderated by safety composite Manager Influence (supervisor expectations and actions promoting patient safety, organizational learning, feedback and communication about error, and communication openness)?

Analysis of RQ4: The SPSS TwoStep cluster procedure was used to explore for naturally occurring RN and NA subgroups based on their responses to the seven RN and NA relational quality questions. High and low were determined by the number of positive responses on individual items. Independent-samples t-tests were used to compare mean item differences and total composite scores between high and low relational quality in the RN and NA subgroups identified by the cluster procedure. The average percent positive responses on the Overall Perceptions of Patient Safety composite between high and low relational quality groups and high and low MI groups was evaluated using the independent-samples t-test. The eta-squared statistic (η^2) was used to describe the strength of the effect size after testing for statistical significance with the t-statistic.

Table III

Summary of Data Analysis by Research Question

Research Questions	Variables	Data Analysis
Question 1: What variability exists between RN and NA perceptions of relational quality and the safety composites of teamwork and communication when working in an acute care system?	Relational Quality Teamwork Communication	Independent-sample t test
Question 2: What is the relationship between levels of RN and NA relational quality, the safety composites teamwork and communication, and self-reported patient safety grade when working in an acute care system?	Relational Quality Teamwork Communication Patient Safety Grade	Pearson Correlation Independent T test
Question 3: What is the relationship between levels of RN and NA relational quality and safety composite Manager Influence (supervisor/manager expectations and actions promoting patient safety, organizational learning, feedback and communication about error, and communication openness)?	Relational Quality, Overall perceptions of Patient Safety, Manager Influence	Pearson correlation Independent T test

Question 4 What is the relationship between levels of RN and NA relational quality and organizational level outcomes of overall perceptions of patient safety and is it moderated by safety composite MI (supervisor expectations and actions promoting patient safety, organizational learning, feedback and communication about error, and communication openness)?	Relational Quality, Overall perceptions of Patient Safety, Manager Influence	Two Step Cluster Independent T test

Table IV

Definition and Measurement of Study Variable

Variable	Conceptual Definition	Measurement	Research Questions
Relational Quality	-the effectiveness of exchanges between the registered nurse (RN) and nursing assistant (NA).	Relational Quality Survey (7 adapted survey items from LMXs) (see Table II)	Research Questions 1, 2, 3, and 4
Teamwork	-a dynamic process involving two or more health workers with complementary backgrounds and skills, sharing common health goals and exercising concentrated physical and mental effort in assessing, planning, or evaluating patient care.	HSOPSC-Teamwork within units composite	Research Questions 1,2
Communication	-the process of exchanging information to establish a mutual understanding and to share ideas to create a shared meaning.	HSOPSC-Communication openness composite	Research Questions 1,2
Patient Safety Grade	-the overall grade on patient safety in the unit/area worked as.	HSOPSC-Self reported perception of safety grade on unit.	Research Question 2
Manager Influence	-the behaviors associated with a	HSOPSC-Combined 4 composites	-Research Question 3,4

	strong patient safety culture.	(supervisor/manager expectations, organizational learning, communication openness, feedback and communication about error	
Overall perceptions of patient safety	-how the participant perceived the safety on their unit.	HSOPSC-Overall perceptions of patient safety composite	Research Question 4

HSOPSC is the Agency for Healthcare and Quality (AHRQ) Hospital Survey of Patient Safety Culture

**Relational Quality Survey adapted from Leader Member Exchange 7 (Graen & Uhl-Bien, 1995)*

CHAPTER 4: RELATIONAL QUALITY BETWEEN THE RN AND NA: ESSENTIAL FOR TEAMWORK AND COMMUNICATION

Abstract

Purpose: The purpose of this study was to identify variability in perceptions of relational quality of the RN and NA working in an acute care system, examine the relationship between RN and NA relational quality, teamwork and communication perceptions and patient safety grade.

Background: RNs and NAs working in teams constitute the primary delivery method for nursing care within acute care systems. Within these teams, the RN serves as the leader with the NA providing care under the RN's direction. Evidence suggests that effective interpersonal, leader-to-member exchange between the RN and NA, is essential to improving patient safety culture and patient safety outcomes. Relational quality is influenced by role clarity, shared mental models, and the ability of the RN to successfully lead the NA. Poor relational quality contributes to poor teamwork and communication; thus, compromising quality and potentially placing patient safety outcomes at risk. There is a scarcity of research exploring RN and NA perceptions of relational quality and how these perceptions relate to teamwork and communication.

Methods: A cross sectional secondary analysis was used to examine relational quality among fulltime RNs and NAs engaging in clinical practice in the acute care hospital setting. Secondary data analysis was conducted from the Agency for Healthcare and Quality (AHRQ) Hospital Survey of Patient Safety Culture (HSOPSC). Seven investigator developed questions measuring relational quality were added to the AHRQ items and administered to RNs and NAs (n=1152) in 53 inpatient units.

Results: This study found demonstrative differences in the perception of relational quality between RNs and NAs. RNs and NAs rated their teamwork as high even if they perceived their patient safety grade as low. High relational quality is correlated with high teamwork.

Conclusions: This study advances our understanding of the influence of RN-NA relational quality on teamwork and communication. This study is the first to look at the nature of the RN-NA person-to person interaction using the composites of Leader-Member Exchange (LMX) theory.

Keywords: Agency for Healthcare and Quality (AHRQ), Hospital Survey of Patient Safety Culture (HSOPSC), Relational quality (RQ)

Introduction

Breakdown in teamwork and communication account for three quarters of the deaths in hospitals (Joint Commission, , 2018). In the past, teamwork research has focused on understanding the client-nurse relationship (Turpin et al., 2012) and nurse-physician relationship (Narasimham et al., 2006). Today's complex healthcare is dependent upon multidisciplinary teams that extend beyond the physician and nurse (Weller, Boyd & Cumin, 2014). More specifically, the use of teams of nursing assistants (NAs) and registered nurses (RNs) to deliver nursing care is a primary vehicle for care provision in acute care systems.

Safe and optimal patient care requires RNs and NAs to use effective teamwork and communication; both are essential composites of a positive workplace culture that contribute to safe practices (Kennerly et al., 2012). Nursing assistants are unlicensed assistive personnel with minimal training assigned to support the RN in the provision of patient care activities. NAs are an economical alternative to the limited supply of RNs because NAs can be educated in a 6-week course with at least 16 clinical hours, compared to a two-year minimum investment to become an RN. Compensation for NAs is also less than RNs, making them more affordable to health care systems (Trinkoff et al., 2017). In this mode of care delivery, the skill level is mixed to allow for the NAs to complete lower level tasks such as routine care, vital signs, and ambulation in a healthcare setting and permit the RN to focus on higher skill levels of care (Havaei et al., 2019).

The RN and NA dyad is a work team that represents the backbone of most acute care health systems. "Being able to model and create harmonious team-work through healthy and mutually beneficial relationships is now considered to be the epitome of good leadership" (Branson & Marra, 2019, p.85). Thus, exploring the quality of the interpersonal relationship between the RN, who serves as the team leader, and the NA, is essential for optimizing patient

care delivery processes and outcomes (Kalisch, 2011); yet, limited research has explored the relational quality of this team or how relational quality (RQ) influences nursing professional outcomes. The purpose of this study was to identify differences in perceptions of relational quality of RNs and NAs working in the same health system and to explore relational quality's influence on RN and NA evaluation of teamwork and communication.

Background

For this study, RQ is defined as the effectiveness of exchanges between the RN and NA. Evidence suggests that positive RQ, effective interpersonal leader-to-member exchange between the RN and NA (Sammer et al., 2010), is essential to improving patient safety culture and patient safety outcomes (Trybou et al., 2014; Kalisch, 2011). Hence, the level of teamwork and communication openness perceived by the NA and the RN is a key professional outcome for evaluating the effectiveness of nursing care. For decades, RNs have collaborated with NAs to provide care for patients; however, cost management, downsizing, nursing shortages, and increased acuity have increased the pressure to make this an effective team.

