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AN EXPLORATION OF NURSING COMMUNICATION COMPETENCE DURING THE HANDOFF REPORT

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Abstract

Introduction Nurse handoff reporting is a crucial time for communication exchange in healthcare settings. During the handoff report, patient information is exchanged between senders and receivers transferring responsibility for care with the main purpose of providing accurate and timely information about the patient. The Joint Commission reports that shortcomings related to communication can be directly related to an increase in patient care errors, with approximately 80% of medical errors resulting from miscommunication during the handoff process. Numerous intervention studies focus on standardizing information, developing physical locations and environments for ideal handoffs, and creating tools for structured information exchange between different types of healthcare professionals. Despite the implementation of a variety of interventions, errors related to handoff communication remain high. In addition, though communication quality and competence are key elements of effective work processes in complex settings such as acute care hospitals, there is a paucity of research focused on nurses' information exchange and socioemotional behaviors related to the quality of handoff communications. The purpose of this descriptive correlational study was to explore nurse perspectives of the same handoff event using the nurse communication competence model which includes both information exchange and socioemotional behaviors.

Methods Using a cross-sectional descriptive correlational design employing dyadic perspective, 57 nursing handoffs ($N = 114$) on general medical surgical units was examined from the real time perspective of the incoming and outgoing nurse. Using the Nurse Communication Competence Scale, each nurse rated themselves and the other nurse involved in the handoff event on information giving, receiving, verifying and socioemotional communication behaviors. This

study examined the relationship between communication competence, quality of handoff reporting, nursing role (incoming versus outgoing) and type of rating (self versus counterpart).

Results Mean differences existed between incoming and outgoing nurse ratings of information exchange and socioemotional behaviors. Outgoing nurses rated their own information giving behaviors higher, opposed to the rating they received from the incoming nurse ($p = 0.00$). Outgoing nurses rated information seeking behaviors of the incoming nurse higher than the self-rating from the incoming nurse ($p = 0.04$). In addition, outgoing nurses also rated their own information seeking behaviors as higher than the rating given to them by the incoming nurse ($p = 0.01$). Furthermore, outgoing nurses rated their own socioemotional behaviors higher than the rating given to them by the incoming nurse ($p = 0.02$). The outgoing nurses also provided higher ratings of incoming nurses' socioemotional behaviors versus the self-rating provided by the incoming nurse ($p = 0.01$). Outgoing nurses also found the overall quality of the handoff report was higher than the rating provided by the incoming nurse ($p = 0.01$). Finally, we determined a positive relationship exists between the incoming nurse's perception of the overall quality of handoff report and the degree of information giving behaviors of the outgoing nurse ($p = 0.00$) as well as the incoming nurse's perception of the overall handoff quality and their own socioemotional behaviors ($p = 0.02$).

Discussion Different perceptions of communication competence associated with high quality handoff reporting exists between incoming and outgoing nurses. The findings of this study have considerable implications for nursing practice, research and education. Our study used a complete model of communication competence including information exchange and socioemotional behaviors, which revealed the need to further study handoff communication beyond standardization. Including relational components of communication and focusing on the

needs of each nursing role (incoming versus outgoing) increases the quality of handoff reporting lending to communication that supports patient safety.

Acknowledgement

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I would not have been successful on this endeavor without the love and encouragement of my family and friends. Thank you, Patrick for overseeing many of the household tasks and keeping the kids happy while I would disappear to write. To my brother who was a fellow doctoral student and understood the complexity of emotions surrounding my goals. I would also like to recognize my colleagues who stepped in when needed. In particular I would like to acknowledge Julie Meyers who proctored exams, met with students, and has been a pillar of support while I was in the doctoral program. Her willingness to listen and inquire about my progress went beyond what I could have hoped for. You are a true friend.

Finally, I would like to thank the Tony and Renee Marlon family for their scholarship. This study required time and resources to ensure success. By recognizing my potential and through your generosity, I was able to complete a study that I am proud of and will contribute to disciplinary knowledge.

Dedication

For Sophia and Samuel.

I hope to raise you both by setting an example of a strong work ethic and humble spirit. Pursue your dreams and never give up.

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CHAPTER 1

INTRODUCTION

Nursing as a discipline encompasses both scientific and humanistic components. The science behind our practice requires precision with measurable outcomes, whereas the humanistic component involves how we deliver care to patients and the emotions we experience in delivering care. The dichotomous nature of nursing practice is similar to the dualistic qualities of basic communication. While the main goal of communication may focus on sending and receiving precise messages, recent communications research has emphasized the importance of message content and context. A focus on the humanistic components of communication, sometimes referred to as the socioemotional aspects, provides a relational communication perspective that encompasses a more comprehensive view. Analyzing what is communicated and how that message is delivered and received contributes to a better understanding of competent communication (Streeter, Harrington, & Lane, 2015)

Background and Significance

Communication competence is a significant factor in healthcare settings as direct links have been made between competent communication and patient safety (Greenberg et al., 2007; Rabol, Anderson, & Ostergaard, 2011; Sutcliff, Lewton, & Rosenthal, 2004). The Institute of Medicine (IOM; 1999) highlighted the importance of communication with its groundbreaking report, "To Err is Human: Building a Safer Healthcare System." The report outlines reasons for errors encountered within healthcare and specifically notes failures in communication as a significant factor. Since the release of the IOM report, improvements in key issues related to healthcare errors have been made; however, failure with competent communication continues to

be directly linked to patient care errors and unsafe practices (Kitson, Athlin, Elliott, & Cant, 2014).

According to Makary and Daniel (2016), approximately 400,000 preventable deaths occur each year in the United States, and many of the deaths stem from miscommunication. The incidence of mortality due to miscommunication highlights the need for increased scrutiny of communication in healthcare institutions. The Joint Commission (TJC, 2017)—which accredits approximately 21,000 healthcare organizations in the United States based on quality standards for safe and effective patient care—committed to a firmer stance on healthcare communication practices by implementing a specific patient safety goal focused entirely on improving communication (Saufl, 2009). TJC (2016) requires accredited hospitals to adhere to high communication standards focused on medication administration, two-way communication during handoff reporting, procedural measures such as time-outs during surgical procedures, and relaying accurate test results to the correct individuals. TJC (2019) continues to address the importance of effective communication among caregivers to promote patient safety in the 2019 National Patient Safety Goals.

TJC provides a checklist template titled *Roadmap for Hospitals* to ensure accredited organizations comply with communication standards. The template integrates concepts from multiple disciplines, including Communication Studies, to create a full model for healthcare organizations while providing a checklist for hospitals to review. TJC (2010) also recommends the incorporation of communication concepts within staff curriculum, emphasizing the need to communicate individual patient care needs among members of the healthcare team.

In addition to TJC, the Centers for Medicare and Medicaid Services (CMS) are directly invested in improved communication patterns among healthcare providers. With a clear initiative

to improve quality healthcare for all, the CMS align their vision with the National Quality Strategy standards (CMS, 2016). Under the guardianship of the Agency for Healthcare Research and Quality (AHRQ), the National Quality Strategy defined the following three aims: better care, smarter spending, and healthier people and communities (CMS, 2016). To advance these aims, AHRQ prioritized safer care, effective communication, and care coordination (CMS, 2016). The CMS (2016) cite poor communication among healthcare providers as a primary factor in hospital readmissions and recommend approaches that promote successful care transitions as part of routine practice. Miscommunication among healthcare team members contributes to readmissions and significant stress for patients and their families; worse, they may also result in decreased long term functional capacity for individuals (CMS, 2016). Moreover, hospital readmissions cost Medicare more than 17 billion dollars annually (CMS, 2016). According to CMS (2016), communicating "critical pieces of information" across all healthcare workers in all settings may help prevent readmissions.

A crucial time to relay critical pieces of information within the healthcare team is during the handoff report. TJC (2014) defines the handoff report as a real-time event where information is transferred from one caregiver to another through effective communication occurring between the sender and receiver caring for the patient. The handoff report is a particularly sensitive timeframe for miscommunication as it occurs frequently and involves a high volume of information exchange (Streeter et al., 2015; Wheeler, 2014). It is a time of "careful communication" between personnel to relay patient information (Caruso, 2007). According to Friesen, White, and Byers (2008),

> the handoff must provide critical information about the patient, include communication methods between the sender and receiver, transfer responsibility for care, and be

> performed within complex organizational systems and cultures that impact patient safety. The complexity and nuance of the type of information, communication methods, and various caregivers for each of these factors impact the effectiveness and efficiency of the handoff as well as patient safety. (p. 285)

Approximately 4,000 patient handoffs occur each day in healthcare teaching institutions in the United States (O'Reilly, 2010). TJC (2012) estimates that 80% of medical errors result from miscommunication among healthcare team members during care transitions.

Studies focused on handoff communications in healthcare have resulted in a number of evidence-based strategies aimed at improving communication (Benjamin, Hargrave, & Nether, 2016; Lily & Donohue-Porter, 2012; Mistry et al., 2008). In addition, a significant body of literature focuses on the development, implementation, and outcomes of standardized communication (Anderson et al., 2010; Block et al., 2010; Dingley, Daugherty, Derieg, & Persing, 2008; Foronda, Gattamorta, Snowden, & Bauman, 2014; Klim, Kelly, Kerr, Wood, & McCann, 2013; Nasarwanji, Badir, & Gurses, 2016; Miller & Sands, 2012; Patterson & Wears, 2010; Popovich, 2011; Wheeler, 2014). Through content analysis, Nasarwanji, Badir, and Gurses (2016) identified 27 handoff mnemonics used in healthcare settings. Among the various standardized tools available, the mnemonic SBAR (Situation-Background-Assessment-Recommendation) (Leonard, Graham, & Bonacum, 2004) has gained consistent popularity among healthcare organizations. SBAR refers to a structured communication process that can be used for handoff reporting with an overview of the patient's current state (situation), the supporting background that lead to the current situation (background), the caregiver's unique viewpoint of the situation and data related to patient's care (assessment), and the caregiver's thoughts on next steps or actions to correct the current clinical state (recommendation; Ardoin &

Broussard, 2011). Similarly, AHRQ, developed the TeamSTEPPS (Team Strategies and Tools to Enhance Performance and Patient Safety) curriculum to improve communication and teamwork skills among healthcare professionals. Tools such as SBAR, TeamSTEPPS, and other forms of informational checklists have been adopted in multiple settings and have resulted in increased healthcare provider satisfaction with handoff reporting (Ardoin & Broussard, 2011) and a reduction in communication delays among providers (Mistry et al., 2008).

Studies have also focused on the structure of handoff reporting and have compared written, taped, and oral methods for providing reports (Braff, Riley, & Manias, 2015; O'Connell & Penny, 2001). Findings from these studies support handoff methods that include bedside reporting and the integration of patients and families as active partners in the handoff process (Baer & Weinstein, 2013; Betcher, 2010; Birmingham et al., 2015; Caruso, 2007; Clayton, Reblin, Carlisle, & Ellington, 2014; Farin, Gramm, & Kosiol, 2011; Jeffs et al., 2013; Johnson, Wilhelmsson, Borjeson, & Lindberg, 2014; Maxson et al., 2012; McCann et al., 2008; O'Hagan et al., 2013; Riley, White, Graham, & Alexandrov, 2014; Sand-Jecklin & Sherman, 2013; Staggers & Jennings, 2009; Thomas & Donahue-Porter, 2012 ;Wittenberg-Lyles, Goldsmith, & Ferrell, 2013; Wittenberg, Goldsmith, Ferrell, & Burchett, 2014). Other researchers have investigated locations and settings for handoff reports to determine best practices, recommending handoff reports occur in environments with minimal distractions (Johnson & Cowin, 2013; Ortega & Parsh, 2013; Riesenberg, Leisch, & Cunningham, 2010). While these studies resulted in the implementation of structures and processes to improve handoff communications, they primarily focus on the inclusion of comprehensive patient information and neglect to address the relational aspect of communication.

Researchers exploring the relational components of communication practices have examined behaviors that may facilitate better quality handoffs from the perspective of the healthcare team members (Carroll, Williams, & Gallivan, 2012; Streeter et al., 2015). Carroll et al. (2012) found significant differences among healthcare team members related to the quality of the handoff reports and demonstrated that perception of the same handoff event varied between incoming nurses and outgoing nurses. As few studies exist that explore factors that influence the quality of handoff reporting, the researchers suggested further investigation of the relational components of communication during handoffs.

In their seminal research focused on healthcare communication, Cegala and colleagues (1998) identified the aspects of relational communication as socioemotional behaviors and found that specific behaviors positively contribute to the overall communication event between patients and providers. Utilizing the model developed by Cegala et al. (1998) to test competent communication during handoff reporting among registered nurses, Streeter et al. (2015) surveyed nurses about their best or worst quality handoff report. Nurses were asked to recall both a best and a worst handoff report and complete a survey rating both information exchange items and socioemotional behaviors. Streeter et al. (2015) found that scores for both information exchange and socioemotional behaviors were positively correlated with higher quality reporting.

Although the essence of what makes interpersonal communication successful in handoff reporting has been introduced in the research literature (Carroll, Williams, & Gallivan, 2012; Streeter et al., 2015), studies that focused on communication from the perspectives of incoming and outgoing nurses omitted real-time analysis and, instead, relied on historical perspective (Streeter et al., 2015). Recalling a communication event from the past may limit the accuracy of details surrounding an actual event. Furthermore, the majority of studies did not include the

perspectives of the incoming nurse and the outgoing nurse for the same handoff event, excluding a dyadic perspective of the communication event. Studying nurse perspectives of the dyadic exchange from the same communication event may add to existing knowledge and provide additional empirical evidence concerning components of communication competence that lend to higher quality handoff reporting from the standpoint of the incoming and outgoing nurse.

Despite studies that focus on standardized structures and environments for handoff reporting, there is a paucity of research focused on analyzing specific variables of communication competence related to real-time nursing handoff reporting practices within acute care settings. In addition, the TJC's recommendations of best practices omit socioemotional behaviors; however, these behaviors may be the critical element to address communication shortcomings in healthcare and, therefore, improve patient safety (Streeter et al., 2015).

Statement of the Problem

Handoff reporting during shift change has been identified as a crucial timeframe for information exchange and a significant factor in patient safety. Numerous studies and quality initiatives have resulted in the integration of structures and processes to standardize communication during handoff reports, but as TJC (2012) estimates, miscommunication during care transitions contributes to 80% of medical errors. While communication experts emphasize the importance of the human and relational perspective of communication (Cegala, 1984; Kasch, 1984; Lakey & Canary, 2002; Spitzberg, 1983), these standardized communication initiatives have neglected to include the interpersonal aspects of communication during handoff reporting.

Recently, communication researchers have sought to investigate interpersonal factors, focusing on socioemotional components of communication during handoff reporting in the healthcare setting. While these studies have demonstrated that socioemotional behaviors

contribute to higher levels of communication competence, they are limited as they neglect the perspectives of both the incoming and outgoing nurses (the handoff dyad) and, therefore, lack a comprehensive view of communication. In addition, there is a paucity of studies that examine handoff reporting in real time. The majority of studies rely on a nurse's (or other healthcare professional's) recall of a past handoff event; however, retrospective accounts of autobiographical data may be clouded by a participant's current emotional state and diminished memory, creating bias (Jones & Rattray, 2010). Finally, few studies that focus on nursing handoffs use a comprehensive communication model that integrates both the exchange of information and interpersonal factors (socioemotional components) as integral components of competent communication.

Cegala et al. (1998) developed a communication competence framework on the premise that competent communication includes both information exchange and socioemotional behaviors (see Figure 1).