Teamwork is an important attribute for collaboration toward a common goal. Sharing of resources, expertise, and decision making is important for positive teamwork. The use of teams to counter challenging conditions is common in many professions. Nursing team members working together lowers the burn out associated with high stress environments and promotes a sense of stability leading to higher quality of care at a decreased cost (Kalisch & Lee, 2011). The RQ of the RN-NA team is foundational to developing and maintaining a healthy work environment. Previous research revealed that teamwork between the RN and NA is a major concern in care delivery models (Kalisch, 2011). Role clarity and the inability of the RN to successfully lead the NA creates barriers to teamwork and communication; thus, potentially

compromising the quality of the interpersonal relationship and placing patient safety outcomes at risk (Kalisch, Curley, & Stefanov, 2007). Furthermore, the degree to which the NA feels a part of the nursing professional group is related to the NA exhibiting positive reciprocity in the organization (Trybou, et al., 2014).

Typically, members of a team follow the norm of reciprocity, treating each other as they are treated. However, in a previous study, NAs did not always model the positive safety behaviors displayed by RNs (Trybou et al., 2014). Nor was there consistency in NA participation in decision making, care collaboration, or conflict resolution with the RN (Franziska et al., 2015). Bellury et al. (2016) examined perceptions of teamwork and found the RN and NA have different mental models of teamwork. A shared mental model is defined as "individually held knowledge structures that help team members function collaboratively in their environments" (McComb & Simpson, 2014). In Bellury et al. (2016), nursing assistants perceived other nursing assistants, rather than RNs, as the team members who aided them in completion of their assigned tasks. RNs described teamwork as reminding NAs of necessary tasks to be completed. This difference in mental models could lead to poor RQ, low functioning teams and ineffective communication (Bellury et al., 2016; Vessey et al., 2010).

Complicating the RN-NA relationship are differences in education and skills forming a power hierarchy. Nurse – physician as well as RN-NA teams have power differences and cultural barriers that impede team cohesion and contribute to missed care (McCulloch et al., 2011). Hierarchical barriers in teamwork have led to a lack of situational awareness and reduced acknowledgement of human error in adverse clinical events (AHRQ, 2018). Intimidation, delayed response to requests, and reluctance to work as a team are dangerous to the RN-NA

relationship. These disruptive behaviors are linked to breaks in teamwork, communication, and effective delivery of patient care (Thomson et al., 2015).

Thus, effective communication between the RN and NA is critical and involves transfer of information and responsibility between the two parties (Santos et al., 2018). Each party needs to understand the message being presented. The RN and NA often communicate in one-way communication related to tasks needing to be completed (Bellury et al., 2016). Bellury et al. (2016) found both NAs and RNs understood the importance of communicating; however, due to work demands on the unit they conducted one-way communication or telling. To reach desired professional outcomes for patients, RN-NA communication must be transparent and respective team members must respect and honor the contributions of each other (Thomson, et al., 2015).

Significance

The RN and NA are the cornerstone of patient safety in acute care systems (Roth et al., 2015); yet, the perceptions of RN-NA RQ have rarely been studied. This study provides insight into the RQ within the RN-NA leader-to-member exchange and the associated influence on the professional outcomes of teamwork and communication. This study is the first to look at the nature of the RN-NA leader-to member interaction and how this interaction relates to perceptions of teamwork and communication.

Methods

Participants and Setting

This study was a cross sectional secondary analysis of data collected in spring 2018 from a hospital-wide sample of 14,000 fulltime employees within an academic medical center, four community hospitals, and three critical access hospitals located in the southeastern USA. RNs and NAs (n=1152) from 53 inpatient settings completed the Agency for Healthcare Research and

Quality Hospital Survey on Patient Safety Culture (AHQR HSOPSC) survey. Seven investigator developed questions measuring RQ were added to the AHRQ items and administered via email to RNs and NAs. Responses were collected from 889 RNs and 263 NAs.

Measures

A two-part survey comprised of the AHRQ HSOPSC and seven additional questions (See Table 1) about RQ were used for data collection. Part one of the survey was the 42-item AHRQ HSOPSC questionnaire measuring 12 composites of patient safety culture on a five-point Likert-type scale. Teamwork within units and communication openness were the two composites of the instrument used for this study. One additional question was used from the AHRQ survey which asked respondents to provide an overall grade on patient safety for their unit. Part two examined RN-NA RQ using seven investigator developed questions. These questions were guided by the original LMX-seven questionnaire (Katrinli, et al., 2008) used to measure leader and follower RQ (RQ). The adapted seven-item questionnaire used in this research changed the wording from leader and member to that of registered nurse and nurse assistant. Responses used a 5-point Likert-type scale, resulting in total scores ranging from 7 to 35, with higher scores indicating positive relationships.

Table V

Survey Questions used for Data Analysis

RQ Questions (adapted from original LMX7)
1. Do Nurse Assistants on your unit know how satisfied Registered Nurses are with their work?
2. How well do Registered Nurses understand the demands and stressors of Nurse Assistants on your unit?
3. How well do Registered Nurses on your unit recognize potential in Nurse Assistants?
4. Regardless of years of experience or level of education, what are the chances Registered Nurses on your unit would use their power and knowledge to help Nurse Assistants solve problems at work?

5. Again, regardless of the amount of formal authority the Registered Nurse has, what are the chances that he or she would "have a Nurse Assistant's back" at the RN's expense?
6. Do Nurse Assistants on our unit have enough confidence in the Registered Nurse that they would defend and justify the RNs' decision if the RNs were not present to do so?
7. How would you characterize the working relationship between the Nurse Assistant and Registered Nurse on your unit?

Teamwork Within Units (from HSOPSC)

1. People support one another in this unit.
2. When a lot of work needs to be done quickly, we work together as a team.
3. In this unit, people treat each other with respect.
4. When one area in this unit gets really busy, others help out.

Communication Openness (from HSOPSC)

5. Staff will freely speak up if they see something that may negatively affect patient care.
10. Staff feel free to question decisions or actions of those with more authority.
11. Staff are afraid to ask questions when something does not seem right (recoded).

Data Analysis

Percent positive scores were computed for each of the seven RQ items, and for the items in the Teamwork within Units and Communication Openness composites. A composite average percent positive score was computed by averaging the individual percent positive scores for each item.

Exploratory principal components factor analysis was used to verify that the seven RQ items formed a unidimensional scale. Cronbach's alpha was used to measure the internal consistency reliability of the RQ measure for the RN and NA groups. Cronbach's alpha of .86 was found for the RNs, and .89 for the NAs. Independent-sample t-tests were used to compare the mean positive responses of the seven RQ items and the RQ total score between the RNs and NAs. The $\eta 2$ statistic was used to describe the strength of the t-test comparisons. Independent-sample t-tests were also used to compare mean percent positive scores between RNs and NAs on the HSOPSC composites of teamwork within units and communication openness. Pearson

correlations were used to investigate the relationship of RQ with teamwork and communication openness within units with the same patient safety grade and for the total RN and NA groups. IBM SPSS (version 25; IBM Corp., Armonk, New York) was used to conduct all analyses.

Ethical Considerations

Human subjects' approval was granted through the University Medical Center and University institutional review boards prior to study start. Participants and hospital units were de-identified and assigned a numerical code by an outside agency to protect identity of study participants.

Results

Participant Characteristics

Table 2 displays the RN and NA study sample characteristics. Most participants reported working on a medicine unit, RNs (30%) and NAs (46%). Eighteen percent of RNs reported less than one year of experience compared to 2% of NAs. Twenty-one percent of RNs reported working less than one year on the current unit compared to 3% of NAs.