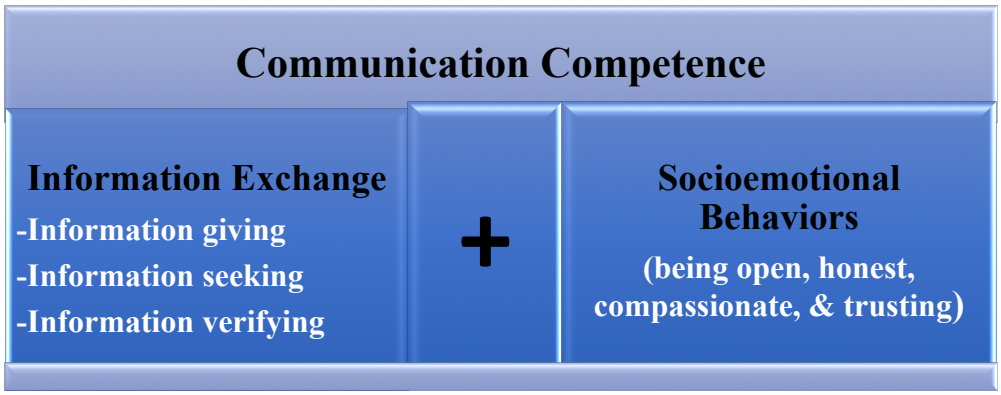

Figure 1. Cegala's Model of Communication Competence.

The variables of information exchange and socioemotional behaviors are measured together to fully comprehend one's level of communication competence. Cegala et al. (1998) contend that assessing a participant's perception of communication is critical for advancing

health communication research. Studying dyadic communication in real time—that is, between nurses performing shift-to-shift handoff reporting—may provide insight into communication competence as it relates to the perceived quality of handoff reporting. Having an understanding of both the incoming nurse and outgoing nurse's unique perspective for the same communication handoff event, can identify potential areas for future intervention and education.

Purpose of the Study

The purpose of this study was to examine shift-to-shift handoff reporting from the perspective of nurses who are coming on shift and those who are going off shift in an acute care setting. Using the Communication Competence framework developed by Cegala et al. (1998), I specifically investigated nurse perceptions of communication competence and handoff quality. Shift to shift handoff reporting was the focus of this study due to its frequency of occurrence and its direct focus on the dyadic exchange of patient information and effect on safe patient care. For each handoff event, nurses were asked to rate themselves and their counterparts on communication competence and provide an overall rating of the quality of the handoff. Differences in perceptions between the incoming nurse and outgoing nurses regarding their reported handoff quality and communication competence were analyzed. Studying communication from each nurse's perspective of the same handoff event provided a dyadic analytic approach in a real-time setting and empirical evidence that may lead to improvements in handoff reporting.

Research Questions

The following research questions are based on a full model of *communication competence* that consists of both *information exchange* and *socioemotional behaviors*. These questions guided this study.

(1) Will nurses' self-rated *communication competence* differ from the rating provided by their nurse counterpart during handoff reporting?

   a. Will nurses' self-rated *information exchange* (information giving, information seeking, and information verifying) differ from the rating provided by their nurse counterpart during handoff reporting?

   b. Will nurses' self-rated *socioemotional behaviors* differ from the rating provided by their nurse counterpart during handoff reporting?

(2) Will nurses' rating of the handoff *quality* differ from the rating provided by their nurse counterpart during handoff reporting?

(3) Will a relationship exist between the perceived *quality* of the handoff report and the level of *communication competence* perceived within the handoff report?

Definitions

Grove, Gray, and Burns (2015) note the importance of defining terms both conceptually and operationally. The conceptual definition is broader and more connotative in nature versus the operational definition, which provides a means of measurement for the proposed study (Grove, Gray, & Burns, 215). Specific operational definitions will be provided in the methodology portion of the dissertation. The following are conceptual definitions that will be used throughout this dissertation.

- **Communication** "among nurses," as defined by Purpora and Blegen (2012), "is conceptualized as sharing information related to the care of patients, including asking each other questions, providing feedback to each other, giving each other advice or seeking clarification, or validation of care" (p. 4).

- **Communication competence** is a dyadic process involving ***information exchange*** and ***socioemotional behaviors*** (Cegala, 1998).
- **Information exchange** is a multifaceted variable that includes ***information giving, information seeking, and information verifying*** (Cegala et al., 1998).
    - **Information giving** is the act of providing information with specific emphasis on the provision of information about the overall medical problem (Cegala et al., 1998). Examples include explaining the patient's current condition, identifying any necessary medications and/or treatments, providing historical patient information, and answering questions thoroughly and honestly while providing recommendations for the patient's continued care (Streeter, 2010).
    - **Information seeking** is a method to gather information in the present moment (Cegala et al., 1998), which can be through direct or indirect means (Streeter et al., 2015) and assessed through the asking and allowance of questions in a clear and comprehensible manner (Streeter, 2010).
    - **Information verifying** is a process in which all communicating participants repeat and check information to enhance their understanding of presented information (Cegala et al., 1998). Information verifying consists of clarification, repetition, summarization, and forecasting of information where—through mutual dialogue—misunderstood information is made known by both the sender and the receiver of information (Streeter, 2010).
- **Socioemotional behaviors are** the relational aspects of communication that focus on matters such as "trust, warmth, and expression of care" (Cegala et al., 1998, p. 265).

Exhibiting behaviors include compassion, honesty, and contributing to a trusting relationship (Cegala et al., 1998; Desjarlais-deKlerk & Wallace, 2013; Streeter, 2010).

- **Handoff report** is the transfer of patient care responsibility from one caregiver to another (AHRQ, 2014) and involves an "exchange of nursing, medical, and technical knowledge" (Birmingham, Buffum, Blegen, & Lyndon, 2015, p. 1459). For the purposes of this dissertation, the handoff report is limited to the context of shift changes occurring within an acute care setting between registered nurses.
- **Handoff quality** relates to the achievement of goals in handoff reporting from the perspective of the incoming and outgoing nurse. Goals of handoff reporting include the use of effective communication to transfer information from one caregiver to another (TJC, 2014).
- **Dyad**, as defined by Merriam-Webster (2017), consists of two individuals. The two individuals within the handoff reporting dyad consist of the incoming registered nurse and the outgoing registered nurse.
- **Incoming nurse** is a nurse who is starting the shift in an acute care setting in which he or she cares for patients.
- **Outgoing nurse** is a nurse who is ending the shift in an acute care setting in which he or she cares for patients.

Chapter Summary

Communication is an integral and necessary component of nursing practice, frequently exemplified through the handoff report. This event is crucial for information exchange between an incoming nurse and outgoing nurse because the information provided impacts the overall safety of the patient. When gaps in this communication occur, patient safety is compromised.

Therefore, dyadic communication between the incoming and outgoing nurse is essential to examine, as communication may be compromised due to individual attributes exhibited by each nurse.

Cegala et al. (1998) defines information exchange and socioemotional behaviors as the main pillars of communication competence. While numerous studies and interventions have focused on structures and processes to improve information exchange between nurses, significantly less efforts have focused on the relational aspects of communication, such as socioemotional behaviors. Because the incoming and outgoing nurse may have different communication goals during shift changes, uncovering what each nurse requires to achieve higher levels of communication competence provides an opportunity to improve communications that occur during handoff reporting as well as patient safety overall.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

Chapter two presents an overview of research studies and theoretical literature supporting this study. The first section focuses on the background and model for communication competence. Subsequent sections provide a comprehensive background of the handoff report, including an overview of dyadic analysis and literature that further supports the main variables present in a comprehensive model of communication competence: information exchange, information seeking and verifying, and socioemotional behaviors. Sources for the literature review were obtained via the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline Plus, Educational Resources Information Center (ERIC), PsycINFO, and Google Scholar. Key terms searched included nursing, patient care, transition, handoff, safety, and communication.

Communication Competence

Although communication competence has retained a certain amount of ambiguity in the literature, the concept has been a major focus of study among communication scholars and has evolved over time. Early models of communication focused on a sender and receiver transferring a message to be encoded and interpreted—i.e., the linear model of communication (Shannon & Weaver, 1949). In contrast to the linear model, Schramm (1983) proposes a model of interpersonal communication involving information exchange that "flows both ways" between communicators (p. 14). The transaction must be functional and meet the needs of both parties (Schramm, 1983). Moving beyond how information is transferred, researchers began studying

the complexities of interpersonal communication and how information is interpreted in the context of the interpersonal relationship (Cegala, 1983; Spitzberg, 1983; Wiemann, 1977).

Early models of interpersonal communication competence acknowledged the importance of dyadic analysis—that is, analysis of each communicator's perspective of the communication event (Cegala, 1983; Spitzberg, 1983; Wiemann, 1977). In viewing communication as a shared responsibility between the sender and receiver, theorists began uncovering fine points related to interpersonal communication. Wiemann (1977) introduced a model of dyadic communication, determining a competent communicator focuses on the other individual's communication goals within the dyad while also attempting to accomplish his or her own communication goals (Wiemann, 1977).

Evaluating competence based on the perception of both members of the communication event is a key element of measurement (Cegala, 1983; Spitzberg, 1983). The inclusion of interaction involvement—which includes responsiveness, perceptiveness, and attentiveness during dyadic communication—is central to interpersonal communication (Cegala, 1984). Interaction involvement requires consideration of the communication goals of the other member of the communication dyad and the affective and cognitive experiences of individuals when assessing communication competence (Cegala, 1984). Acknowledging specific variables of competent communication, Cegala, Coleman, and Turner (1998) propose *information exchange*—including direct communication features of providing, gathering, and confirming information and *socioemotional behaviors*, which involve relational or affective qualities of communication— are the building blocks of communication competence.

Cegala et al. (1998) developed the Medical Communication Competence Scale based on extensive study of physician-patient communication patterns. Cegala et al. (1998) contend

previously proposed models and instruments lack a thorough description of information exchange items, which is significant in healthcare research due to the amount of information exchanged. The scale and key assumptions build on earlier research portraying communication competence as an *interpersonal* event requiring *interaction involvement*, measured through *perception* of *self* and the *other* individual. Beyond determining who participates and how to measure one's level of communication competence level is a need to define key variables that comprise a model of communication competence.

Cegala et al. (1998) identify *information exchange* and *socioemotional behaviors* as the two main variables of communication competence while distinguishing *information exchange* as a multifaceted variable including information giving, information seeking, and information verifying. *Socioemotional behaviors* is the label used by Cegala et al. (1998) to explain the relational aspect of communication, and these behaviors include being warm and friendly while demonstrating care toward one's communication counterpart during interpersonal communication.

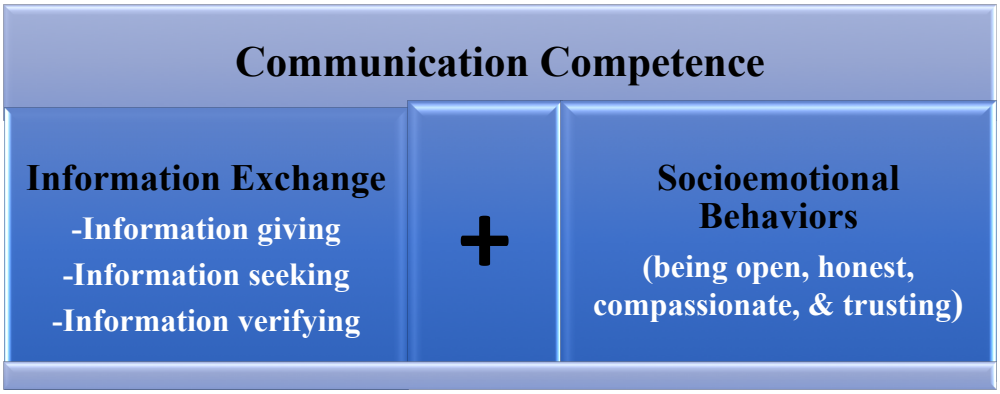

Figure 1. Cegala's Model of Communication Competence.

The Handoff Report

High Reliability Organizations

The handoff report is not unique to healthcare; it has been studied extensively in industries such as aviation (Catchpole et al., 2007; Helmreich, 2000; Kaissi, 2012; Leonard, Graham, & Bonacum, 2004; Morey et al., 2002; Pronovost et al., 2009), nuclear power (Leonard & Frankel, 2011), and racecar driving (Catchpole et al., 2007). High reliability organizations (HRO) such as these distinguish themselves by having systems and processes in place making them exceptionally consistent in avoiding catastrophic errors. In addition, HROs typically implement specific tools, behaviors, and techniques that become embedded in the organizational culture.

Direct comparisons of communication methods have been made between healthcare disciplines and HROs because of potential safety issues resulting from incompetent communication processes (Chassin & Loeb, 2013; Kaissi, 2012; Leonard & Frankel, 2011; Leonard et al., 2004). Furthermore, communication methods used by HROs have been recommended for application in healthcare. Kaissi (2012) explains aviation processes can be adopted by healthcare disciplines: crew resource management (CRM), focusing on the system and culture instead of individual shortcomings when failures occur, and standardization of main processes to be used by all team members.

According to Morey et al. (2002), CRM is a process involving the development of communication and coordination behaviors that are "identifiable, teachable, and applicable to high-stakes environments" (p. 1554). The concept emerged as a means to understand the high incidence of commercial flight accidents, and it revealed the majority of accidents were attributed to communication failures among crew members (Morey et al., 2002). To reduce mishaps and increase safety, CRM emphasizes communication skills such as briefing, inquiry, and assertion (Kaissi, 2012).

Leonard, Graham, and Bonacum (2004) analyzed attributes of CRM with direct correlation to communication processes in healthcare. According to Leonard et al. (2004), competent communication is the key to increased patient safety and must be better understood by healthcare personnel. With specific focus on nurse and physician communication, they proposed standardization via an approach such as SBAR, maintaining appropriate assertion techniques with critical language tools, and possessing situational awareness are critical to effective communication. In addition, having the confidence and courage to speak up in hierarchical environments with a common critical language facilitates direct and effective communication. According to Leonard et al. (2004), situational awareness is also vital for patient safety and involves an ongoing dialogue with an overall assessment of the situation while practicing foresight in order to plan for contingencies. Leonard et al. (2004) acknowledged communication styles differ among individuals, but processes supporting patient safety can be achieved through recognition of these differences.

Leonard and Frankel (2011) also acknowledged important qualities healthcare teams must adopt from other HROs, including structured communication, psychological safety, and situational awareness. According to Leonard and Frankel (2011), these are active qualities that do not happen automatically. Team members must feel comfortable communicating their thoughts and feelings, so they feel safe to voice their opinions (Leonard & Frankel, 2011). Of note, Helmreich (2000) parallels suboptimal communication during operating room procedures with those found in cockpits. Failures with preparation and planning, decreased information exchange, and negative interpersonal relations lend to diminished outcomes (Helmreich, 2000).

Catchpole et al. (2007) studied handoff processes between units with a specific focus on the transfer of patients from surgery to intensive care, utilizing both racecar driving and aviation

processes as models. Catchpole et al. (2007) compare the complex process of a multidisciplinary team collaborating for the good of a patient to a Formula 1 motor racing team working together to perform complex tasks. Lessons learned from motor racing and aviation industries focus on enhancing individual participation in the overall mission (e.g., participants have an active role in discussions), briefing sessions, and increased situational awareness during handoff processes—all of which contribute to a decrease in both technical and information omissions (Catchpole et al., 2007).

Jeffcott, Ibrahim, and Cameron (2009) offer the important consideration of organizational resilience when studying handoff practices in healthcare. According to Jeffcott et al. (2009), "from a human factors perspective, resilience refers to the ability, within complex and high-risk organizations to understand how failure is avoided and how success is obtained" (p. 256). Chassin and Loeb (2013) define resilience as "an organization's capability to recognize errors quickly and contain them, thereby preventing the harm resulting when small errors propagate, are compounded, and mushroom into major problems" (p. 462). From an individual perspective, resilience is the ability to speak up when one fears safety is compromised (Jeffcott et al., 2009). Applying resilience principles to handoff reports requires the implementation of a "learning culture" where communication breakdowns are openly discussed so improvements can be made (Jeffcott et al., 2009).