Table VI

Demographics Characteristics of RN (n=889) and NA (n=263)

Characteristics	RN		NA	
	M	%	M	%
Tenure with current Hospital (years)				
<1	163	19	57	22
1-5	369	42	111	42
6-10	150	17	31	12
>10	197	22	64	24
Missing	10	1	0	
Tenure with current unit (years)				
<1	189	21	61	23
1-5	404	46	119	45
6-10	138	16	35	13
>10	149	17	48	19
Missing	9	1	0	
Tenure in current specialty or profession (years)				
<1	94	11	24	9
1-5	329	38	91	35
6-10	185	21	42	16
>10	268	30	106	40
Missing	13	1	0	
Hours worked per week (hours)				
<20	20	2	20	8
20-39	586	66	146	55
40-59	263	30	81	31
>59	18	2	16	6
Missing	2	61	0	
Have direct contact with patient				
Yes	879	99	260	99
No	5	<1	2	1
Missing	5	<1	1	<1

Perceptions of RQ in RNs and NAs

Table VII

Percent Positive Response on RN-NA RQ Items and Total RN-NA Composite for RNs and NAs

RN-NA Item	Positive Response	RN n=889 % Pos	RN n=889 SD	NA n=263 % Pos	NA n=263 SD	t	p	η^2
1. Do Nurse Assistants on your unit know how satisfied Registered Nurses are with the work they do?	Fairly often Very often	53	50.0	42	49.5	3.18	.002	.009
2. How well do Registered Nurses understand the demands and stressors of Nurse Assistants on your unit?	Quite a bit A great deal	68	46.8	27	44.7	12.37	<.001	.117
3. How well do Registered Nurses on your unit recognize potential in Nurse Assistants?	Mostly Fully	66	47.2	35	47.7	9.59	<.001	.074
4. Regardless of years of experience or level of education, what are the chances Registered Nurses on your unit would use their power and knowledge to help Nurse Assistants solve problems at work?	High Very High	69	46.3	33	47.3	10.83	<.001	.093
5. Again, regardless of the amount of formal authority the Registered Nurse has, what are the chances that he or she would “have a Nurse Assistant’s back” at the RN’s expense?	High Very High	45	49.8	24	42.5	6.39	<.001	.034
6. Do Nurse Assistants on our unit have enough confidence in the Registered Nurse that they would defend and justify the RNs’ decision if the RNs were not present to do so?	Agree Strongly Agree	56	49.7	53	50.0	.87	.382	.001

7. How would you characterize the working relationship between the Nurse Assistant and Registered Nurse on your unit?	Better than average Extremely Effective	56	47.6	38	48.6	5.25	<.001	.023
Overall RQ		59	33.4	36	35.2	9.72	<.001	.076

Table 3 shows the percent of RNs and NAs who answered each of the RQ questions with a positive response. The RNs rated each item higher than the NAs and had a higher overall RQ average score. The largest differences observed were on items 2, 3, and 4. For item 2, which measured the respective RN and NA understanding of the demands and stressors of the NAs on their units, 68% of the RNs gave a positive response, compared to 27% of the NAs. Similarly, for item 3, recognizing the potential in NAs, 66% of the RNs reported they could mostly/fully recognize potential in NAs compared to only 35% of the NAs. When characterizing the working relationship between NAs and RNs (item 7), only 38% of the NAs reported a working relationship that was better than average or extremely effective, compared to 56% of RNs.

Relationship of RQ to Teamwork within Units and Communication Openness

Table VIII

RN and NA Teamwork Within Units and Communication Openness Composite Percent Positive Means Within Units Graded A, B, C and D/F

Composite		RN			NA				
Unit Grade	n	M	SD	n	M	SD	t	p	η^2
Teamwork Within Units									
A	188	97	12.5	67	82	30.8	5.52	<.001	.107
B	373	88	21.7	114	77	29.6	4.26	<.001	.036
C	226	72	32.2	61	59	36.5	2.69	.007	.025
D/F	56	45	40.6	13	44	30.9	0.07	.943	<.01
Total Group	889	83	28.1	263	72	33.6	5.64	<.001	.027
Communication Openness									
A	188	85	23.9	68	78	27.6	2.20	.029	.02
B	373	62	34.0	114	59	33.5	0.80	.426	.001
C	226	40	34.7	61	38	34.2	0.48	.626	.001
D/F	56	21	25.8	13	26	33.8	0.50	.619	.004
Total Group	889	59	36.8	263	56	35.9	0.96	.336	.001

Table 4 compares the mean percent positive score for Teamwork within Units and Communication Openness of RNs and NAs who reported the same patient safety grade for their units. If RNs and NAs scored the patient safety grade as an A ($p<.001$), B ($p<.001$), or C (.007), RNs had statistically higher scores for Teamwork within Units than the NAs, and also for the total group composite average. In units with patient safety grades of A, 97% of the RNs and 82% of the NAs reported positive teamwork. In B grade units, positive teamwork was reported by 88% of the RNs and 77% of the NAs. There was only a statistical difference in perceived communication openness ($p=.029$) between the RNs and NAs who worked on units with A level patient safety grades.

Table IX

Pearson Correlations of RQ (RQ) with Teamwork Within Units and Communication Openness Composites Within Units Graded A, B, C and D/F

	Pearson Correlation RQ with Teamwork Within Units		Pearson Correlation RQ with Communication Openness	
Unit Grade	RN	NA	RN	NA
A	.15*	.54**	.17*	.34**
B	.28**	.55**	.21**	.27**
C	.27**	.48**	.16*	.32*
D/F	.28*	.63**	.09	.12
Total Group	.36**	.61**	.32**	.44**

**p < .05. **p < .01*

Table 5 shows the linear relationship between RQ scores and composite scores for RNs and NAs reporting the same unit patient safety grades. Coefficients for the NAs were much higher, all medium and large correlations, compared to small or medium correlations for the RNs. For the overall composite score, there was a large positive correlation between RQ in the NAs and their teamwork scores (r=.61), indicating that higher RQ was associated with higher unit teamwork scores. Among the RNs, the correlation (r=.36) between RQ and unit teamwork score was at a medium level.

When looking at communication openness, the Pearson correlations for RQ and communication openness were much lower for the NAs. For the overall group of RNs and NAs, the correlation of RQ with communication openness scores was at a medium level.

Discussion

Perceptions of RQ in the RNs and NAs

This study found demonstrative differences in the perception of RQ between RNs and NAs. While RNs believed they had a positive relationship with the NA, NAs believed the RN did not realize their potential or understand their job demands and stressors. Also, the NAs did not feel the RNs would help them solve problems at work. Since the RN serves as the leader in this dyad, the NA should be able to view them as a resource for issues they encounter with patients and their work. These findings are consistent with those of Kalisch (2011) who found NAs perceived that they were disrespected, devalued, and disregarded in decision making. These perceptions can lead to a lack of ownership and accountability for the leadership goals of the RN.

Furthermore, even though RNs reported higher perceptions of RQRQ, only 56% of RNs characterized their working relationship with the aides as better than average or extremely effective. Also, NAs perceived RQRQ to be much more of an issue than the RNs, with only 38% feeling the relationship was better than average or extremely effective. The danger in this perception is the NA will not reciprocate or modify behaviors needed for a safe work environment. Employees with a perception of organizational belonging, feel themselves to be part of the organization and are willing to modify behaviors to meet the expectations of the organization (van Knippenberg et al., 2000).

Relationship of RQ to the HSOPSC Composites of Teamwork within Units

The second major finding in this study is that if RNs and NAs perceived they worked on a unit with an A, B, or C level patient safety grade, teamwork was positive (Table 4). This seems contradictory but could be supportive of the work of Bellury et al. (2016) who found that RNs and NAs have different mental models of teamwork. NAs perceived other NAs rather than RNs

as team members, while RNs felt the NA was a member of the team. NAs who felt they had a good relationship with the RNs also were more likely to report a higher overall teamwork score (Table). The RNs did not have the same perceptions. The RN scored teamwork as high even if they scored RQ with the NA as low. This may indicate the RN has a broader view of team members including the charge nurse, nurse manager, and providers.

Additionally, as noted in Table 5, NAs who felt they had a good relationship with the RNs were more likely to report a higher overall teamwork score (r=.61). In contrast, there was a lower likelihood that RNs who scored RQRQ with the NA as high would also rate teamwork high (r=.36). RQ is an important predictor of how the aide views teamwork in their work units. For the RN, there may be a more complex litany of factors that influence evaluation of unit teamwork.

Relationship of RQ to Communication Openness

Higher levels of communication openness were associated with higher levels of RQ by both NAs and RNs. Regardless of unit patient safety grade, the proportion of RNs and NAs reporting positive communication openness on their work units was much lower than those reporting positive teamwork, and there was closer agreement between the RN and the NA on the levels of positive communication openness.

There were positive correlations between RQ and both communication openness and teamwork for NAs and RNs, but the relationship was much stronger between RQRQ and teamwork and RQRQ was more influential on teamwork in NAs than RNs.

Implications for Leaders

Improving RQ Between the RN and NA

Leaders are encouraged to evaluate the care delivered by RNs and NAs, identify gaps in RQ, and promote professional development and models of care delivery that improve the RN and NA relationship. The RN needs to recognize the vulnerability of the NA. Usually underpaid and less educated, the NA takes the larger physical burden of patient care (Rubin et al., 2009). This high emotional and physical work leads to the highest turnover and absenteeism among the nursing workforce (Duffield et al., 2014).

High Functioning Teams

Building a high functioning team begins by developing psychological safety and eliminating hierarchical barriers. RN and NA teams are hierarchical, and these power and cultural barriers impede team cohesion (McCulloch et al., 2011). Intimidation, delayed response to requests and reluctance to work as a team are dangerous, disruptive hierarchical behaviors (Thomson et al., 2015). Strong RN-NA teams can be built through education, simulation and team building activities. Simulation and role play are two effective strategies reported in the literature for accomplishing stronger teams (Godlock, 2016; Kalisch et al., 2015). Using different scenarios, the RN and NA can demonstrate their communication, teamwork, and delegation skills without any harm to the patients.

Communicating Effectively

Relational coordination is highly related to the frequency, accuracy and timeliness of communication among team members. Leadership should examine and explore communication barriers. Flaws in the communication between the RN and NA can result in adverse events for the patient and disruption in care (da Silva et al., 2018). The RN and NA striving for effective

communication should acknowledge the different educational backgrounds, hierarchy and the difference in communication styles to achieve a culture of safety. Integrating NAs into shift reports is an effective tool to improve communication among RNs and NAs (Howard & Becker, 2016). Including the NA in bedside shift report (Howard & Becker, 2016) and multidisciplinary rounds (Costello, 2010) acknowledges the importance of the NA's contribution to nursing professional outcomes.

Conclusion

There is limited empirical research addressing how RNs and NAs perceptions of RQ influence assessments of teamwork and communication. The literature acknowledges the need for the RN and NA to work together as a strong team; however, little is reported about the ability of the RN to lead the NA . This study validates that the relationship between RNs and NAs on a unit is important and influences overall perceptions of teamwork and communication openness. NAs view RQ as essential for positive teamwork on a unit. It is possible that NAs rate the level of teamwork on a unit as to how they work with other NAs. However, in this study higher levels of RQ with the RN were associated with higher levels of teamwork and communication openness. Past research focused on teamwork and communication between interdisciplinary teams but did not examine the RN to NA delivery model. Understanding how the RN-NA leader to member interaction influences collaborative professional nursing work may be one of the key elements required for improving teamwork and communication on an acute care unit.

CHAPTER 5: MANAGER'S INFLUENCE ON RN AND NA RELATIONAL QUALITY AND PATIENT SAFETY CULTURE

Abstract

Purpose: The purpose of this study was to identify variability in perceptions of relational quality of the RN and NA working in an acute care system, examine the relationship between RN and NA relational quality and safety composites as influenced by the supervisor/manager, and evaluate how RN and NA relational quality influence the overall patient safety culture of a unit.

Background: The primary delivery of nursing care within acute care systems uses teams of RNs and NAs. Evidence affirms that positive relational quality, the effective interpersonal, leader-to-member exchange between the RN and NA, influences patient safety culture. Other research demonstrates a relationship between manager behaviors and patient safety culture. Yet, no studies have examined the interrelationship of RN-NA relational quality, MId patient safety behaviors, and patient safety culture.

Methods: A cross-sectional secondary analysis of data collected in the spring of 2018 using the Agency for Healthcare and Quality (AHRQ) Hospital Survey of Patient Safety Culture (HSOPSC) and a seven-item questionnaire measuring relational quality was conducted. The sample included responses from 889 RN's and 263 NA's (1152). A two-step cluster procedure was used to form high and low relational quality groups for the RNs and NAs. Four of the 12 HSOPSC composites were selected for their evaluation of manager influence safety behaviors (Supervisor/Manager Expectations & Actions Promoting Patient Safety, Organizational Learning – Continuous Improvement, Feedback & Communications About Error, and Communication Openness). The two outcome measures were Overall Perceptions of Patient Safety and a new variable Manager Influence (MI). Perceptions of patient safety culture between high and low relational quality groups and high and low MI groups were evaluated using the independent-

samples t-test. The eta-squared statistic (η2) was used to describe the strength of the effect size after testing for statistical significance with the t-statistic.

Results: The manager influenced overall perceptions of safety regardless of the relational quality between the RN and NA.

Conclusions: This study found manager behaviors that promote patient safety also influence overall perceptions of patient safety culture regardless of the relational quality between the RN and NA. Positive RN and NA relational quality amplifies perceptions of patient safety culture, but it is the manager's behaviors regarding safety that make the stronger contribution in building a culture of safety.

Keywords: Agency for Healthcare Research and Quality (AHRQ), Hospital Survey of Patient Safety Culture (HSOPSC), Patient Safety, Relational Quality (RQ), Manager Influence (MI)

Introduction

An estimated 1 in every 300 patients in the United States experience harm during hospitalization (World Health Organization, 2014). Furthermore, failure to prevent harm has made preventable error the leading cause of death (Kohn & Donaldson, 2000). The need to provide better care for patients led to the Institute of Medicine's (IOM) recommendation for hospitals to develop a culture that fosters patient safety (Ulrich & Kear, 2014).

Positive patient safety is influenced by leadership, teamwork, patient-centeredness, evidence-based practice, communication, ongoing learning, and a response to error that is just (Sammer et al., 2010). Murray et al. (2019) believe the central and most important composite of safety culture is leadership, not just at the highest levels, but also at the bedside. The most fundamental unit of bedside leadership on hospital units is the Registered Nurse (RN) and Nursing Assistant (NA) team where the RN serves as the leader, directing and collaborating with the NA to assure patient care is rendered safely and appropriately.

Historically, the RN and NA team had a task-oriented focus on the completion of patient care activities through delegation of auxiliary services to the NA while skilled services were rendered by the RN (Bellury et al., 2016).Relational leadership over transactional or task-oriented leadership in research on frontline nursing leaders was associated with improved patient safety culture on units (Thompson et al., 2011). These findings may translate to the RN and NA relationship whereby RN-NA teams with strong relational quality might achieve better and safer outcomes for patients.