Noting a gap in research correlating specific handoff strategies and patient outcomes, Drach-Zahavy and Hadid (2015) studied data from 200 randomly selected nurse handoffs in five hospital wards, which included handoff practices employed by HROs. By directly observing handoffs, reviewing patient medical records, and analyzing treatment outcomes, they discovered errors present in over half of the files reviewed. In the files where errors were found, handoff

report strategies adopted from HROs were often lacking—namely, face-to-face verbal reports involving interactive questioning and topics initiated by both the incoming and outgoing nurse as well as "read-backs" to ensure the information received was accurate (Drach-Zahavy & Hadid, 2015). Moreover, Drach-Zahavy and Hadid (2015) determined when nurse dyads communicate information beyond patient facts—for instance, provide suggestions or anticipate what could go wrong—patient care errors decreased (p. 1141). The authors suggest incoming nurses must play an "active role in handovers" and be willing to "speak up" to ensure they are receiving the necessary information to perform effectively (Drach-Zahavy & Hadid, 2015, p. 1136).

Modeling optimal communication techniques—specifically those used by HROs—can lend to safer practices in healthcare organizations; however, skeptics caution healthcare organizations differ from HROs in terms of the frequency of adverse events (Leonard et al., 2004). Moreover, regardless of their commitment to high reliability practices, healthcare organizations today cannot match the unparalleled standards set forth by HROs (Chassin & Loeb, 2013). Modeling practice from HROs is insufficient as healthcare organizations have higher levels of "variability, diversity, limited resources, [and] specialization" (Jeffcott et al., 2009, p. 257). Catchpole (2007) also notes the higher staff turnover in healthcare poses a unique challenge for handoff reports. Furthermore, to commit to the safety standards adhered to by HROs during handoff reports, healthcare institutions must be intolerant to inadequacies with leadership and rigid hierarchies while being more tolerant to a safety culture promoting trust, accountability, and a commitment to more robust process improvement tools and methods (Chassin & Loeb, 2013). These suggestions warrant a closer look at variables constituting interpersonal communication competence that lend to high quality handoff reporting.

A Dyadic Perspective

TJC (2014) defines the roles of the sender and receiver within the handoff report: the sender is in charge of relinquishing patient information and care to the receiver, who accepts the information and responsibility for patient care. In considering this definition, TJC (2012) determined a risk factor for miscommunication is the differing expectations between the sender and receiver concerning patient care in times of transition. Handoff processes must be analyzed from the perspective of each caregiver with careful consideration placed on the sender and receiver's level of expertise and education (O'Connell & Penney, 2001). The handoff depends on both the knowledge and experiences of the caregivers as well as the degree of interpersonal communication skills they possess (Bomba and Prakash, 2005).

Many styles of handoff reporting exist, including a written report, a phone/tape-recorded report, and a verbal/face-to-face report occurring in a designation area (e.g., in the nurse's station or in the patient's room; Caruso, 2007; Kitson et al., 2014). Despite extensive technological innovations that have occurred in healthcare, the verbal handoff report has survived as a formal practice (Manias & Street, 2000). Furthermore, TJC (2014) supports a verbal handoff and deems a successful event as one where the sender and receiver are able to scrutinize and question data through the sharing and receiving of information.

Riesenberg (2012) states the need to explore "high-quality handoff outcomes studies that [focus] on systems factors and human performance and the effectiveness of structured protocols, education, and evaluation" to advance our knowledge of handoff processes (p. 5). Riesenberg (2012) offers a key research question regarding shift-to-shift handoff reporting, stating that one must focus on the "perception of handoff quality from the perspective of the sender and receiver and document where, when, and why these perceptions differ" (p. 5). Doing so will help handoff participants develop a deeper understanding of human characteristics as they lend to

communication differences. Overestimating understanding from either the perspective of the sender or receiver and failing to critically evaluate the information provided contribute to miscommunication during the handoff (Riesenberg, 2012). Moreover, future handoff research must start with a conceptual framework to create research questions based on previous research results (Riesenberg, 2012).

Cheung et al. (2010) provide a conceptual model for barriers in handoffs between physician dyads, suggesting four conceptual frames exist. These frames include information processing, stereotypical narratives, social interaction, and resilience. Beyond the obvious risk of missing information within the information processing frame, the authors suggest incorrectly framing information or "failing to support shared sense-making and anticipation" are primary risks in handoffs (Cheung et al., 2010, p. 173). In order to decrease the risk, an environment must be established where each dyadic perspective is shared, communication is flexible, and questions and answers are welcomed and practiced by each caregiver (Cheung et al., 2010).

The role direct communication plays in safe handoffs was studied by Bergman, Flanagan, Ebright, O'Brien, and Frankel (2016), with emphasis placed on nurse-to-nurse, medical resident-to-resident, and surgical intern-to-intern dyadic handoffs. Understanding a limited amount of research has focused on interpersonal language rather than technical components (since many studies focus on the standardization of handoffs); Bergman et al. (2016) studied handoff communication through directly observed, video-recorded, and audio-recorded data from end-of-shift handoffs at a VA Medical Center in the Midwest. A total of 27 nurse dyads and 18 medical resident and surgical intern handoffs were analyzed. The researchers identified three categories of communication, which include direct task-oriented communication, indirect task-oriented communication, and heads-up information.

Direct task-oriented communication focuses on specific tasks that need to be done, such as giving instructions. Indirect task-oriented communication focuses on identifying situations that may occur, such as if-then scenarios without specific mention of who is to perform the task (should the event occur). Finally, heads-up information was not directly linked to a necessary action but involved information that may be relevant at a later time. For example, an outgoing caregiver may alert the incoming caregiver to a patient's wish or preference in a certain situation. Bergman et al. (2016) found the incidence of anticipatory management communication occurring in the heads-up category more evident in nursing dyads compared to medical dyads. Among medical dyads, the use of direct-task oriented communication occurred more frequently. These findings suggest the importance of further communication analysis as nurses tend to use heads-up information not found in the electronic record to prepare the other nurse for optimal caregiving.

Patterson and Wears (2010) define the senders and receivers performing handoff report as a dyad consisting of one incoming and one outgoing nurse. Purpora and Blegen (2012) further define the nursing dyad as a "defense layer": when communication is facilitated, the quality and safety of patient care increases (p. 4). The belief that shift-to-shift handoff reporting between registered nurses is simply a time to exchange information about the patient has evolved over the last few decades, and recent studies have uncovered the role socialization plays in the milieu of handoff reporting (Mayor, Bangerter, & Aribot, 2011; Staggers & Jennings, 2009). Form and function of the shift handoff report is multifaceted with purposes stemming from information exchange, social interaction, and support and emotional encouragement between nurses engaging in dialogue about a patient's care (Meissner et al., 2007, p. 536). Dyads performing handoffs must provide feedback to one another, both positive and negative, when deviations occur. When

a handoff is inadequate from the perspective of the incoming provider, feedback must be shared with the outgoing provider so improvements can occur before patient safety is jeopardized (Patterson et al., 2008).

Understanding the need to exchange information beyond the borders of standardized reporting methods is important to consider. Although healthcare organizations have adopted standardization practices lending to more reliable handoff reports, Patterson et al. (2008) argue that standardization of handovers have both positive and negative consequences. While a standardized handoff is more reliable in terms of information exchange, flexibility in sharing prioritized information is lost (Patterson et al., 2008). According to Patterson (2008), when dyads are encouraged to "tell a story" about the situation in a handoff report—that is, sharing the priority components first rather than following a standardized narrative—information is naturally shared by order of importance. Carroll et al. (2012) also identify the "unintended consequences" of information exchanges in terms of standardization, noting a decreased emphasis on relational communication (p. 587). Through relational communication, better technical information emerges as caregivers perceive an environment that encourages a verbal exchange of information (Carroll et al., 2012).

Dyadic interpersonal communication is a complex function not only requiring the skills of technical communication, to include information giving and receiving, but also serves as a mechanism to connect two persons on a deeper level (Mayor et al., 2011; Staggers & Jennings, 2009)—one in which the individual can share unique perspectives (Bergman et al., 2016; Cheung et al., 2012). Handoff reporting is a time to share current information about a patient; however, it is also a time to plan beyond what is known to prevent future adverse outcomes (Carroll et al., 2012; Patterson et al., 2008). The casual nature of how this type of information is

shared differs among healthcare disciplines (Bergman et al., 2016). The ability to see beyond what is necessary via standardized techniques and to engage in personal thought and reflection requires a certain level of vulnerability. Therefore, the relational component of communication competence requires examination as it enables or disables certain perspectives due to the comfort levels of those communicating (Carroll et al., 2012; Purpora & Blegen, 2012).

The Role of Information Exchange in Handoff Reporting

Patterson and Wears (2010) sought to understand the purpose of handoff reporting due to the high amount of variability surrounding the practice. Through an extensive literature review, key frames were identified to better illustrate the purpose of the handoff report, which include resilience, social interaction, and information processing. Information processing activities involve transferring data among those partaking in the handoff report. Patterson and Wears (2010) identified risk factors with information processing, to include noise—interruptions, ambiguous language, and cultural differences. Noise may impede the message, increasing the likelihood that caregivers make clinical judgments with incorrect data.

Klim et al. (2013) explored the type of information exchanged during nurse handoffs by conducting a mixed methods study of data obtained via survey and group interviews. During the structured interview portion of their study, participants (n = 41) were asked for their perceptions of information exchanged during handoff reports and characteristics of a good handoff. In terms of the information, nurses identified a need for a systematic approach for providing basic patient details, such as the presentation of the problem, the plan, the treatment given, and any observations. In response to important characteristics of a good handoff, participants found key qualities of communication—such as clear speech, professional demeanor, inclusion of the team, and respect—play a central role (Klim et al., 2013).

It is also important to consider levels of satisfaction with information exchange. Meissner et al. (2007) conducted a multi-country research study in 10 European countries that used the Nurses' Early Exit Study, specifically looking at nurse perceptions of handoff reporting and satisfaction level with the practice. Nurses reported too many disturbances, lack of time, and insufficient information exchange as reasons for dissatisfaction. Meissner et al. (2007) also found associations between the satisfaction level of the handoff report, quality of leadership, and social support from colleagues. Those who rated the quality of leadership and social support among colleagues as higher also indicated greater satisfaction with the quality of the handoff report.

Information Giving

In an attempt to uncover best practices for information exchanges, Millar and Sands (2013) observed handoff practices (n = 20) occurring at a 25-bed acute psychiatric unit. Researchers uncovered a chain of events lending to deficiencies in information exchanges, including variability in the length of handoff practices between nighttime and daytime handoffs: nighttime handoffs were often abbreviated. The resulting gap in knowledge becomes concerning, not only for the nightshift nurse but also the incoming nurse for the following day—especially if the night nurse was unable to independently gather extra information on the patient during his or her shift (Millar & Sands, 2013). The findings suggest it is important to investigate not only what is communicated during the handoff report but also what information is not communicated and how the omission of patient data can contribute to decreased patient safety (Miller & Sands, 2013).

Birmingham et al. (2015) sought to understand how aspects of information giving affect one's perception of handoff effectiveness. According to Birmingham et al. (2015), an effective handoff is one where patient safety is promoted. Through qualitative study, researchers observed

20 handoff reports between nurses and performed 24 interviews to obtain data. A key finding was the importance of "painting a full picture," which involves interaction between the incoming and outgoing nurse. Nurses reported the value of grasping the story of their patients mid shift to fully "paint the picture" for the incoming nurse during the handoff (Birmingham et al., 2015, p. 1463), and the quality of the prior handoff contributed to the incoming nurse's ability to grasp the full story. Furthermore, when the outgoing nurse had the necessary requirements to deliver a comprehensive report, the incoming nurse was able to provide safer care (Birmingham et al., 2015). Nurses reported the importance of receiving "complete information from the previous handoff" and recounted the role that "cueing-in to critical details" play in delivering safe care. Birmingham et al. (2015) recommended handoff practices that support safety—to include gathering and organizing data—begin mid shift rather than at the handoff report (p. 1466).

Kanerva, Kivinen, and Lammintakanen (2015) also studied elements of information exchange that support patient safety in the psychiatric unit through structured interviews (*n* = 26). The researchers developed three subcategories that support information exchange based on nurse responses: fluent information transfer, an open communication culture, and being active in information collecting. Fluent information transfer occurs when active nurse-to-nurse handoff reporting occurs, which should include documentation and implementation of information. In addition, interviewed nurses indicated an open communication culture—one that is non-attributive and solicits opinions from all nurses—helps staff members feel valued and creates a positive work environment. When nurses feel their opinion is not valued, their communication practices with colleagues becomes strained lending to a lack of communication.

Information Verifying and Seeking Behaviors

The importance of information verifying and seeking during handoff reporting was established by TJC originally as a National Patient Safety Goal—i.e., "Implement a standardized approach to 'handoff-off' communications, including an opportunity to ask and respond to questions" (Eldridge & Revere, 2006)—and is now considered an industry standard. Information verifying and seeking is also recognized in the aforementioned conceptual framework as part of a full model of communication competence. Several studies have reported the importance of information seeking behaviors as they contribute to patient safety (Birmingham et al., 2015; Carroll et al., 2012; Holly & Poletick, 2010; Kanerva et al., 2015; Manias & Street, 2000; O'Brien, Flanagan, Bergman, Ebright, & Frankel; Patterson & Wears, 2010).

Holly and Poletick (2013) explored aspects of handoff reporting and uncovered key elements of information seeking behavior through their systematic review of 29 qualitative studies. Holly and Poletick termed the outgoing nurse as the "gatekeeper" of information, deciding what type and how much information to share with the incoming nurse. A key finding indicated the incoming nurse often received minimal information about the patient unless he or she prompted the gatekeeper for further information (Holly & Poletick, 2013). However, information seeking is a complex process and very personal in nature. Studies have indicated, from the outgoing nurse's perspective, any type of clarification or information-seeking practice is perceived as more of a critique than a necessary means to close the communication loop (Carroll et al., 2012; Manias & Street, 2000).

Patterson and Wears (2010) recognize the value of information-seeking and verifying behaviors, equating these behaviors to resilience in order to obtain clarity. They suggest there is a real need to secure time for the incoming nurse to ask questions as this practice is an important quality assurance method for increasing patient safety.

In contrast to the above findings, some studies suggest there is mutual appreciation for information-seeking behaviors. Birmingham et al. (2015) uncovered the vital practice of asking and answering questions. The results of their study indicated the incoming nurse found the practice beneficial for increasing clarity for the outgoing nurse, who was then better prepared to remember key details. The authors acknowledge the skills involved with asking and answering questions, which include not interrupting during key information sharing and being open to the questions. In addition, a critical element identified in asking and answering questions was "mutual respect and trust" between nurses: a person is more likely to engage in dialogue when feeling supported (Birmingham et al., 2015, p. 1470). Without mutual respect and trust, communication skills, or appreciation of the other nurse's role, asking and answering questions is stymied (Birmingham et al., 2015).

O'Brien et al. (2016) examined the art of asking questions and listening within the context of handoff reporting through dyadic exchanges between nurses, medical residents, and interns. Noting a lack of literature focused on questioning behaviors and context during handoff reporting, O'Brien et al. (2016) analyzed audio recordings from 38 dyadic handoff reports. Based on transcript analysis, the number of questions asked within each dyad per patient ranged from 0 to 13 with an average of 3.5 questions per dyad. Residents and interns asked 2.8 questions per patient, whereas nurses asked 4.25 questions per patient with a ratio of 10:1 questions asked by the incoming provider versus the outgoing (O' Brien et al., 2016).