Background

RN and NA Relational Quality (RQ)

Evidence supports that teams decrease human error and improve patient outcomes (Kaiser & Westers, 2018). Maximized teams require effective exchanges between persons, including leaders and followers. As noted previously, the RN leads the team with the NA assisting in the implementation of patient care. Effective exchanges can be explored through analysis of interactions as described in Leader-Member Exchange (LMX) theory (Katrinli et al., 2008). Positive RQ and effective interpersonal, leader-to-member exchange between the RN and NA (Sammer et al., 2010) are essential to improving patient safety culture and patient safety outcomes (Trybou et al., 2014). Exchanges between persons, the RN and NA team in this case, can be further explored through analysis of dynamic interactions as described in Leader-Member Exchange (LMX) theory (Katrinli et al., 2008). In LMX theory, exchanges between persons will influence RQ which is defined as the level of trust, communication and respect among leaders and their subordinates. According to LMX theory, leaders are responsible for delegating tasks, providing closed loop communication, and guiding the subordinate to the shared organizational goal (Katrinli, et al., 2008). This relationship directly affects the team member and teamwork and can be used as a means for growth or as a barrier.

The strength of these relationships among staff contributes greatly to a positive patient safety culture (Squires et al., 2010). Staff with positive social exchanges were willing to go beyond assigned roles and functions to meet the needs of the organization (Trybou et al., 2014). Past research has found a significant association between RN and NA RQ and the teamwork and communication composites of Agency of Health Care and Quality (AHRQ) Hospital Survey of Patient Safety Culture (HSOPSC) (Campbell et al., 2019). This study extends that work to

examine if positive RN and NA RQ is associated with four manager influence composites of safety culture and overall patient safety culture.

Manager's Influence (MI) on Patient Safety

In the literature, there is strong support that manager behaviors influence patient safety and outcomes, including mortality, safety climate, and quality of patient care (Brady et al., 2010; Hughes, 2019). Leaders are responsible for setting expectations, fostering organizational learning, and providing positive practice environment in the reporting of errors (Anderson et al., 2019; Wick et al., 2015; Laschinger & Leiter, 2006). Institute for Healthcare Improvement (2015) notes that leaders must commit to being visible, displaying safety behaviors, and making safety a priority regardless of the demands of the unit. Managers play an important role in coaching staff in best care practices and in introducing innovation into the workplace; leaders work to create a culture of trust, autonomy, and safety (Wick et al., 2015).

Leaders influence by fostering organizational learning such as viewing adverse events as opportunities to grow and learn. Managers who behave in this manner cultivate mindfulness in employees rather than fear. Using these events as learning opportunities reduces the focus on human error and fosters finding system solutions. In this blame free environment, the manager creates a just culture and rewards the reporting of errors (Laschinger & Leiter, 2006; Brady & Cummings, 2010) .

Managers also model safety behaviors engage staff in safety solutions, and can provide transparency about safety issues, all of which nurture development of a positive patient safety culture (Kalisch, 2011). Another study found leadership expectations of unit staff had the strongest influence on patient outcomes (Adams et al., 2018). Furthermore, Squires et al. (2010) found the manager-staff relationships were a large contributor to patient safety culture. However,

no studies have examined perceptions of the quality of the RN and NA relationship and if that RQ is related to the supervisor/manager influence composites of patient safety (supervisor/manager expectations & actions promoting patient safety, organizational learning – continuous improvement, feedback & communications about error, and communication openness) as measured on the HSOPSC. Therefore, the purpose of this study was to identify variability in perceptions of relational quality of the RN and NA working in an acute care system, examine the relationship between RN and NA relational quality and safety composites as influenced by the supervisor/manager, and evaluate how RN and NA relational quality influence the overall patient safety culture of a unit.

Methods

Participants and Setting

A cross-sectional secondary analysis of de-identified data collected in the spring of 2018 was conducted on responses from 889 RN's and 263 NA's (1152) working on 53 inpatient units in a large regional health system in the southeast.

Ethical Considerations

Human subjects' approval was granted through the University Medical Center and University institutional review boards prior to study start. Participants and hospital units were de-identified and assigned a numerical code by an outside agency prior to the research team having data to protect the identity of study participants.

Measures

RN-NA RQ was measured using seven items with a 5-point Likert-type scale response adapted from the original LMX-7 Survey (Table I).

Table X

Percent Positive Response on RN-NA RQ Items and Total RN-NA Composite for RNs and NAs

RN-NA Item	Positive Response	RN n=889 % pos	RN n=889 SD	NA n=263 % pos	NA n=263 SD
1. Do Nurse Assistants on your unit know how satisfied Registered Nurses are with the work they do?	Fairly often Very often	53	50.0	42	49.5
2. How well do Registered Nurses understand the demands and stressors of Nurse Assistants on your unit?	Quite a bit A great deal	68	46.8	27	44.7
3. How well do Registered Nurses on your unit recognize potential in Nurse Assistants?	Mostly Fully	66	47.2	35	47.7
4. Regardless of years of experience or level of education, what are the chances Registered Nurses on your unit would use their power and knowledge to help Nurse Assistants solve problems at work?	High Very High	69	46.3	33	47.3
5. Again, regardless of the amount of formal authority the Registered Nurse has, what are the chances that he or she would "have a Nurse Assistant's back" at the RN's expense?	High Very High	45	49.8	24	42.5
6. Do Nurse Assistants on our unit have enough confidence in the Registered Nurse that they would defend and justify the RNs' decision if the RNs were not present to do so?	Agree Strongly Agree	56	49.7	53	50.0
7. How would you characterize the working	Better than average	56	47.6	38	48.6

relationship between the Nurse Assistant and Registered Nurse on your unit?	Extremely Effective				
Overall RQ		59	33.4	36	35.2

The original LMX-7 items asked about relationships from the perspectives of leader and follower. In contrast, the adapted seven questions asked about relationships from the perspectives of the registered nurse and nurse assistant. The RN-NA RQ questionnaire total scores ranged from 7 to 35, with higher scores indicating higher RN-NA RQ. Exploratory principal components factor analysis was used to verify that the seven RQ items formed a uni-dimensional measure, Cronbach's Alpha was .86 for RN and .89 for NA.

Four patient safety culture composites from the Agency for Healthcare Research and Quality Hospital survey on Patient Safety Culture (HSOPSC) that reflect manager influence (MI) on safety were used in this study. These composites Overall Perceptions of Patient Safety, Supervisor/Manager Expectations and Actions Promoting Patient Safety, Organizational Learning-Continuous Improvement, Communication Openness, and Feedback and Communication About Error were combined to form the new variable (Table 3). Intercorrelations of scores of the four MI composites were large (.50 or greater, $p<.001$) and affirmed relatedness among the variables.

Data Analysis

Frequencies were used to summarize descriptive variables. IBM SPSS (version 24; IBM Corp., Armonk, New York) was used to conduct all analyses. Each of the composites included either 3 or 4 items, some of which were positively worded, and some were negatively worded. For positively worded items, a positive response is "agree", "strongly agree", "most of the time", or "always", depending of the response categories used for the item. A negative answer on a negatively worded item indicated a positive response, so for those questions a positive response would be "strongly disagree," "disagree," "never," or "rarely." The two outcome measures were Overall Perceptions of Patient Safety and a new variable MI. Overall Perceptions of Patient

Safety were measured by the percent positive responses on the four composite items (patient safety is never sacrificed to get more work done, our procedures and systems are good at preventing errors from happening, it is just by chance that more serious mistakes don't happen around here, we have patient safety problems on this unit).

Then, a percent positive score was computed for each of the four composites (Supervisor/Manager Expectations and Actions Promoting Patient Safety, Organizational Learning-Continuous Improvement, Communication Openness, and Feedback and Communication About Error) for each RN and NA participant. The percent positive score is the average percent of positive responses to each item in the composite. First, the average of the percent of positive responses from all four manager influencing composites were used to form a single new variable, MI. RNs. Second, RNs and NAs were classified as working on units with high (or positive) MI if each of the four composites had a majority of positive responses or classified with working on units with low (or negative) MI if they did not provide a positive answer on a majority of the items in each composite. High, or positive MI was operationally defined as a manager who set expectations and modeled safety behaviors on the unit (AHRQ, 2018).