Four main types of questions were asked: confirming patient status, response, or treatment; planning tasks, workflow, and timing; consensus about clinical reasoning; and framing and alignment. The most common questions involved confirmation of patient information, followed by questions related to planning. Nurses asked the fewest questions related

to consensus about clinical reasoning. Questions within this category focused on further explanation of the patient's condition and care plan. In contrast, registered nurses most frequently asked questions falling under the "framing and alignment" category. Examples of framing questions include those used to begin or end the discussion or to seek clarity of information. Most often, framing questions were posed by the outgoing nurse. In contrast, alignment questions allowed the incoming nurse to become acquainted with the pace of the handoff, such as clarifying which patient the outgoing nurse is now reporting on. In addition, the researchers noted the use of establishing familiarity if the incoming nurse had prior knowledge or had cared for the patient in the past. (O'Brien et al., 2016).

While acknowledging the small sample size and the use of a single site for data collection (which limits generalizability of findings), O'Brien et al. identified a lack of opportunity given to caregivers to ask questions within the handoff report. With the exception of one handoff, all incoming caregivers from each discipline asked questions; however, only a few instances were noted where the opportunity was offered by the outgoing caregiver (O'Brien et al., 2016).

The aforementioned studies clarify the importance of *information giving*, *seeking*, and *verifying* within exchanges. *Information giving* is critical because it is an active process requiring planning by the individual providing the information (Birmingham et al., 2015; Millar & Sands, 2013). When the outgoing nurse fails to provide comprehensive patient information for the incoming nurse, patient outcomes may suffer. *Information seeking* and v*erifying* are equally important components of the information exchange triad. Seeking and verifying behaviors close the loop of communication, providing further clarity of the handoff message. As mentioned by Holly and Poletick (2013), without information seeking and verifying behaviors, the incoming nurse may receive minimal information about his or her upcoming assignment. Once again, the

component of relationships and affective meaning lends to the success of seeking and/or verifying behaviors (Birmingham et al., 2015; Carroll et al., 2012).

Socioemotional Behaviors

The process of handoff reporting incorporates various functions beyond information exchange. Each communicator's feelings toward the communication event—based on voice inflection and body language, such as smiles or head nods—are as important to study as the message exchanged between participants in the communication loop, especially as various studies identified socialization as a byproduct of the handoff process (Carroll et al., 2012; Holly & Poletick, 2013; Patterson & Wears, 2010; Purpora & Blegen, 2012). It is not simply what is being said in the context of interpersonal dialogue; one must also consider how the message is delivered and what is really meant when focusing on effective interpersonal communication (Vertino, 2014).

A recent inquiry regarding communication among registered nurses revealed how information is delivered may influence what is communicated (Carroll et al., 2012). For example, using a specific tone or certain nonverbal cues may create ease or uneasiness in a conversation. Therefore, analysis of the technical components of communication during handoff reporting alone is insufficient because handoff communications combine technical elements with social interaction (Carroll et al., 2012). Due to the importance of social interaction among registered nurses performing a handoff report, the unique perspective from the sender and receiver must be considered (Patterson & Wears, 2010). According to Manias and Street (2000), "In addressing the social and historical contexts of the nursing handover, it is possible to clarify complex power relations underlying nurses' communication" (p. 374).

According to Holly and Poletick (2013), the handoff report facilitates relationships and promotes social interaction between newer and more experienced nurses, which can contribute to a more positive working environment (Holly & Poletick, 2013). Developing this relationship lends to increased cohesiveness among a team and may increase comfort with asking questions, reduce stress (since emotions are more freely shared), and decrease staff turnover (Holly & Poletick, 2013). Similarly, Lally (1998) identifies the role socialization plays in handoff reporting, noting less experienced nurses often seek approval during the handoff report from more experienced nurses. During handoff, positive reinforcement often comes in the form of nonverbal gestures, including head nods and eye contact (Lally, 1998). Patterson and Wears (2010) also recognize the handoff report as a time for socialization but with a relational dimension. Supporting positive social dynamics include respectful body language and waiting to begin the report until one is assured the other is ready to receive information (Patterson & Wears, 2010).

The idea of respect and positive dynamics also emerged in research conducted by Carroll et al. (2012), who followed 40 registered nurses across two units and used interviews, observation, questionnaires, and archival analysis of clinical records to better understand relational communication behaviors during handoff reporting. Through correlational analysis, the researchers determined nurses believed a handoff was more effective when they felt positive about the handoff, comfortable to speak up, and a positive connection with the other nurse.

Purpora and Blegen (2012) also examine the relational components of communication through a model based on peer communication and the quality of patient care. Purpora and Blegen (2012) describe elements of peer communication based on Maslow's theory of human motivation, particularly safety. The researchers propose communication is facilitated when a

person feels safe. Conversely, if a person feels his or her physical or emotional well-being is at risk, the person will refrain from communicating. The perceived negative feelings may be based on past experience or "preconceived notions about how the communication exchange will play out" (Purpora & Blegen, 2012, p. 3). The researchers also introduce the term "psychological noise" based on De Vito's definition (as cited in Purpora & Blegen, 2012), which "includes thoughts about or beliefs and attitudes formed in advance of the communication and/or strong negative feelings about how that communication may occur" (p. 3). A key attribute of Purpora and Blegen's model is based on the idea communication among nurses is positively correlated to safer and higher quality care for patients. When communication among nurses decreases because of perceived threats to their own psychological safety and/or psychological noise, the safety and quality of care for the patient is compromised (Purpora & Blegen, 2012).

The AHRQ (2014) recognizes the need to consider social factors such as personality when communicating with other members of the healthcare team. The TeamSTEPPS curriculum, developed in conjunction with the U.S. Department of Defense, outlines communication challenges and specifically mentions the importance of regarding personality differences and nonverbal forms of communication in the social context of healthcare communication (AHRQ, 2014). However, the culture of an organization is also important to consider since communication breakdowns can occur where a lack of teamwork and respect exist (TJC, 2012). How nurses interact within an organization, specifically in terms of hierarchies, must be considered. Organizations must promote open communication and deter hierarchies among nurses in order to encourage interpersonal communication (Friesen et al., 2008).

The function and role of handoff reporting extends beyond information exchange to include components of social interaction and connection among colleagues (Carroll et al., 2012;

Holly & Poletick, 2013; Klim et al., 2013; Meissner et al., 2017; Patterson and Wears, 2010; Purpora & Blegen, 2012). The social component of interpersonal communication is directly linked to core functions of handoff reporting as those who feel more supported in the context of the handoff are more willing to seek and verify information needed to provide safe patient care. According to Kasch (1984), each entity has individual thoughts and feelings contributing to communication. Furthermore, the quality of communication is directly related to the information exchanged and interpersonal behaviors that support "effective conversation and productive relationships among coworkers" (Carroll et al., 2012, p. 586). The importance of uncovering embedded hierarchies that limit or support optimal interpersonal communication patterns is necessary to advance knowledge regarding handoff reporting practices (Lally, 1998; Purpora & Blegen, 2012).

Nursing Role and Level of Experience

Recent studies have identified differences in the perspective of handoff processes and satisfaction based on the role of the nurse (incoming vs. outgoing) and level of experience. To better understand communication processes occurring during handoff reporting, Abraham et al. (2016) assessed shift-to-shift handoffs between nurses, using sequential conversational analysis (SCA) as a guide to characterize conversational qualities and differences occurring between both members of the communication dyad. The study focused on fifteen shift-to-shift handoffs in an academic medical center intensive care unit. Data was collected via audio recordings, observation, and semi-structured interviews. Field notes focusing on nonverbal behaviors were also recorded. During post-shift interviews, nurses were asked to describe the handoff process from their perspective as either the incoming or outgoing nurse. Key findings include the identification of conversational strategies used by each dyad participant: outgoing nurses focused

on information giving behaviors and incoming nurses focused on accepting or seeking additional information.

Acknowledging recommendations by TJC that handoffs should be interactive with opportunities to clarify received information, Abraham et al. (2016) found a low collaborative effort during the handoff: the outgoing nurse had a longer opportunity for communication, which placed a large burden on the incoming nurse who had to receive, filter, and process the information. Recommendations by the authors include offering the incoming nurse multiple opportunities (ideally, designed stopping points) to clarify information during the process rather than having the nurse wait until the completion of the report (Abraham et al., 2016).

Carroll et al. (2012) suggest a high amount of variability across nurse roles (incoming versus outgoing nurse) and experience levels as well as differences between individual and organizational contexts contribute to the lack of improvement in handoffs—regardless of advancements in practices (e.g., greater emphasis on standardization). Carroll et al. (2012) found incoming and outgoing nurses favor different things from the handoff report, even though they inevitably switch roles a mere 12 hours later (Carroll et al., 2012). Incoming nurses prefer eye contact, less distraction, and questions for clarity while outgoing nurses deem an effective handoff where less eye contact is made with few questions (Carroll et al., 2012). In addition, years of experience in terms of handoff practice must be considered. Findings by Carroll et al. (2012) suggest nurses with six years or greater of experience abbreviated their report when the incoming nurse was already familiar with the patient. Although this practice seems reasonable, the abbreviated report resulted in additional questions from incoming nurses, leading to dissatisfaction from both parties. Findings also suggest information verifying and seeking

behaviors may be viewed negatively by experienced nurses, since the interviewed participants deemed a "good report" as one where few questions are asked.

From a global viewpoint, Meissner et al. (2007) found seniority plays a role in overall reported handoff satisfaction levels. Satisfaction with handoff reporting decreased as nurses approached five years of practice and then slowly rose as a nurse's occupational seniority increased. Hays (2002) found a correlation among seniority level and demonstrated qualities of competent communication: socioemotional behaviors were portrayed more often by nurses who were younger yet employed at the hospital longer.

The perspective of each nurse in terms of his or her role (whether incoming or outgoing) is an important consideration when contemplating the practical application of improved handoff communication (Carroll et. al., 2012). The fact that each nurse will have the opportunity to partake in both the incoming and outgoing role allows for a mutual understanding of the complexities of each role. In addition to role, years of experience as a nurse also warrants further investigation (Hays, 2002; Meissner et al., 2007). Because handoff is a decidedly personal experience, unwrapping why and how nurses interact based on their role and/or experience levels allows a deeper understanding of the invisible barriers lending to higher quality handoff reporting.

Analysis of Communication Competence

In formally analyzing communication competence during handoff reporting, Streeter et al. (2015) acknowledge a relationship between communication competence and quality of the handoff report, specifically proposing higher quality handoff reports are related to higher levels of communication competence. Streeter et al. (2015) studied communication behaviors during handoff practices using the Nurse Communication Competence Scale. Nurses were divided into

an incoming or outgoing nurse category and asked to recall one specific handoff event—either the best incoming, best outgoing, worst incoming, or worst outgoing handoff they had experienced. Based on their recall, the nurses were then asked to assess their own communication competence and the other nurse's level of communication competence. Nurses were also asked an open-ended question at the beginning of the survey to allow for recollection of the event details.

Results of the study indicated socioemotional behaviors are positively related to higher quality handoff reports, and higher quality handoffs are associated with higher information-seeking and information-giving behaviors. Specifically looking at the incoming nurse's role, both the incoming and outgoing nurses agreed higher quality handoffs were associated with higher information-seeking behaviors from the incoming nurse. Moreover, both the incoming nurses and outgoing nurses agreed higher quality handoff reporting exists when both nurses displayed high information-giving behaviors. According to Streeter et al. (2015), these findings correspond with TJC recommendations for asking and answering questions during handoff reporting. Furthermore, the inclusion of socioemotional behaviors support handoff reporting since these supportive behaviors are more conducive to nurse willingness to ask and answer questions (Streeter et al., 2015).

Limitations of Current Literature

Limitations in the current state of the science related to handoff reporting in nursing suggests the need for further studies with more robust methods. Despite acknowledgement that communication is a major factor in patient safety, few studies provide a comprehensive focus on communication. A review of current literature highlights the lack of research integrating both analysis of information exchange in the context of handoff reporting and behavioral aspects of

communication. Although studies have focused on medical providers exploring communication competence (Bomba & Prakash, 2005; Desjarlais-deKlerk & Wallace, 2013), few studies have provided empirical evidence using a model of communication competence to further explain handoff quality in nursing (Streeter et al., 2015).

Reported limitations in studies where handoff reporting was assessed include small sample size (Carroll et al., 2012; Desjarlais-deKlerk & Wallace, 2013; Drach-Zahavy & Hadid, 2015; Klim et al., 2013; O'Brien et al., 2016), limited sites for data collection (Bergman et al., 2016; Kanerva et al., 2015), possible bias where direct observation of handoff reports were employed (Desjarlais-deKlerk & Wallace, 2013; Drach-Zahavy & Hadid, 2015; Kanerva et al., 2015; Miller & Sands, 2013; O'Brien et al., 2016), lack of nonverbal components of communication (Abraham et al., 2016; Bergman et al., 2015), and possible issues with information recall as participants were asked to remember best or worst handoffs rather than report in a designated timeframe (Streeter et al., 2015). Although some studies made the connection between the quality of the handoff report with actual patient outcome data (Carroll et al., 2012; Drach-Zahavy & Hadid, 2015), many studies fell short and reported this as a limitation (Birmingham et al., 2015; Bergman et al., 2016; Lally, 1998; Meissner et al., 2007).

Findings from the literature review reveal the complexity of dyadic communication during handoff reporting (Cheung et al., 2010; Bergman et al., 2016; Purpora & Blegen, 2012). Furthermore, handoff reporting is also variable among disciplines (Bergman et al., 2016; O'Brien et al., 2016), among shift timeframes when handoff occurs (Miller & Sands, 2013), and even from the viewpoint of either the incoming or outgoing nurse (Carroll et al., 2012). Due to the complex nature of interpersonal communication occurring during handoff, the perspective of one's own communication delivery and how one perceives the other member of the

communication dyad is necessary to advance knowledge and better understand specific variables constituting a quality handoff report.

Although a recent study has attempted to analyze incoming and outgoing nurse perspectives of the handoff report using a full model of communication competence, a significant limitation to the design includes the need for the nurse to rely on historical perspective rather than a designated timeframe from the point of the handoff report and data collection (Streeter et al., 2015). Moreover, the lack of dyadic analysis from the perspective of the incoming and outgoing nurse of the same handoff report limits our understanding of communication competence since it is defined as an interpersonal event (Cegala et al., 1998). Streeter et al. (2015) emphasize the importance of future research focused on a full model of communication competence, one which includes both *information exchange* and *socioemotional behaviors*.

Chapter Summary

Cegala (1998) developed the model of competent communication to include both *information exchange* and *socioemotional behaviors*. The model serves as a guide for those interested in aspects of interpersonal communication such as dyadic communication occurring during handoff reporting. The aforementioned studies highlight the importance of assessing key elements of communication during handoff reporting and specifically focus on the importance of the exchange, including information giving, information verifying, and information seeking, as well as socioemotional behaviors. Based on findings from the literature review and proposed research questions, the current study focused on a full model of communication competence, including both information giving and socioemotional behaviors from the perspective of the incoming and outgoing nurse during the same handoff event.

CHAPTER 3

METHODOLOGY

Introduction

This chapter describes the overall methodology of the study, including: (a) study design, (b) sample and setting, (c) inclusion and exclusion criteria, (d) instrumentation, (e) operational definitions, (f) data collection procedures, (g) data analysis methods, and (f) summary.

Design

The purpose of this study was to examine shift-to-shift handoff reporting from the perspective of nurses who are coming on shift and those who are leaving a shift in an acute care setting. This study examined the relationship between communication competence, quality of handoff reporting, nursing role (incoming versus outgoing), and type of rating (self-versus other).

For each handoff event, nurses were asked to rate themselves and their counterparts on communication competence and provide an overall rating of the quality of the handoff. Differences in perceptions between the incoming and outgoing nurses regarding their reported handoff quality and communication competence were analyzed. Demographic variables (age, gender, …unit) were collected and used to further analyze sample characteristics in relation to dependent variables.

Using a cross-sectional descriptive correlational design, this study assessed dyadic communication during nurse handoff reporting in acute care settings. A cross-sectional descriptive correlational design is appropriate as the variables were not manipulated; rather, the researcher attempted to learn more about the situation as it is naturally occurring (Schmidt & Brown, 2015). Moreover, the design is correlational in nature as the study moved beyond

describing phenomena to explain the degree and characteristics of variable relationships naturally occurring within the sample (Schmidt & Brown, 2015). The purpose of using a cross-sectional descriptive correlational design was to describe relationships without proposing causal factors of the relationship (Fain, 2015). Furthermore, the design allowed for testing hypotheses and research questions concerning variable relationships (LoBiondo-Wood & Haber, 2010).

Sample and Setting

Convenience sampling was employed for this study. Although a convenience sample allows the researcher to readily access willing study participants, a disadvantage to the sampling process is the increased risk of bias (LoBiondo-Wood & Haber, 2010). To explain potential bias and ensure the sample is representative of the overall population of interest, data obtained from the demographic portion of the survey was compared with population demographics. In addition, a detailed explanation of sample selection criteria allowed readers to deduce whether sampling bias existed and if results could guide clinical practice (Schmidt & Brown, 2015).

The sample consisted of registered nurses working on seven separate medical surgical units in a 325-bed acute care hospital in the midwestern United States. The Level II Trauma and Emergency hospital—the site for this research project—serves as a regional referral center and has been designated as a "top 50" hospital in the nation as awarded by Healthgrades®, which recognizes a healthcare institution's commitment to quality and superior patient experiences (Gundersen Health System, 2016). On each respective unit, the daytime (7 a.m. to 7 p.m.) staffing pattern consisted of one nurse caring for four patients while the evening shift (7 p.m. to 7 a.m.) consisted of one nurse caring for four to six patients. On average, each unit consisted of 20 to 25 beds per unit. Approximately five to six nurses worked during the daytime shift while an average of three to four nurses worked during evening hours. The units represented for the study

included Orthopedics, Neurosurgery, Oncology, Short Stay, Cardio and Pulmonary, Surgical and Digestive, and Rehabilitation.

Inclusion and Exclusion Criteria

Inclusion criteria for participation in this study were registered nurses who:

- spoke English,
- provided direct patient care during their respective shift,
- had worked for three months or more as a registered nurse providing direct patient care, and
- assumed the role as primary nurse during the handoff report.

Exclusion criteria for participation in this study were as follows:

- recent registered nurse graduates with less than three months of employment on the unit,
- registered nurses on unit orientation, and
- registered nurses who had previously participated in this study.

The exclusion criteria were justified as recent registered nurse graduates begin to independently give and receive handoff reports after 3 months of employment, and newly hired—yet experienced—nurses will give and receive handoff reports once their orientation is complete (A. Hauser, personal communication, May 24, 2017). In addition, nurses were not allowed to participate in the study more than once. Those who had already participated within a nursing dyad were excluded from participating in another dyad—regardless of role—to preserve independence of data, which was significant for the data analysis portion of the study (D. Feng, personal communication, August 7, 2017). Nurses employed at the unit who did not provide direct patient care were not asked to participate.

Sample size. According to LoBiondo-Wood and Haber (2010), it is important to determine an appropriate sample size through a power analysis to prevent type II errors (accepting a null hypothesis when it should have been rejected). Furthermore, the findings of the study and generalizability of the findings are weakened when the sample size is too small (LoBiondo-Wood & Haber, 2010). A power analysis was conducted using G*Power 3.1, which determined a total of 42 handoff reporting events are necessary for data collection. Further statistical analysis of the lowest partial eta squared reported of each subscale of the NCCS indicates $\eta^2\rho$ = .186 supports F_2 = .231 and two predictor variables (D. Feng, personal communication, August 7, 2017). As data was collected from each member of the nurse dyad, a total of 84 participants were needed for the study. The sample size is derived from computations indicating a power of 0.80, medium effect size (0.25), and alpha level of 0.05 (see Appendix A).

According to Lakens (2013), power of 0.80 is the recommended minimum suggested value for use in studies. Cohen (1992) also suggests the use of 0.80 as a conventional level of power. According to Cohen (1992), a value smaller than 0.80 increases the risk of a type II error, and applying a power level greater than 0.80 would require a sample size that is large and possibly not feasible. In terms of effect size, Field (2013) discusses the concept as the measure of differences or the strength of a relationship between study variables. Polit and Beck (2010) define effect size as "how powerful the effect of an independent variable is on the dependent variable" (p. 419). In practice, effect size ensures that statistically significant results are not only considered real, but a larger effect size also conveys level of importance of statistically significant results (Polit & Beck, 2010). In terms of significance level, LoBiondo-Wood and Haber (2010) discuss setting the significance level before the study starts as the probability of

making a type I error (rejecting a true null hypothesis) decreases. According to LoBiondo-Wood (2010), the minimum suggested significance level for nursing research is 0.05.

Data Collection

Following approval from the University of Nevada, Las Vegas and the study site's Institutional Review Board, an initial data collection period of four to six months was established. Prior to the start of the study, the student researcher met with unit managers to request permission to attend staff meetings and to configure appropriate timeframes to present information to staff as meeting agendas are typically extensive (Dana Meyers, personal communication, June 9, 2017). Once meeting times were established with management, the student researcher met with the nurses from each respective unit at quarterly staff meetings. During the meetings, the study purpose and data collection procedures were explained with opportunities for questions from the potential participants. In addition, potential participants were notified they would be entered in a drawing for an iPad for participating. The researcher may have few opportunities to encourage possible participation, so it is imperative that information provided is professional, informative, and culturally sensitive (Schmidt and Brown, 2015). A timeline was established, and the staff was notified of when the student researcher would be on the units.

Since each medical surgical unit provided a daily roster of nurse assignments for the current and upcoming shift, nurse dyads were approached during their scheduled handoff and offered the chance to participate in the study. Each dyad consisted of one incoming and one outgoing nurse. The student researcher was available during the handoff report and assigned a unique identifier to each nurse dyad so cross-matching of responses could occur for data analysis. An e-mail address for each participant was obtained to deliver the survey electronically.

In addition, a card with their unique identifier and link to the survey was provided as a reminder for the participant to complete the survey.

Protection of Human Subjects

According to Terry (2018) approval for research from the institutional review board (IRB) mandates compliance regarding minimal risk to human participants, fair selection of participants, document of informed consent received from each participant, continuous oversight and confidentiality of data collected, and an obligation to participant privacy. Upon recruitment of participants, a detailed explanation of the study purpose and design was provided. A combination of face-to-face meetings, invitational e-mails, and flyers posted on each unit was distributed. Participants were given full disclosure regarding study elements, including purpose of the study within the informed consent document. In addition, participants were notified the student researcher is performing the study to fulfill their dissertation and working separately from Gundersen Health System. The informed consent included a description of both risks and benefits for the participants, an explanation of confidentiality of data with notice that participation is voluntary and participants may withdraw from the study at any time without penalty. Participants were specifically informed that data will be collected by the nurse researcher, de-identified, and maintained in a password protected electronic database. Moreover, only the nurse researcher and research team had access to the data. Participants were notified that participation or lack of participation has no bearing on their employment and that findings of the study may appear in a presentation or publication.

Survey/Instrumentation

Once participants completed their shift handoff report and verbally agreed to participate in the study, the student researcher approached the dyad and explained the study. They were

advised they would be e-mailed a computerized Qualtrics survey link (see Appendix B). The e-mail message contained the survey link as well as each participant's unique identifier. My contact information was also listed if they should have any questions. Immediately after opening the link, participants were presented with a description of the study and could complete the informed consent that advised them of the nature of the study. The description included the purpose of the study, criteria for eligibility, benefits and risks of participation, and notice that by completing the survey they would receive a $10 Starbucks gift card. They were also notified their personal information would be kept confidential and that participation was voluntary. The student researcher contact information as well as the University of Nevada Las Vegas-Office of Research Integrity was provided. A question asking the participant to agree or disagree to consent to the study followed. After they consented to participate, the survey opened with basic demographic questions, followed by the communication measures.

The study participants were asked to complete the survey within 7 days. According to CustomInsight (as cited by the University of Wisconsin-Madison Office of Quality Improvement, 2010), a timeframe of 7 to 10 days is adequate for survey completion with a reminder e-mail sent a few days before the required completion date. Other studies (Streeter, 2010) have acknowledged the role that historical perspective plays on the accuracy of survey responses. Bradburn, Rips, and Shevell (1987) explain that memory recall impacts responses on autobiographical surveys. Moreover, specific memories are harder to recall and encompass more inference when individuals are surveyed about frequently occurring instances in their lives compared to unique events. Therefore, providing specific cues to trigger recall can be helpful (Brandburn et al., 1987).

Demographic data. The researcher-developed demographic survey consisted of age, gender, years of nursing experience, years of experience at current organization, years of experience in current department, and highest degree obtained (see Appendix C).

Quality of handoff score. Upon completion of the demographic questions, nurses were asked to rate the quality of their handoff report. Quality was measured using a visual analogue scale of 1 to 10 with 1 indicating a low-quality report and 10 indicating a superior report. (see Appendix D). Bowling (2005) addresses the use of a global scale to measure a participant's perception of a variable quality and suggests that the use of a single question has advantages, such as ease of interpretation and reduced burden on the participant. Moreover, the use of a global question compliments studies where the core questionnaire is already lengthy (Bowling, 2005). Several types of surveys have employed global questions to measure quality, such as the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey where patients are asked to provide an overall rating for the hospital (CMS, 2015). Other surveys that use a global question include those that concern health status and quality of life (Bowling, 2005). Several studies have used a global question to gather data and report high reliability including Sutherland et al. (1989) who measured satisfaction with healthcare ($\alpha = 0.83$), Cella and Perry (1986) who measured self-perception of wellbeing ($\alpha = 0.67$), and Spitzer, Dobson, & Hall (1981) who measured quality of life for individuals with serious health conditions ($\alpha = 0.78$).

Nurse communication competence scale (NCCS). After obtaining demographics and global measure of quality, the NCCS— adapted from Cegala's (1998) Medical Communication Competence Scale (MCCS)—was presented (see Appendix E). Streeter et al. (2015) modified the MCCS to include both the incoming and outgoing nurse roles with distinctive focus on each role based on review of nursing handoff literature. The final version consists of 48 questions in

which a statement is presented, and respondents must indicate their degree of agreement on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). The NCCS consists of four subscales including information giving, information seeking, information verifying, and socioemotional behaviors. Information giving includes proving information (Cegala et al., 1998) while answering any questions thoroughly (Streeter, 2010). Information seeking allows for information gathering in the present moment (Cegala et al.,1998) and information verifying is the process of validating that information provided was accurate occurring through asking and answering questions (Cegala et al., 1998). Socioemotional behaviors consist of relational components of communication focusing on trust, kindness, and caring (Cegala et al., 1998). The NCCS was tested for reliability with subscale Cronbach's alpha as: (a) information giving reported as 0.94, (b) information seeking as 0.94, (c) information verifying of 0.95, and (d) socioemotional behaviors as 0.95 (Streeter, 2010; see Appendix C). Construct validity was tested through principal components factor analysis with a two-factor structure found for each subscale and percent of variance ranging from 82.93% to 88.31% (Streeter, 2010). In addition to statistical testing, face validity was obtained via a pilot study that included 22 registered nurses with minor modifications suggested to improve survey flow (Streeter, 2010). Permission for scale use was obtained from the author.

Both the incoming and outgoing nurse participants completed 48 questions. Parallel questions for the incoming and outgoing nurses involve information giving (four parallel items for both roles and six that are specific to the outgoing nurse role), information seeking (five items), information verifying (five items), and socioemotional behaviors (seven items) (see Appendix E). The incoming nurse completed 21 questions concerning his / her self and 27 items related to the outgoing nurse, and the outgoing nurse completed 27 items concerning his/ her self

and 21 questions related to the incoming nurse (Streeter, 2010). The tool was scored based on each participant's response to the seven-point Likert scale. The subscales are scored by adding up the numerical response for each question within each subscale. The highest possible total score of each subscale for self-evaluation is 28 for information giving, 35 for information seeking, 35 for information verifying. The total for socioemotional behaviors is 49. In addition to a self-score, participants also evaluated their counterpart. The highest possible total score of each subscale for counterpart evaluation is 70 for information giving, 35 for information seeking, 35 for information verifying, and 49 for socioemotional behaviors.

Fryrear (2016) explains the need to avoid participant fatigue when developing data collection methods such as surveys. According to Fryrear (2016), five ways to avoid survey fatigue include surveying participants minimally, conveying the importance of the survey value, ensuring survey questions are relevant and easy to understand, only asking focused questions that meet the goals of the survey, and understanding the participant viewpoint. Due to the number of items on the NCCS, careful consideration was given to participant fatigue prior to administering the survey. From the standpoint of the researcher, the need to convey the importance of research goals prior to the beginning of the study was paramount. Moreover, due to the nature of participant role and the need to focus on a variety of tasks post handoff report, it was necessary to offer a window of time after the nurses completed their shifts to complete the survey in order to both respect the nurse's time while maintaining integrity of the study design. In addition, the surveys were pilot tested by two volunteers to determine the approximate time to complete the survey, which was assessed at 8 to 10 minutes per participant using a paper and pen format.

Table 1

Data Collection Instruments

Variables	Instruments	Author	# of Items	Reliability (alpha)
Demographics	Demographic Questionnaire	Smith (2017)	5	
Handoff Quality	Global Measure 1–10	Smith (2017)	1	
Communication Competence	Nurse Communication Competence Scale	Streeter (2010)	48	.94–.95
	Subscales			
	Information Giving			.94
	Information Seeking			.94
	Information Verifying			.95
	Socioemotional Behaviors			.95

Operational Definitions

Information giving. Information giving was measured from the perspective of the incoming and outgoing nurse through the following statements: providing relevant historical information on the patient, answering questions accordingly, answering questions honestly, offering recommendations or input about the patient's care, explaining the patient's condition, explaining recent/anticipated changes in the patient's status, explaining the care needed by the patient, explaining the medication needs of the patient, explaining treatment needed by the patient, and explaining services needed for the patient.

Information seeking. Information seeking was measured from the perspective of the incoming and outgoing nurse through the following statements: receiving answers to questions, asking questions related to the patient's needs, asking questions in a clear and understandable manner, asking for recommendations and/or input, and getting all the information needed to care for the patient.

Information verifying. Information verifying was measured from the perspective of the incoming and outgoing nurse through the following statements: repeating important or complex information to check for accuracy, reviewing important or complex information to ensure understanding of explanations and directions, and checking one's understanding of what was said by the other nurse.

Socioemotional behaviors. Socioemotional behaviors were measured from the perspective of the incoming and outgoing nurse through the following statements: using easily understood terms, being warm and friendly, contributing to a trusting relationship, showing care for the other nurse, making the other nurse feel relaxed or comfortable, feeling relaxed and comfortable, showing compassion, and being open and honest.

Quality of handoff report. The quality of the handoff report was a global measure based on the perception of each nurse's satisfaction with the overall report process.