Next, the SPSS Two-Step Cluster procedure was used to form high and low RQ groups for the RNs and NAs. The average percent positive responses on the Overall Perceptions of Patient Safety composite between high and low RQ groups and high and low MI groups were evaluated using the independent-samples t-test. The eta-squared statistic (η^2) was used to describe the strength of the effect size after testing for statistical significance with the t-statistic.

Results

Demographics

On average, experience levels among RN and NA participants were similar. Forty-one percent of the RNs and 42% of NAs had one-five years of experience. However, the RNs were more novice, with 21% having less than one year of tenure on the current unit compared to 3% of NAs. Forty percent of NAs reported tenure > 10 years in their current specialty compared to 30% of RNs.

Table XI

Demographic Characteristics of RN (n=889) and NA (n=263)

Characteristics	RN		NA	
	n	%	*n*	%
Tenure with current Hospital (years)				
<1	163	19	57	22
1-5	369	42	111	42
6-10	150	17	31	12
>10	197	22	64	24
Missing	10	1	0	
Tenure with current unit (years)				
<1	189	21	61	23
1-5	404	46	119	45
6-10	138	16	35	13
>10	149	17	48	19
Missing	9	1	0	
Tenure in current specialty or profession (years)				
<1	94	11	24	9
1-5	329	38	91	35
6-10	185	21	42	16
>10	268	30	106	40
Missing	13	1	0	
Hours worked per week (hours)				
<20	20	2	20	8
20-39	586	66	146	55
40-59	263	30	81	31
>59	18	2	16	6

Missing	2	61	0	
Have direct contact with patient				
Yes	879	99	260	99
No	5	<1	2	1
Missing	5	<1	1	<1

Table XII

Average Percent Positive Response on the Overall Perceptions of Patient Safety Composite and with High and Low RN-NA RQ and High/Low RQ Moderated by Unit MI (MI)

Participant Group	High Relational Quality	Low Relational Quality	t	p	η^2
RN					
n	476	412	6.71	<.001	.060
M (SD)	66 (32.7)	50 (36.1)			
NA					
n	93	170	4.24	<.001	.065
M (SD)	70 (25.6)	54 (31.2)			
RN: High MI					
n	239	113	0.43	.669	.001
M (SD)	78 (26.6)	77 (28.2)			
RN: Low MI					
n	219	286	4.01	<.001	.031
M (SD)	51 (33.1)	39 (33.5)			
NA: High MI					
n	57	41	1.50	.137	.023
M (SD)	78 (19.6)	72 (22.4)			
NA: Low MI					
n	31	116	1.36	.177	.013
M (SD)	55 (27.9)	46 (31.2)			

Table 3 shows the mean percent positive responses on the overall perceptions of patient safety culture between RN and NA subgroups based on levels of RN-NA RQ (RQ) and levels of MI (MI). For the RN sample, there was a statistically significant difference between high RQ (*M* = 66%) and low RQ (*M* = 50%) ($p < .001$) groups. Similarly, for the NA sample, there was a statistically significant difference between high RQ (*M* = 70%) and low RQ (*M* = 54%, $p < .001$) groups. However, in groups of RNs working on units with managers that had high MI, there was no statistical difference between the high RQ (*M* = 78%) and low RQ RNs (*M* = 77%). Similarly, for groups of NAs working on units with managers that had high MI, there was no statistical difference between high RQ (*M* = 78%) and low RQ NAs (*M* = 72%).

In contrast, for RNs working on units with managers that had low MI, there was a statistically significant difference between high RQ RNs (*M* = 51%) and low RQ RNs (*M* = 39%, $p < .001$). But, for NAs working on units with managers that had low MI, there was no statistical difference between groups of NAs with high RQ (*M* = 55%) and those with low RQ (*M* = 46%). There was an even larger difference in in the mean percent positive responses of groups of RNs with both high RQ and high MI (*M* = 78%) compared to those groups of RNs with high RQ but low MI (*M* = 51%). This was also observed in groups of RNs with low RQ and high MI (*M* = 77%) compared to RN groups with both low RQ RNs and MI (*M* = 39%).

RNs who had high RQ with NAs had an increase of 12% in overall perceptions of safety when their manager also had high MI. In contrast, if the high RQ RN perceived the MI as low their overall perceptions of patient safety decreased by 15%. Similarly, NAs with high RQ with RNs had an 8% increase in overall perceptions of safety if they worked on units with high MIMI. The high RQ NA's perceptions of overall safety culture decreased by 15% if they worked on units where perception of MI was low.

Discussion

This study found MI had a strong relationship with overall perceptions of safety regardless of the RQ perceptions of the RNs and NAs. In areas outside of healthcare, there is clear evidence to support the influence of the manager in safety (Guidotti, 2013, Zohar & Luria, 2003). This study suggests that, while there is a lot of literature to support the importance of high functioning teams (Kaiser & Westers, 2018; Chapman et al., 2017), i.e. RQ among team members (Kalisch et al.,2015), the most important relationship for promoting a culture of safety may be with the manager.

The manager's relationship with the RN and NA is significant in building a positive patient safety culture. This study found that if the RN or NA perceived their manager promoted safety behaviors (high MI), they perceived their unit was safe regardless of the level of quality they perceived in their relationships. Similarly, the perceptions of overall safety culture with both the RN and NA decreased significantly if the manager had low influence on safety expectations and behaviors. Gerstner (1997) found when staff perceive the relationship with their manager as positive, they are intrinsically motivated to meet the goals of the organization. Leaders foster these relationships by cultivating mutual respect, trust and obligation. In contrast, if the relationship is poor, the staff are less likely to meet the demands of the unit and will do the minimal requirements (Graen & Uhl-Bein, 1995).

The RQ between the RN and NA is important; and having positive RQ magnifies perceptions of a safety culture; however, it is the MI with the individuals on their unit that has the biggest impact on safety. The benefits of the MI extends beyond patient safety. A positively perceived relationship is associated with retention, increased job satisfaction and empowerment of staff to be intrinsically motivated to meet the unit safety goals (Hughes, 2019). In addition to

building rapport with staff, the manager creates and supports a positive practice environment. The supervisor/manager communicates safety concerns, provides strategic direction and sets expectations to promote safety (Thompson et al., 2011). In this environment, the supervisor/manager plays a fundamental role in patient safety culture and the reduction of adverse events.

Implications for Leaders

Nurse Managers are responsible for creating a culture of safety and fostering strong relationships. Leaders are responsible for setting expectations, fostering organizational learning, open communication and providing positive practice environment in the reporting of errors (Anderson et al., 2019; Wick et al., 2015; Laschinger & Leiter, 2006.)

Setting Expectations

The nursing staff's perception of approachability and availability is significant in setting expectations and promoting safety. Daily visibility, rounding and support of organizational goals is required to maintain a culture of safety (Leonard & Frankel, 2012). In this interaction, managers are able to set expectations, identify safety concerns, and discuss possible solutions. Institute for Healthcare Improvement (2015) notes leaders must commit to being visible, displaying safety behaviors, and making safety a priority regardless of the demands of the unit. Nursing staff perceptions of the manager's commitment to safety is measured by the manager's actions rather than their words (Joint Commission, 2018). During rounding, the supervisor/manager should focus on strategies to promote trust, transparency, and engagement (Hughes, 2019). In this environment, near misses are viewed as system issues and are crucial data for organizational learning (Clarke et al. 2015).