Data Analysis

As the data were collected using a web-based survey platform (Qualtrics), the completed survey data was exported into a statistical analysis software application. Data was exported from Qualtrics to the Statistical Package for the Social Sciences (SPSS) database, version 25 which offered a broad set of statistical capabilities International Business Machines, 2017). The export occurred from two separate surveys-the incoming nurse survey and outgoing nurse survey. Separate data sheets were initially created for the incoming nurse data and outgoing nurse data. Data were organized in the database using a unique identifier for each nurse dyad while indicating each nurse's role (incoming versus outgoing) and type of rating (whether the nurse was rating themselves or their counterpart). Each row of the data sheet represented a single participant. From the data view a column indicating the participant's ID helped to organize each

participant unique response. Incoming nurses were assigned their number with the letter "A" following, while outgoing nurses were designated as their unique number with the letter "B". Using the same number with different letters was necessary so dyads could be identified after data was merged. The global measure as well as each subscale question response was coded according. For example, an information giving question about the incoming nurse, answered by the incoming nurse was coded IGII. An information giving question about the incoming nurse, answered by the outgoing nurse was coded IGIO. While building the survey in Qualtrics, items were reverse coded, therefore, were recoded prior to data analysis. Prior to choosing statistical tests, each category of the study variables was identified. Independent variables included nursing role (incoming versus outgoing) and type of rating (self versus counterpart). Categorical variables were embedded within each dependent variable to indicate whether the variable was referring to a self- rating or counterpart rating within each dyad. The dependent variables of information giving, information seeking, information verifying, socioemotional behaviors, and the rating of quality of handoff reporting were continuous variables. Participant's total score for each NCCS subscale and the quality of handoff score were analyzed in comparison with their counterpart responses.

Each dataset was sorted from ascending order to assist with ease of data merger with the corresponding dataset. In order to merge the data a key variable was identified that was identical for the incoming and outgoing nurse, which was the unique identifier as mentioned above. As the incoming dataset merged with the outgoing dataset, each participant's row of responses now became a dyadic row of responses. Data screening occurred and missing data was found from one dyad. The missing data was addressed via listwise deletion which is a reasonable solution when the sample size is large enough to satisfy statistical power (Kang, 2013). Our sample size

was ample enough to withstand listwise deletion as a power analysis indicated 48 dyads were necessary to satisfy statistical power. Graphic representations were generated to identify skewness or extreme outliers. According to Laerd Statistics (2018) removing outliers may be considered when not due to data entry or measurement errors. Within the dataset, one outlier was considered extreme and removed from analysis. After data was merged within SPSS, statistical analysis including descriptive statistics were ran on all research variables.

Demographic Data

Demographic data was analyzed to review key characteristics of the study population. Moreover, demographic information allows for comparison of our sample with the overall population. The demographic data was analyzed using descriptive statistics including frequencies. Demographic data was requested from participants using discrete category ranges (e.g., age ranges, range of years of experience) therefore, frequencies were the most meaningful descriptive statistics.

Research Questions

The following are the statistical tests for each research question and the corresponding hypothesis.

Research Question 1: Will nurses' self-rated communication competence differ from the rating provided by their nurse counterpart during handoff reporting?

The below hypotheses for the first research question reflect the comparison of the subscale scores of information exchange.

Hypothesis 1a: *Ratings for information exchange (information giving, information seeking, and information verifying) will differ by nursing role (incoming versus outgoing) and type of rating (self versus counterpart).*

Paired t-tests were conducted to analyze the dependent variables of information giving, information seeking, and information verifying of the incoming versus outgoing nurse, (D. Feng, personal communication, November 27, 2018). Also known as a dependent *t*-test, the paired samples *t*-test compares the mean scores between two groups on the same dependent variable (Laerd, 2013). Outliers were addressed and normality of data was analyzed via the Shapiro-Wilk test of normality. Descriptive statistics including mean scores from each subscale of the nurse's self-report and counterpart were compared. For each subscale, two scores were generated. The scores indicated each nurse's response and their response for the counterpart. For example, information giving consisted of the information giving self-score of the incoming nurse and the score given to the incoming nurse by the outgoing nurse. In addition, the self-score of the outgoing nurse and the score given to the outgoing nurse by the incoming nurse was also analyzed. In order to address the potential for Type I errors resulting from multiple *t*-tests, significance levels were reported at 0.01 and 0.05.

Hypothesis 1b: *Ratings for socioemotional behaviors will differ by nursing role (incoming versus outgoing) and type of rating (self versus counterpart).*

Paired *t*-tests were conducted to analyze the dependent variables socioemotional behaviors of the incoming versus outgoing nurse, (D. Feng, personal communication, November 27, 2018). *T*-test analysis as mentioned in Hypothesis 1a was also used to analyze the subscale of socioemotional behaviors. Each self-score and counterpart score mean scores were analyzed. Significance levels were also reported at 0.01 and 0.05.

Research Question 2: Will nurses' rating of the handoff quality differ from the rating provided by their nurse counterpart during handoff reporting?

Hypothesis 2: *The nurses' rating of handoff quality will differ from the rating provided by their nurse counterpart during handoff reporting.*

Within the second hypothesis the quality of the handoff report of the incoming and outgoing nurse serves as the dependent variable. As with the first hypothesis, *t*-test analysis including mean scores of the overall handoff report were compared for analysis. (D. Feng, personal communication, November 27, 2018). Also known as a dependent *t*-test, the paired samples *t*-test compares the mean scores between two groups on the same dependent variable (Laerd, 2013). Unlike the first hypothesis, one self-reported global measure served as the variable, therefore a single mean difference occurring between the incoming and outgoing nurse was analyzed.

Research Question 3: Will a relationship exist between the perceived quality of the handoff report and the level of communication competence perceived within the handoff report?

Hypothesis 3: *The overall quality of the handoff report will be related to the communication competence of the nurse and his/her peers.*

Multiple regression was conducted to analyze relationships among the quality of the handoff score and the subscale scores of the NCCS. Multiple regression is appropriate to compare a single dependent variable and two or more independent variables (Field, 2013). Moreover, multiple regression serves as an expansion from basic correlation and allows researchers to determine the degree of contribution that independent variables have on the dependent variable (Lo Biondo and Wood, 2010). For the purposes of our data analysis, each subscale of communication competence, specifically the self and counterpart subscale score served as the independent variables while the quality of handoff report score served as the

dependent variable. The Durbin Watson test was performed with data falling within acceptable ranges indicating that data was independent. A partial regression plot was run indicating that the results of data reported below met assumption of linearity. There was homoscedasticity as assessed by visual inspection of a scatterplot of data. Tolerance values indicated no issues with collinearity existed.

Chapter Summary

The overall study design and research methods were developed based on the research focus and proposed hypotheses supported by the conceptual model and literature review provided in Chapter 2. Developing a study based on interpersonal communication competence during handoff reporting among nurse dyads provided a means to develop knowledge of a meaningful topic. Use of the NCCS, which has proven validity and reliability, increased the understanding of nurse-to-nurse interpersonal communication competence. Moreover, as the tool enables analysis of specific components of communication competence (information giving, information seeking, information verifying, and socioemotional behaviors) from the unique perspective of each incoming and outgoing nurse, a clear picture of how specific components of communication exchanges affected nurse dyad communication in the context of handoff reporting can be described. The strength of this study is the assessment of the communication event in an occurring in present time which allows for real time participant evaluation rather than recall to assess the event. It is the hope that a well-designed and well-executed study will create a body of evidence that lacks significant bias and is generalizable to the wider population.

CHAPTER 4

RESULTS

Introduction

This chapter presents sample demographic information as well as the results of data analyses used to answer the research questions and either confirm or reject hypotheses related to nursing handoff communication from the perspective of the incoming and outgoing nurse. In addition, an overall summary of the results will be provided at the conclusion of the chapter.

Demographic Characteristics of Sample

A total of 160 nurses were approached to participate in the study with 143 individual nurses completing the survey for a response rate of 89%. Since both the incoming and outgoing nurse would have to complete the survey in order to be considered, some responses were not used due to non-participation from the counterpart nurse. The average response time was 1 day from the time of receiving the survey. Each nurse dyad consisted of an incoming and outgoing nurse working in the medical surgical nursing units at a hospital in the midwestern United States.

The majority of study participants were female (90.4%) and had received a bachelor's degree (64%) in nursing. Although the largest age group reported for both incoming and outgoing nurses was 25–36 years of age (42% and 60% respectively), more incoming nurses reporting their age between 18–24 years (37%) versus the outgoing nurses (22%). Moreover, the majority of our sample indicated they had less than 5 years of nursing experience (60%), with the incoming nurses more frequently reporting less than 1 year of experience (25%) versus the outgoing nurses (16%). The incoming and outgoing nurses' years of experience in nursing closely aligns with their years of experience within the organization and within their department.

The demographic characteristics of the sample are representative of the larger nursing population (Table 2). The majority of nurses working in the United States are female and have obtained a bachelor's degree in nursing (National Council of State Boards of Nursing, 2019). In contrast to characteristics of our sample, the highest percentage of nurses working in the US are between the ages of 55–59 years (NCSBN, 2019). Our sample was younger with most nurses reporting their age between 25–36 years. The majority of nurses in our sample reported less than five years of experience in nursing which is consistent with national data as medical surgical nursing is the most reported unit of nursing entry-level employment (NCSBN, 2010). In addition to being a less experienced cohort, most nurses in our sample were relatively new to their department and the organization as a whole. A chi-square analysis was conducted on all demographic variables. There was a statistically significant difference in reported age ranges between the incoming and outgoing nurses ($p < 0.05$). No other significant differences existed between the incoming and outgoing nurse participants.

Table 2

Demographic Characteristics of Incoming and Outgoing Nurses

	Total Sample (N = 114)	Incoming Nurse (N = 57)	Outgoing Nurse (N = 57)
Age (years)			
18–24	34 (29.8%)	21 (36.8%)	13 (22.1%)
25–36	58 (50.9%)	24 (42.1%)	34 (59.6%)
37–45	11 (9.6%)	7 (12.3%)	4 (7%)
45–60	9 (7.6%)	4 (7%)	5 (8.8%)
60+	2 (1.7%)	1 (1.8%)	1 (1.8%)
Gender			
Male	11 (9.6%)	7 (12.3%)	4 (7%)

Female	103 (90.4%)	50 (87.7%)	53 (92.9%)
Highest degree obtained			
Associate	38 (33.3%)	19 (33.3%)	19 (33.3%)
Bachelor's	73 (64%)	35 (61.4%)	38 (66.6%)
Master's	2 (1.8%)	2 (3.5%)	0
Doctoral	1 (0.9%)	1 (1.7%)	0
Years of nursing experience			
< 1 year	23 (20.2%)	14 (24.6%)	9 (15.8%)
1–5 years	68 (59.6%)	31 (54.4%)	37 (64.9%)
6–10 years	13 (11%)	7 (2.3%)	6 (10.5%)
11–20 years	5 (4.4%)	3 (5.3%)	2 (3.5%)
> 20 years	5 (4.4%)	2 (3.5%)	3 (5.3%)
Years of experience at current organization			
< 1 year	24 (21.1%)	16 (28.1%)	8 (14%)
1–5 years	67 (58.9%)	32 (56.1%)	35 (61.4%)
6–10 years	15 (13.2%)	5 (8.8%)	10 (17.5%)
11–20 years	4 (3.5%)	2 (3.5%)	2 (3.5%)
> 20 years	4 (3.5%)	2 (3.5%)	2 (3.5%)
Years of experience in current department			
< 1 year	27 (23.7%)	18 (31.6%)	9 (15.8%)
1–5 years	73 (64%)	34 (59.6%)	39 (68.4%)
6–10 years	8 (7%)	3 (5.3%)	5 (8.8%)
11–20 years	4 (3.5%)	1 (1.8%)	3 (5.3%)
> 20 years	2 (1.8%)	1 (1.8%)	1 (1.8%)

Data Analysis

Data was generated from surveys distributed to either incoming or outgoing nurses via Qualtrics and transferred to SPSS for analysis. Prior to analyzing data from a dyadic perspective,

the incoming and outgoing nurse data required merging. Data was coded to include independent variable of type of role (incoming versus outgoing) and type of rating (self versus counterpart) within the respective dependent variable. One outlier was detected as extreme based on analysis of the boxplot and was removed from analysis. Listwise deletion was employed to handle missing data. According to Kang (2013) listwise deletion allows for unbiased estimates. The final sample consisted of 57 dyads. Cross comparisons were conducted among questions answered between the incoming and outgoing nurse garnered from the NCCS. Psychometric testing was performed for each subscale indicating cronbach alphas of 0.76 to 0.98 for the subscales of information exchange and socioemotional behaviors which indicates high internal consistency and reliability. Findings are consistent with previous psychometric testing of the nurse communication competence scale. Measures of central tendency were computed to summarize the data for the overall global measure of handoff quality (M = 8.645, SD = 1.069).

Research Questions and Corresponding Hypotheses

Research Question 1: Will nurses' self-rated communication competence differ from the rating provided by their nurse counterpart during handoff reporting?

In order to test each hypothesis related to communication competence while maintaining scoring integrity of the NCCS, the components of communication competence were measured and analyzed based on the study conceptual framework and the NCCS instrument scoring instructions. Scores were determined for each subscale (information giving, information seeking, information verifying, and socioemotional behaviors) for the incoming and outgoing nurse, both rating themselves and their counterpart. Measures of central tendency, including mean and standard deviation, were ran for each subscale. A paired t-test was determined to be the most appropriate statistical test to test hypotheses related to the first two research questions. Although

the corresponding data violated the assumption of normality of data as evidenced by Shapiro-Wilk's test result ($p < 0.5$) the paired-samples *t*-test is considered robust and will withstand deviations from normality (Laerd Statistics, 2018). Other violated assumptions were addressed with the removal of a significant outlier noted above after boxplot visualization. To best address the possibility of Type I errors due to the number of *t*-tests performed, alpha levels are reported at both 0.05 and 0.01.

Hypothesis 1a: Ratings for information exchange (information giving, information seeking, and information verifying) will differ by nursing role (incoming versus outgoing) and type of rating (self versus counterpart).

The mean difference for **information giving and information seeking** behaviors was statistically different from zero. Therefore, we accept the alternative hypothesis for information giving and information seeking behaviors. Outgoing nurses rated information giving behaviors higher about themselves ($M = 6.433$, $SD = 0.429$) as opposed to the rating they received from the incoming nurse ($M = 6.107$, $SD = 0.687$), a statistically significant mean difference of 0.326, 95% CI [0.106, 0.547], $t(56) = 2.96$, $p = .004$, $d = 0.40$.

Outgoing nurses rated information seeking behaviors higher about the incoming nurse ($M = 6.406$, $SD = 0.509$) as opposed to the rating the incoming nurse gave to themselves ($M = 6.193$, $SD = 0.514$), a statistically significant mean increase of 0.213, 95% CI [-0.416, -0.009], $t(56) = -2.099$, $p = .040$, $d = 0.28$. Outgoing nurses rated information seeking behaviors higher about themselves ($M = 6.235$, $SD = 0.604$) as opposed to the rating they received from the incoming nurse ($M = 5.798$, $SD = 0.985$), a statistically significant mean difference of 0.437, 95% CI [0.130, 0.742], $t(56) = 2.859$ $p = .006$, $d = 0.38$. The mean difference for information

verifying behaviors was not statistically significant from zero. Therefore, we accept the null hypothesis as it relates to information verifying behaviors.

Hypothesis 1b: Ratings for socioemotional behaviors will differ by nursing role (incoming versus outgoing) and type of rating (self versus counterpart).

The mean difference for socioemotional behaviors was statistically different from zero. Therefore, we accept the alternative hypothesis for socioemotional behaviors. Outgoing nurses rated socioemotional behaviors higher for themselves (M = 6.519, SD = 0.468) as opposed to the rating they received from incoming nurses (M = 6.241, SD = 0.785), a statistically significant mean difference of 0.278, 95% CI [0.031, 0.525], $t(56) = 2.25$, $p = 0.028$, $d = 0.30$. Outgoing nurses also rated socioemotional behaviors higher for incoming nurses (M = 6.551, SD = 0.562) as opposed to ratings incoming nurses gave themselves (M = 6.265, SD = 0.577), a statistically significant mean difference of 0.286, 95% CI [-0.429, -0.079], $t(56) = -2.77$, $p = 0.008$, $d = 0.40$.

Table 3

Descriptive Statistics and t-test Results for Communication Competence Subscale Scores

Outcome	Self			Counterpart			n	95% CI for Mean Difference		t	df
	M	SD	α	M	SD	α					
Information Giving											
Incoming Nurse	6.13	0.56	0.80	6.22	0.69	0.89	57	-0.33	0.15	-0.74	56
Outgoing Nurse	6.43	0.43	0.90	6.11	0.69	0.94	57	0.11	0.57	2.96**	56
Information Seeking											
Incoming Nurse	6.19	0.51	0.76	6.41	0.51	0.92	57	-0.42	-0.01	-2.10*	56
Outgoing Nurse	6.24	0.60	0.88	5.80	0.98	0.98	57	0.13	0.74	2.86**	56
Information Verifying											
Incoming Nurse	6.12	0.59	0.81	6.32	0.59	0.88	57	-0.42	0.01	-1.90	56
Outgoing Nurse	6.20	0.51	0.80	5.99	0.88	0.93	57	-0.07	0.49	1.49	56

Socioemotional Behaviors											
Incoming Nurse	6.27	0.58	0.91	6.55	0.56	0.94	57	-0.49	-0.08	-2.77**	56
Outgoing Nurse	6.52	0.47	0.90	6.24	0.78	0.94	57	0.03	-0.53	2.26*	56

Note. *$p < .05$ **$p < .01$

Research Question 2: Will nurses' rating of the handoff quality differ from the rating provided by their nurse counterpart during handoff reporting?

Hypothesis 2: The nurses' rating of handoff quality will differ from the rating provided by their nurse counterpart during handoff reporting.

The mean difference for handoff quality scores was statistically significant from zero. Therefore, we reject the null hypothesis and accept the alternative hypothesis about the handoff quality scores. Outgoing nurses rated the quality of the handoff report higher (M = 8.509, SD = 1.071) as opposed to the rating given by the incoming (M = 7.807, SD = 1.631), a statistically significant mean difference of 0.702, 95% CI [0.164, 1.239], $t(56) = 2.62$, $p = 0.011$, $d = 0.35$.

Research Question 3: Will a relationship exist between the perceived quality of the handoff report and the level of communication competence perceived within the handoff report?

Hypothesis 3: The overall quality of the handoff report will be related to the communication competence of the nurse and his/her counterpart.

A multiple regression was run to determine if a relationship exists between the perceived quality of the handoff report and the level of communication competence perceived within the handoff report. Assumptions of the below reported data were met to satisfy the use of multiple regression as an appropriate statistical test. Other assumptions met included validation of independence of data, linearity, homoscedasticity, normality, and no evidence of multicollinearity. The quality of the handoff report served as the dependent variable with

incoming and outgoing nurse subscale scores (information giving, information seeking, information verifying, and socioemotional behaviors) serving as the predictor variables.

Although all subscales were measured against the dependent variables of quality of handoff reporting, only two multiple regression models statistically significantly predicted the quality of the handoff report from perceived level of communication competence by incoming and outgoing nurses. The first model was the rating of quality by the incoming nurse and information exchange subscales reported by the incoming nurse about the outgoing nurse, F (4, 52) = 16.822, $p < 0.05$, adj. $R^2 = .53$. Regression coefficients and standard errors are in Table 4.

Table 4

*Summary of Multiple Regression Analysis Incoming Nurse Scores on Outgoing Nurse (*N *= 57)*

Variable	*B*	SE_B	β
Intercept	-3.211	1.403	
Information Giving	2.161	0.396	0.912*
Information Seeking	-0.450	0.364	-0.272
Information Verifying	0.211	0.418	0.114
Socioemotional Behaviors	-0.134	0.337	-0.064

Note. *$p < .05$; B = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient.

The subscale of information giving as reported by the incoming nurse about the outgoing nurse added statistical significance to the prediction, $p < .05$. The second statistically significant model was the rating of quality of handoff reporting by the incoming nurse and self-reported socioemotional behaviors, $F(4, 52) = 17.553$, $p < 0.05$, adj. $R^2 = .43$. Outgoing nurse ratings concerning the incoming nurse did not provide statistically significant results (Table 5).

Table 5

Summary of Multiple Regression Analysis Outgoing Nurse Scores on Incoming Nurse (*N* = 57)

Variable	*B*	SE_B	*β*
Intercept	7.888	2.934	
Information Giving	-0.801	0.475	-0.338
Information Seeking	0.140	0.795	0.044
Information Verifying	0.446	0.702	0.162
Socioemotional Behaviors	0.182	0.558	0.063

Note. *$p < .05$; *B* = unstandardized regression coefficient; SE_B = Standard error of the coefficient; *β* = standardized coefficient.

The subscale of socioemotional behaviors as reported by the incoming nurse about himself/herself added statistical significance to the prediction, $p < 0.05$. Regression coefficients and standard errors can be found in Table 6.

Table 6

Summary of Multiple Regression Analysis Incoming Nurse Self Rated Scores (*N* = 57)

Variable	*B*	SE_B	*β*
Intercept	-6.507	2.147	
Information Giving	0.755	0.457	0.257
Information Seeking	0.826	0.565	0.260
Information Verifying	-0.450	0.485	-0.162
Socioemotional Behaviors	1.169	0.494	0.414*

Note. *$p < .05$; *B* = unstandardized regression coefficient; SE_B = Standard error of the coefficient; *β* = standardized coefficient.

The outgoing nurse self-ratings did not provide statistically significant results (Table 7).

Table 7

Summary of Multiple Regression Analysis Outgoing Nurse Self Rated Scores ($N = 57$)

Variable	B	SE_B	β
Intercept	13.365	3.712	
Information Giving	-0.237	0.707	-0.062
Information Seeking	0.259	0.506	0.096
Information Verifying	-0.326	0.616	-0.102
Socioemotional Behaviors	-0.556	0.598	-0.160

Note. *$p < .05$; B = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient.

Summary of Results

Both incoming and outgoing nurses were surveyed based on their perspective of the shift to shift handoff report. Nurse dyads answered questions related to themselves and their counterpart and cross comparisons were conducted. Three research questions seeking to analyze both differences in data as well as evidence of a relationship guided data analysis methods. The research questions were as follows:

- Research Question 1: Will nurses' self-rated communication competence differ from the rating provided by their nurse counterpart during handoff reporting?
- Research Question 2: Will nurses' rating of the handoff quality differ from the rating provided by their nurse counterpart during handoff reporting?
- Research Question 3: Will a relationship exist between the perceived quality of the handoff report and the level of communication competence perceived within the handoff report?

Data analysis revealed statistically significant differences among mean scores of several subscales falling under the category of either information exchange and socioemotional behaviors.

Outgoing nurses rated their own information giving behaviors as higher than the rating given to them by the incoming nurse. The outgoing nurses also rated their own information seeking behaviors higher than ratings provided to them by the incoming nurse. In addition, outgoing nurses rated information seeking behaviors about the incoming nurse higher than the self-reported rating the incoming nurse gave themselves. Outgoing nurses rated socioemotional behaviors higher for both themselves and for the incoming nurses. In contrast, incoming nurses rated themselves and their counterpart outgoing nurses lower in socioemotional behaviors. Finally, the overall quality of the handoff was rated higher by outgoing nurses as compared to the incoming nurses, with a statistically significant difference in the mean quality scores.

Regarding the relationship between communication competence and the perceived quality of the handoff report, a significant correlation exists between the outgoing nurses' information giving behaviors and the quality of the handoff as perceived by the incoming nurses. In other words, if the incoming nurse rates the outgoing nurses' information giving low, he/she also rated the quality of the handoff low. In addition, incoming nurses' self-rated socioemotional behaviors serves as a predictor of their own rating of quality of the handoff report.

CHAPTER 5

Discussion

This chapter synthesizes the study results and provides a context for the findings compared to the current body of literature. Strengths and limitations of the study, implications for nursing, and recommendations for future research are also included.

Summary of Findings

The purpose of this study was to explore nurses' communication competence during the handoff report. Comparisons of differences of mean scores between incoming and outgoing nurse perceptions of communication competence were conducted. In addition, the overall quality of the handoff report as rated by the incoming and outgoing nurse was evaluated to see if mean differences existed. Finally, we assessed if a correlation existed between incoming and outgoing perceptions of overall handoff quality and communication competence.

Research Question One

The first research question explored whether a nurse's self-rated communication competence would differ from the rating provided by his/her nurse counterpart during handoff reporting. Nurses rated themselves and they were rated by their counterpart on how well they achieved information exchange (including information giving, information seeking, and information verifying) and socioemotional behaviors. Three significant findings were notable. First, incoming nurses rated information giving behaviors during the handoff report lower than the self-rating provided by the outgoing nurse. This finding is an important distinction as information giving is the foundation of handoff reporting. Information giving includes offering recommendations and/or input regarding the patient's care and answering questions about the patient's current condition, recent and or anticipated changes in the patient's condition,

medication needs, and historical information needed to understand the patient's condition better (Cegala et al., 1998). Our findings underscore the importance of assessing information giving from the perspective of the incoming nurse. In order to provide competent, safe patient care, the incoming nurse relies on a foundation of information provided by the outgoing nurse. Miller and Sands (2013) reported the need for outgoing nurses to gather more comprehensive information about the patient to better facilitate the handoff report with the incoming nurse. Birmingham et al. (2015) found that incoming nurses rely on the outgoing nurse to provide a complete picture of the patient's needs and struggle to perform their duties safely when they do not receive all the necessary information. Our study findings are consistent with the findings of Spooner et al. (2016) reporting that incoming nurses were often missing information as it related to assessment data and recommendations which compromises the incoming nurses' ability to safely care for the patient. In addition, Bergman et al. (2015) found that lack of specificity of information exchange from outgoing nurses providing report to incoming nurses led to confusion for the incoming nurse. Ineffective information giving behaviors among nurse dyads was also reported by Miller and Sands (2013) where incoming nurses cited safety concerns that arose during their shift as they did not receive adequate information from the outgoing nurse. Inadequate information giving for incoming nurses was also reported by Klim et al. (2013) finding that incoming nurses are often missing important information such as patient status and treatments administered which resulted in dissatisfaction with the handover report.

Second, incoming nurses rated information seeking behaviors of the outgoing nurse lower than the self-rating provided by the outgoing nurse. Questions falling under the category of information seeking include asking for recommendations/output and encouraging questions in a clear and understood manner (Cegala et al., 1998). Although outgoing nurses felt they were

providing recommendations and asking appropriate questions, the incoming nurses rated the outgoing nurses lower in the category. Our findings are consistent with Carroll et al. (2012) who reported fewer information seeking type behaviors demonstrated by outgoing nurses, rather the outgoing nurses in their study found questions during handoff reporting to disrupt the flow of the report and instead were more satisfied with a handoff report that was abbreviated. Moreover, as found in a study by Manias and Street (2000) outgoing nurses regarded requests for additional patient information as a critique and personally viewed information seeking behaviors as negative.

Third, the incoming nurse rated their own information seeking behaviors lower than the rating provided for them by the outgoing nurse. Based on our results, incoming nurses struggled with information seeking. The disconnect between the perception of the incoming and outgoing nurse related to overall information-seeking scores, is worth exploring based on the Joint Commission's (2012) recommendation of two-way communication, where opportunities are present for nurses to seek further information to gather a more comprehensive plan for the patient. Information seeking is especially important for the incoming nurse to care for the patient (Holly & Poletick, 2013). Our findings are similar to results from Streeter et al. (2015) who found that outgoing nurses viewed information seeking behaviors as more important in the incoming nurse role versus the outgoing nurse role. O'Brien (2015) also reported the infrequency of information seeking behaviors by outgoing nurses; instead suggest that information seeking is viewed as the responsibility of the incoming nurse. In addition, Abraham et al. (2015) found low collaborative effort among nurse dyads, instead the incoming nurse's role appeared limited to receiving information, rather than as an active partner seeking additional information during the report. Considering the incoming nurses rated their own information-seeking behaviors lower

than the ratings provided by the outgoing nurse, more emphasis on information-seeking behaviors for incoming nurses and exploration of information seeking strategies should be explored.

Nurse dyads did not report differences in their perceptions of information-verifying behaviors. Information-verifying questions included verification of explanations, verification of directions, and an overall understanding of the information provided (Cegala et al., 1998). Although there was no significance in the findings, one must question why the incoming nurses rated the information-giving behaviors of their counterparts lower as mentioned previously. An explanation could be that although incoming nurses initially perceived the information received as satisfactory, they later recognized where deficiencies of information exchange occurred during or after their shift. Streeter et al. (2015) found distinct differences between information verification behaviors with incoming nurses rating their own information verification behaviors as higher than outgoing nurse self-rating., however in contrast our study found no differences among incoming and outgoing nurse information verifying scores.

Finally, ratings for socioemotional behaviors differed between the incoming and outgoing nurse. Incoming nurses did not rate socioemotional behaviors of the outgoing nurse as favorable as the outgoing nurses' self-rating. Socioemotional behaviors include using language that is easily understood; being warm and friendly; showing caring, trust, and compassion; and being open and honest (Cegala et al., 1998). The incoming nurse also self-rated their own socioemotional behaviors lower than the rating given to them by the outgoing nurse. Overall, outgoing nurses viewed the handoff report as more favorable in terms of socioemotional behaviors.

Socioemotional behaviors on the part of both outgoing and incoming nurses establish a contextual environment for communication. Each nurse plays a role in setting the climate and tone of communication. The perspective of each nurse as it relates to their handoff counterpart is important to assess. For example, the attitude of outgoing nurses at the end of their shifts—when their workday is complete—may contribute to findings related to socioemotional behaviors. Also, considering the full communication model, it is important to note that incoming nurses self-reported lower information-seeking and socioemotional behaviors than the ratings given them by outgoing nurses, which may support the likelihood that relational factors of communication lend to higher likelihood of information-seeking behaviors, as mentioned in previous research (Birmingham et al., 2015; Carroll et al., 2012; Purpora & Blegen, 2012). Carroll et al. (2012) mentions positive non-verbal indicators such as eye contact and attentiveness lends to higher quality reporting. As reported by Birmingham et al. (2015), when distrust occurred between the incoming and outgoing nurse, the ability to ask and answer questions is blocked. Purpora and Blegen (2012) further contend that peer communication in healthcare systems may be compromised due to horizontal violence, or negative hierarchical relationships in the workplace. Our findings are consistent with the literature (Carroll et al., 2012; Streeter et al., 2015) indicating that the incoming nurses "have an important role to play in establishing a positive socioemotional climate" (Streeter et al., 2015, p. 304). Streeter et al. (2015) who analyzed perception of handoff reporting found that incoming and outgoing nurses rated socioemotional behaviors of the incoming nurse more important than the socioemotional behaviors of the outgoing nurse.

Research Question Two

The second research question explored whether nurse dyads differed in their overall rating of the quality of the handoff report and revealed a difference in mean scores between the incoming and outgoing nurse, with the outgoing nurse rating the overall quality higher than the incoming nurse. The difference in the quality of handoff scores is congruent with the findings of the communication competence subscales. Incoming nurses were not as satisfied with the information received during the handoff report. Overall, incoming nurses rated information exchange and socioemotional behaviors lower than the outgoing nurse. Our findings are consistent with the literature. Birmingham et al. (2015) analyzed dyadic perspectives of incoming and outgoing nurses examining what factors lend to an effective handoff report. As with our finding, they found that possessing complete information about the patient was a key factor in a highly effective report. According to Klim et al. (2013) nurses report attributes of communication such as clarity of information, professionalism, and respect lend to higher-quality reports. Likewise, Meissner et al. (2007) reported that poor social support among colleagues and insufficient information exchange resulted in lower quality reports. Moreover, a positive work climate as established by leadership plays a central role in satisfaction level with the handoff report (Meissner et al., 2007).