Fostering Continuous Improvement and Organizational Learning

Nurse leaders play an important role in coaching staff in best care practices and in introducing innovation into the workplace; leaders work to create a culture of trust, autonomy, and safety (Wick et al., 2015). In this culture, the leader readily encourages and participates with staff initiatives to emulate a culture of safety (Leonard & Frankel, 2012). These initiatives may include quality projects and creating unit based councils. Staff want to understand the outcomes and effectiveness of strategies implemented on the unit (Ammouri et al., 2014). In this environment, the manager distributes knowledge and transfers information to support organizational changes (Abdallah et al., 2019). The leader can encourage organizational learning by appreciating adverse events as opportunities to grow and learn rather than a punitive response. The manager uses events as learning opportunities and reduces the focus on individual errors and fosters system solutions. Seeking system solutions leads to perceived positive practice environments. A positive practice environment directly influences the nurse's ability to provide safe care and prevent error (Laschinger & Leiter, 2006).

Feedback and Communication about Error

To build trust between the staff, the manager must be transparent about error and have open communication. Engaged managers promote autonomy, listen to safety concerns and have a positive relationship with their staff. This in turn builds trust and the nursing staff are motivated to meet goals and provide excellent care (Brady & Cummings, 2010). In this blame free environment, the manager creates a just culture and rewards the reporting of errors. Staff are encouraged to complete event reports and share safety catches among their peers. High relational leaders communicate about the systems failures, disclose prevention strategies being discussed,

and engage staff in safety solutions. These leaders build psychological safety and support staff to speak up when errors occur (Thompson et al., 2011).

Fostering a Positive RQ among RNs and NAs

Managers should foster and nurture the RN and NA relationship. Managers should address opportunities for the RN and NA to build strong RQ. Kleinman, & Saccomano (2006) found hierarchy, differences in educational backgrounds and communication styles create barriers in the RN and NA team. This relationship is significant in balancing productivity, safety, and outcomes (AHRQ, 2018). By fostering this relationship, the RN and NA perceive their unit as safer and this perception may magnify the actions by the manager.

Conclusion

This study confirms the importance of both the manager's relationship with staff and the RQ of RNs and NAs in improving patient safety culture at the unit level. Leader safety behaviors are strongly associated with the quality of the RN and NA relationship and the outcome of patient safety culture. This research could not establish causal direction; whether the RN NA RQ influences supervisory safety behaviors or vice versa. There is limited empirical research to address how the perceptions of the RQ between the RN and NA influence the work system, collaborative professional work, and patient safety outcomes. To our knowledge, this is the first study to look at how the level of RN and NA RQ correlates with supervisor/manger composites of patient safety as well as overall patient safety culture at a unit level. Future studies should include looking at how the shift the RNs and NAs worked is associated with RQ and manager influence of safety perceptions. Studies are also needed to determine more specific causal factors and how RN-NA RQ could be an outcome of the supervisor relationship.

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APPENDIX A: NOTIFICATION OF UMCIRB APPROVAL

EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
4N-64 Brody Medical Sciences Building· Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** · rede.ecu.edu/umcirb/

Not Human Subject Research Certification

From: Social/Behavioral IRB
To: Amy Campbell
CC: Elaine Scott
Date: 9/18/2019
Re: UMCIRB 18-001639
Social/Behavioral IRB

On 9/18/19, the IRB Staff reviewed your proposed research and determined that it does not meet the federal definitions of research involving human participants, as applied by East Carolina University. Therefore, it is with this determination that you may proceed with your research activity and no further action will be required. However, if you should want to modify your research activity, you must submit notification to the IRB before amending or altering this research activity to ensure that the proposed changes do not require additional UMCIRB review.
The UMCIRB appreciates your dedication to the ethical conduct of research. It is your responsibility to ensure that this research is being conducted in accordance with University policies and procedures, the ethical principles set forth in the Belmont Report, and the ethical standards of your profession. If you have questions or require additional information, please feel free to contact the UMCIRB office at 252-744-2914.
The Chairperson (or designee) does not have a potential for conflict of interest on this study.

SOPS™ Hospital Survey

Version: 1.0
Language: English

Note

- For more information on getting started, selecting a sample, determining data collection methods, establishing data collection procedures, conducting a Web-based survey, and preparing and analyzing data, and producing reports, please read the **Survey User's Guide**.
- For the survey items grouped according to the safety culture composites they are intended to measure, please read the **Items and Composites** document.
- To participate in the AHRQ Hospital Survey on Patient Safety Culture Comparative Database, the survey must have been administered in its entirety without significant modifications or deletions:
- No changes to any of the survey item text and response options.
- No reordering of survey items.
- Questions added only at the end of the survey after Section G, before the demographic questions in Section H.

For assistance with this survey, please contact the SOPS Help Line at 1-888-324-9749 or SafetyCultureSurveys@westat.com.

Hospital Survey on Patient Safety

Instructions

This survey asks for your opinions about patient safety issues, medical error, and event reporting in your hospital and will take about 10 to 15 minutes to complete.

If you do not wish to answer a question, or if a question does not apply to you, you may leave your answer blank.

- *An **"event"** is defined as any type of error, mistake, incident, accident, or deviation, regardless of whether or not it results in patient harm.*
- ***"Patient safety"** is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of health care delivery.*

SECTION A: Your Work Area/Unit

In this survey, think of your "unit" as the work area, department, or clinical area of the hospital where you spend *most* of your work time or provide *most* of your clinical services.

What is your primary work area or unit in this hospital? Select ONE answer.

- ☐ a. Many different hospital units/No specific unit
- ☐ b. Medicine (non-surgical)
- ☐ c. Surgery
- ☐ d. Obstetrics
- ☐ e. Pediatrics
- ☐ f. Emergency department
- ☐ g. Intensive care unit (any type)
- ☐ h. Psychiatry/mental health
- ☐ i. Rehabilitation
- ☐ j. Pharmacy
- ☐ k. Laboratory
- ☐ l. Radiology
- ☐ m. Anesthesiology
- ☐ n. Other, please specify: _____

Please indicate your agreement or disagreement with the following statements about your work area/unit.

Think about your hospital work area/unit…	**Strongly Disagree** ▼	**Disagree** ▼	**Neither** ▼	**Agree** ▼	**Strongly Agree** ▼
1. People support one another in this unit	☐1	☐2	☐3	☐4	☐5
2. We have enough staff to handle the workload	☐1	☐2	☐3	☐4	☐5
3. When a lot of work needs to be done quickly, we work together as a team to get the work done	☐1	☐2	☐3	☐4	☐5
4. In this unit, people treat each other with respect	☐1	☐2	☐3	☐4	☐5
5. Staff in this unit work longer hours than is best for patient care	☐1	☐2	☐3	☐4	☐5

SECTION A: Your Work Area/Unit (continued)

Think about your hospital work area/unit…	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
6. We are actively doing things to improve patient safety	☐1	☐2	☐3	☐4	☐5
7. We use more agency/temporary staff than is best for patient care	☐1	☐2	☐3	☐4	☐5
8. Staff feel like their mistakes are held against them	☐1	☐2	☐3	☐4	☐5
9. Mistakes have led to positive changes here	☐1	☐2	☐3	☐4	☐5
10. It is just by chance that more serious mistakes don't happen around here	☐1	☐2	☐3	☐4	☐5
11. When one area in this unit gets really busy, others help out	☐1	☐2	☐3	☐4	☐5
12. When an event is reported, it feels like the person is being written up, not the problem	☐1	☐2	☐3	☐4	☐5
13. After we make changes to improve patient safety, we evaluate their effectiveness	☐1	☐2	☐3	☐4	☐5
14. We work in "crisis mode" trying to do too much, too quickly	☐1	☐2	☐3	☐4	☐5
15. Patient safety is never sacrificed to get more work done	☐1	☐2	☐3	☐4	☐5
16. Staff worry that mistakes they make are kept in their personnel file	☐1	☐2	☐3	☐4	☐5
17. We have patient safety problems in this unit	☐1	☐2	☐3	☐4	☐5
18. Our procedures and systems are good at preventing errors from happening	☐1	☐2	☐3	☐4	☐5

SECTION B: Your Supervisor/Manager

Please indicate your agreement or disagreement with the following statements about your immediate supervisor/manager or person to whom you directly report.

	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1. My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures	☐1	☐2	☐3	☐4	☐5
2. My supervisor/manager seriously considers staff suggestions for improving patient safety	☐1	☐2	☐3	☐4	☐5
3. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts	☐1	☐2	☐3	☐4	☐5
4. My supervisor/manager overlooks patient safety problems that happen over and over	☐1	☐2	☐3	☐4	☐5

SECTION C: Communications

How often do the following things happen in your work area/unit?

Think about your hospital work area/unit…	Never ▼	Rarely ▼	Some-times ▼	Most of the time ▼	Always ▼
1. We are given feedback about changes put into place based on event reports	☐1	☐2	☐3	☐4	☐5
2. Staff will freely speak up if they see something that may negatively affect patient care	☐1	☐2	☐3	☐4	☐5
3. We are informed about errors that happen in this unit	☐1	☐2	☐3	☐4	☐5
4. Staff feel free to question the decisions or actions of those with more authority	☐1	☐2	☐3	☐4	☐5
5. In this unit, we discuss ways to prevent errors from happening again	☐1	☐2	☐3	☐4	☐5
6. Staff are afraid to ask questions when something does not seem right	☐1	☐2	☐3	☐4	☐5

SECTION D: Frequency of Events Reported

In your hospital work area/unit, when the following mistakes happen, *how often are they reported?*

	Never ▼	Rarely ▼	Some-times ▼	Most of the time ▼	Always ▼
1. When a mistake is made, but is *caught and corrected before affecting the patient*, how often is this reported?	☐1	☐2	☐3	☐4	☐5
2. When a mistake is made, but has *no potential to harm the patient*, how often is this reported?	☐1	☐2	☐3	☐4	☐5
3. When a mistake is made that *could harm the patient*, but does not, how often is this reported?	☐1	☐2	☐3	☐4	☐5

SECTION E: Patient Safety Grade

Please give your work area/unit in this hospital an overall grade on patient safety.

☐	☐	☐	☐	☐
A	**B**	**C**	**D**	**E**
Excellent	Very Good	Acceptable	Poor	Failing

SECTION F: Your Hospital

Please indicate your agreement or disagreement with the following statements about your hospital.

Think about your hospital…	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1. Hospital management provides a work climate that promotes patient safety	☐1	☐2	☐3	☐4	☐5
2. Hospital units do not coordinate well with each other	☐1	☐2	☐3	☐4	☐5
3. Things "fall between the cracks" when transferring patients from one unit to another	☐1	☐2	☐3	☐4	☐5
4. There is good cooperation among hospital units that need to work together	☐1	☐2	☐3	☐4	☐5

SECTION F: Your Hospital (continued)

Think about your hospital…	Strongly Disagre	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
5. Important patient care information is often lost during shift changes	☐1	☐2	☐3	☐4	☐5
6. It is often unpleasant to work with staff from other hospital units	☐1	☐2	☐3	☐4	☐5
7. Problems often occur in the exchange of information across hospital units	☐1	☐2	☐3	☐4	☐5
8. The actions of hospital management show that patient safety is a top priority	☐1	☐2	☐3	☐4	☐5
9. Hospital management seems interested in patient safety only after an adverse event happens	☐1	☐2	☐3	☐4	☐5
10. Hospital units work well together to provide the best care for patients	☐1	☐2	☐3	☐4	☐5
11. Shift changes are problematic for patients in this hospital	☐1	☐2	☐3	☐4	☐5

SECTION G: Number of Events Reported

In the past 12 months, how many event reports have you filled out and submitted?

☐ a. No event reports
☐ b. 1 to 2 event reports
☐ c. 3 to 5 event reports
☐ d. 6 to 10 event reports
☐ e. 11 to 20 event reports
☐ f. 21 event reports or more

SECTION H: Background Information

This information will help in the analysis of the survey results.

1. How long have you worked in this hospital?

☐ a. Less than 1 year ☐ d. 11 to 15 years

☐ b. 1 to 5 years ☐ e. 16 to 20 years

☐ c. 6 to 10 years ☐ f. 21 years or more

2. How long have you worked in your current hospital work area/unit?

☐ a. Less than 1 year ☐ d. 11 to 15 years

☐ b. 1 to 5 years ☐ e. 16 to 20 years

☐ c. 6 to 10 years ☐ f. 21 years or more

3. Typically, how many hours per week do you work in this hospital?

☐ a. Less than 20 hours per week ☐ d. 60 to 79 hours per week

☐ b. 20 to 39 hours per week ☐ e. 80 to 99 hours per week

☐ c. 40 to 59 hours per week ☐ f. 100 hours per week or more

SECTION H: Background Information

(continued)

4. What is your staff position in this hospital? Select ONE answer that best describes your staff position.

☐ a. Registered Nurse ☐ j. Respiratory Therapist

☐ b. Physician Assistant/Nurse Practitioner ☐ k. Physical, Occupational, or Speech Therapist

☐ c. LVN/LPN ☐ l. Technician (e.g., EKG, Lab, Radiology)

☐ d. Patient Care Asst/Hospital Aide/Care Partner ☐ m. Administration/Management

☐ e. Attending/Staff Physician ☐ n. Other, please specify:

☐ f. Resident Physician/Physician in Training

☐ g. Pharmacist

☐ h. Dietician

☐ i. Unit Assistant/Clerk/Secretary

5. In your staff position, do you typically have direct interaction or contact with patients?

☐ a. YES, I typically have direct interaction or contact with patients.

☐ b. NO, I typically do NOT have direct interaction or contact with patients.

6. How long have you worked in your current specialty or profession?

☐ a. Less than 1 year
☐ b. 1 to 5 years
☐ c. 6 to 10 years
☐ d. 11 to 15 years
☐ e. 16 to 20 years
☐ f. 21 years or more

SECTION I: Your Comments

Please feel free to write any comments about patient safety, error, or event reporting in your hospital.

THANK YOU FOR COMPLETING THIS SURVEY.

APPENDIX C: SURVEY QUESTIONS ADAPTED FROM LEADER MEMBER EXCHANGE TO REFLECT RQ BETWEEN THE REGISTERED NURSE AND NURSING ASSISTANT

Survey Questions related to Certified Nursing Assistant Relationship with Registered Nurse

1. Do Nurse Assistants on your unit know how satisfied Registered Nurses are with the work they do?

- ☐ Rarely
- ☐ Occasionally
- ☐ Sometimes
- ☐ Fairly Often
- ☐ Very often

2. How well do Registered Nurses understand the demands and stressors of Nurse Assistants on your unit?

- ☐ Not a bit A little
- ☐ A fair amount
- ☐ Quite a bit
- ☐ A great deal

3. How well do Registered Nurses on your unit recognize potential in Nurse Assistants?

- ☐ Not at all
- ☐ A little
- ☐ Moderately
- ☐ Mostly
- ☐ Fully

4. **Regardless of years of experience or level of education, what are the chances Registered Nurses on your unit would use their power and knowledge to help Nurse Assistants solve problems at** work?

- ☐ None
- ☐ Small
- ☐ Moderate
- ☐ High
- ☐ Very high

5. Again, regardless of the amount of formal authority the Registered Nurse has, what are the chances that he or she would "have a Nurse Assistant's back" at the RN's expense?

- ☐ None
- ☐ Small
- ☐ Moderate
- ☐ High
- ☐ Very high

6. Nurse Assistants on our unit have enough confidence in the Registered Nurses that they would defend and justify the RNs decisions if the RNs were not present to do so?

- ☐ Strongly
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

7. How would you characterize the working relationship between Nurse Assistants and Registered Nurses on your unit?

- ☐ Extremely Ineffective
- ☐ Worse than average
- ☐ Average
- ☐ Better than average
- ☐ Extremely effective