A reported challenge when gathering data about handoff quality is a true definition of what makes a handoff higher quality. We used the term "quality" to place a value on the overall handoff report from the perspective of the nurses contributing to the handoff report. Our study measured quality on a global scale, with one (1) indicating poor quality and ten (10) indicating high quality. We did not provide a definition quality or instructions on how to measure it; instead, it was determined the score would be the overall perception of the nurse answering the question, and a global measure was appropriate. Few studies have examined specific quality

indicators for handoff reporting (Birmingham et al., 2015; Friesen, 2008). TJC (2017) state that high quality handoffs are "highly reliable" and require the support of leadership, resources, and continued quality improvement efforts aimed at improving handoff practices (p. 5).

Research Question Three

Finally, for our third research question, we sought to discover whether a relationship existed between the perceived quality of the handoff report and communication competence. Incoming nurses rating of the outgoing nurse related to his/her information exchange and socioemotional behaviors significantly affected their perception of the quality of the handoff report. Our model indicates a positive relationship between how the incoming nurse perceives the outgoing nurse's information giving behaviors and the quality of the handoff report. When information giving behaviors are viewed more favorably, the incoming nurse's quality of handoff report increases. These findings are consistent with the literature (Birmingham et al. 2015; Miller & Sands, 2013) validating that information giving is a crucial role of the outgoing nurse and is correlated with a higher quality handoff report. Birmingham et al. (2015) recognize the importance of "dyadic dynamics" during handoff reporting (p. 1473). Their findings are consistent with ours regarding the positive relationship of the higher information giving procedures during handoff reporting and the overall perceived effectiveness of the report. Miller and Sands (2013) also found similar results with a focus on the need for standardization in order that crucial information is not missed, as comprehensive information giving behaviors are associated with higher levels of handoff quality.

A relationship also existed between the incoming nurse's self-rating of socioemotional behaviors and the quality of the handoff. When the incoming nurse rated their own socioemotional behaviors as favorable, the quality of the handoff report increased. These

findings align with other studies that measured handoff quality and an association with either information exchange or socioemotional behaviors (Carroll et al., 2012; Streeter et al., 2015). Furthermore, as the relationship was only significant from the perspective of the incoming nurse, it reinforces previous findings, suggesting that incoming nurses prefer handoff reports that adhere to competent communication, including both the technical and relational aspects of communication (Carroll et al., 2012).

Although the outgoing nurse has been termed as the gatekeeper of information (Carroll et al., 2012; Holly & Poletick, 2013), it is the incoming nurse who validates the communication event as it lends to the overall quality of the report. Streeter et al. (2015) reported that both incoming and outgoing nurses tasked the incoming nurse with establishing a "positive socioemotional climate" (p. 308). Our findings support this finding as the self-socioemotional ratings of incoming nurses contributed to the perceived quality of handoff reporting. Prior to this study, few studies (Birmingham et al., 2015; Carroll et al., 2012; Streeter et al., 2015) analyzed handoff reporting from an incoming and outgoing nurse perspective relating nurse responses to handoff quality.

Implications for Nursing Practice, Education, and Research

The study findings have considerable implications for nursing practice, research, and education. Incoming nurses scored information exchange and socioemotional behaviors lower than the outgoing nurse during the handoff report. Furthermore, they also reported a relationship between communication competence variables and the quality of the handoff report. As all incoming nurses who participated in the survey did not complete the survey during or completed the survey after their shift ended, there may have been retrospective consideration of what was missing during the handoff report based on what occurred during the shift. This finding is an

important consideration worth exploring. If incoming nurses are unaware that the information they receive before their shifts begin is insufficient for them to care for the patient safely, they will not ask clarifying questions or attempt to gather more information. According to Miller and Sands (2013), identifying what is missing during the handoff report and how omissions impact patient safety must be considered. Therefore, incoming nurses must be comfortable sharing shortcomings of the previous handoff report with the next shift to improve handoff communication. The incoming and outgoing nurse perspective should be considered on units with quality control measures such as unit-based checklists that can best support handoff communication. A unit specific tool, developed in conjunction with leadership and staff nurses that addresses nurse values and preferences, specific to information exchange and socioemotional behaviors, could compliment more standardized and structured tools such as SBAR. Despite the fact that the participants in our study used SBAR, shortcomings with information exchange and the acknowledgment that socioemotional behaviors were correlated with perceived quality were found.

The Joint Commission (2014) recommends healthcare staff learn the components of a successful handoff and standardize handoff reporting. The Joint Commission (2014) also recommends staff receive training in real time with feedback concerning their handoff performance. Feedback recommendations are shared throughout the literature (Birmingham et al., 2015; Patterson, 2010; Streeter, 2015). Essential components of feedback are resilience and the creation of a culture where individuals feel safe to offer recommendations to improve communications with peers during handoff reports. Moreover, an environment where nurses feel emotionally safe must be cultivated since resistance to interpersonal communication decreases as mutual respect increases (Purpora & Blegen, 2012).

As recommended by Birmingham et al. (2015), handoff information must be assembled before shift change to be comprehensive for the incoming nurse. Assembling information throughout the shift instead of at the end of the shift would require close examination by unit managers to ensure sufficient time for this task to occur. The development of tools to record patient care events throughout the day would also benefit nurses.

It is important that bedside nurses who routinely give and receive reports are involved in discussions related to handoff report culture. According to Carroll (2012), incoming and outgoing nurses have differing perspectives regarding handoffs; however, the situation is unique as nurses are consistently switching between the two roles. It is plausible that incoming and outgoing nurses are not aware of one another's communication preferences, therefore, it is recommended that nurses have an opportunity outside of the context of handoff reporting to share their perspectives both as incoming and outgoing nurses.

Experts contend that further education must occur for staff to improve handoff communications. Because all nurses must be proficient in both roles of handoff communication competence, education should be provided for both perspectives. The tools suggested to enhance communication for healthcare personnel include debriefing and simulation (Leonard et al., 2004) since teaching standardized reporting methods falls short in making significant improvements (Riesenberg, 2012). Further, our study demonstrates that handoff communication is more complex than a simple information exchange; it includes socioemotional behaviors that are not addressed in standardization initiatives. We also learned that while both incoming and outgoing nurses participate in handoff events, incoming nurses play a significant role in maintaining the quality of the report. Their role is more complex than simply receiving information. This distinction is important as the perspective of the incoming nurse will be pivotal to improve

interpersonal communication efforts. Nurses need further education and guidance about information seeking behaviors. Although the incoming nurse may view his or her role as passive and simply receiving information-the need to practice more assertive communication techniques is necessary.

Education about communication attributes necessary for a handoff report must start during undergraduate nursing programs both in didactic and practicum settings. As our findings suggest handoff communication extends beyond information exchange, it is necessary that nursing students are introduced to socioemotional behaviors and how to model positive professional socioemotional behaviors that enhance competent communication. Opportunities to learn and practice qualities of communication competence, including both information exchange and socioemotional behaviors, should be scaffolded throughout the curriculum. Ongoing learning and evaluation of these attributes are important for nursing students as they provide the foundation for safe patient practices.

Formal education is not only necessary for nursing students, but also practicing nurses. The participants in our study were young and most had five years or less of nursing experience. Carroll et al. (2012) contended that nurses with greater than six years of experience gave more abbreviated reports than their less experienced counterparts. Based on the possibility that experience levels may enhance or deter the quality of the handoff report, it will be necessary for continued education about handoff quality for all nurses versus simply focusing on the novice nurse. In addition, integrating ongoing education on strategies that enhance communication based on the level of nurses' experience and time as a nurse should also be developed.

Our study used a theoretical framework that guided research questions based on handoff reporting. Riesenberg (2012) agrees that, in addition to frameworks and valid instruments to

collect data, collaboration with other disciplines (especially those skilled in communication research) should be included in handoff communication research. Continuing to examine how other industries enhance interpersonal communication (such as high-reliability organizations) could improve healthcare communication. Moreover, focusing on positive attributes of communication during handoff report and developing a culture where respect and mutual appreciation are practiced, may lend to a more cohesive work environment with the possibility of increasing staff satisfaction and decreasing staff turnover.

Strengths and Limitations of the Study

Strengths

This study significantly added to nurse handoff communication research. Strengths of our study included:

1) Use of a communication competence framework. Similar to nursing handoff communication research by Streeter et al. (2015) our study used a communication model including information giving, information seeking, information verifying, and socioemotional behaviors. The model allows for quantified data about information exchange and relational attributes of communication. These relational attributes, designated as socioemotional behaviors, are missing from other recommendations about best practice for handoff reporting such as with standardized reporting methods (Carroll et al., 2012; Streeter et al., 2015).

2) Real time analysis of a handoff event. Unlike other studies (Birmingham et al., 2015; Carroll, 2012; Miller & Sands, 2013; Streeter et al., 2015), our study utilized the communication competence model while exploring the unique dyadic perspective of the quality of handoff communication in real time. Real-time analysis of a single handoff event allowed for direct

comparison between both information exchange and socioemotional variables that affect how one perceives the overall quality of the handoff report.

3) Dyadic Communication analysis that included the perspective from both the incoming and outgoing nurse. Distinct differences were found from the perspective of the incoming and outgoing nurse of the same handoff report for both information exchange and socioemotional subscales which adds to the complex communication relationship that will drive recommendations for research, practice, and recommendations. Although comparisons of communication competence variables and handoff quality of have been made (Streeter et al, 2015), our study is unique as incoming and outgoing nurses were able to rate one another's level of communication competence (information exchange and socioemotional behaviors) and rate the perceived quality of handoff reporting for the same event which allowed for quantitative analysis.

4) Comparison of communication competence to the perceived quality of the handoff report. Few studies have examined factors that impact handoff quality (Birmingham et al., 2015; Carroll, 2012; Streeter et al., 2015). Our findings contribute to a gap in knowledge, helping to define what individual communication qualities influence higher handoff quality. Our results have important implications beyond the handoff communication event. Since handoff reporting is a pivotal time for miscommunication to occur, the results impact patient safety.

Limitations

Our study used a convenience sample, and data collection was limited to one healthcare institution in the midwestern United States. Although demographic data indicated our sample was overall representative of practicing nurses in the United States, our findings may not be generalizable to a larger population. The sample met the requirement to ensure statistical power; however, recruiting a larger sample may pose difficulties due to the nature of dyadic research.

Because of the complexities of dyadic data retrieval and analysis, some nurse dyads were not approached to participate in the study as an individual nurse or both nurses may have previously completed the study as part of another dyad. This approach significantly limited the number of participant combinations as time increased on each medical surgical unit. Surveying nurses from medical surgical units ensured more homogenous data as procedures and expectations on the medical surgical units were consistent. For example, the use of a standardized tool and the number of reportable patients were uniform. However, comparing responses of nurse dyads across different units may produce rich information about the challenges of interpersonal communication in a more high-stakes environment.

Another potential limitation and concern for bias results from the historical perspective of the participant. According to Riesenberg (2012), memory is a concern and an area for future handoff communication research as many factors can affect the perspective of an event. A challenge when gathering data from nurses in a healthcare setting is the aspect of time, which was addressed throughout the study design. Allowing enough days to answer the survey was deemed necessary to ensure participation. As nursing handoff reporting research continues, commitment from nurse managers and hospital administrators will be necessary so bedside nurses have time to participate in handoff research and actively participate in quality improvement efforts concerning handoff reporting. The limitation of historical perspective did allow for incoming nurses to retrospectively evaluate the information they received after caring for the patient.

Recommendations for Future Research

The findings of our research demonstrate there is still much to uncover about handoff reporting practices among incoming and outgoing nurses. A logical next-step would be to track

patient outcomes as they relate to the quality of the handoff reported by the nurse dyads. Tracing the steps from the quality of the handoff to clinical outcomes has been recommended (Riesenberg, 2012) and would require a commitment from healthcare organizations and patients willing to release their healthcare information for research. Until empirical findings linking decreased handoff quality and breaches in patient safety occur, efforts to improve handoff quality become muddled with other bedside quality improvement efforts.

Incoming nurses provided lower ratings of their perception of information exchange, socioemotional behaviors, and the overall quality of the handoff report. The role of the incoming nurse and their responsibility as not only the receiver of information, but as an active partner of the communication event warrants further analysis. For both incoming and outgoing nurses, a deeper analysis of how nurses came to their conclusions and how they felt the handoff report could be improved is lacking in the data. Further defining what constitutes positive socioemotional behaviors in the context of handoff reporting is necessary. A mixed-method study or further qualitative analysis examining what nurses need to feel better prepared and supported during handoff report is also warranted.

Further research on working definitions of handoff quality and what constitutes a higher-quality report from the incoming nurse may be a reasonable next step for handoff communication research. Moreover, as standardization of handoff reporting becomes the norm, it will be crucial that socioemotional behaviors are integrated into the narrative. Furthermore, handoff communication extends beyond the shift-to-shift communication occurring in this study. Handoffs occur at various points during a nursing shift, between units, and even between facilities. There are opportunities to explore handoff reporting in the context of these situations among nurses and other disciplines. Viewing communication from a broader lens and how it

lends to patient safety has great implications. The model used for our study was adapted from a physician and patient perspective, suggesting this model could be used to study interdisciplinary communication.

Summary and Conclusion

The differing perceptions between incoming and outgoing nurses regarding the same handoff event—considering nurses shift consistently between incoming and outgoing roles—require further examination. Committing to an approach that is considerate of the incoming nurse's needs is paramount as research continues. Practicing transparency about what information is required to provide safe patient care and best practices to perform high-quality reports will require attention both at the bedside and from a broader perspective for all healthcare institutions where handoff reporting occurs. Handoff reporting is an opportunity for nurses to engage in interpersonal dialogue to ensure quality outcomes and, most importantly, patient safety. What we have learned is that communication is a multilayered event involving deep personal meaning in the context where communication occurs and goes beyond the sender-receiver transmission of information. Recognizing what participants in the communication dyad value is required for a successful communication relationship and lends to a discussion where mutual goals are met and respected.

Appendix A

Power Analyses for Paired *t*-test and Multiple Regression

Hypothesis	Ratings for information exchange (information giving, information seeking, and information verifying) will differ by nursing role (incoming versus outgoing) and type of rating (self versus counterpart)	Ratings for socioemotional behaviors will differ by nursing role (incoming versus outgoing) and type of rating (self versus counterpart)	The nurses' rating of the handoff quality will differ from the rating provided by their nurse counterpart during handoff reporting.	The overall quality of the handoff report will be related to self and peers' communication competence.
Independent Variable	Nursing Role and Type of Rating		Nurse Role	Self and Peers' Subscale Communication Competence Score
Dependent Variable	Subscale variable scores of information giving, information seeking, and information verifying	Subscale variable scores of socioemotional behaviors	Quality of Handoff Report	Quality of Handoff Report
Statistic Test	Paired *t*-test	Paired *t*-test	Paired *t*-test	Multiple Regression
Power Analysis	$f^2 = 0.25$ $N = 48$	$f^2 = 0.25$ $N = 24$	$f^2 = 0.50$ $N = 27$	$f^2 = 0.25$ $N = 42$

Appendix B

Nurse Communication Competence Scale (NCCS) Survey Process

Demographic Data

A. Have all nurses complete demographic data form

B. Analyze associations between specific demographic data and NCCS scores and quality of handoff scores.

Quality of Handoff Global Score

A. Nurses rate the quality of the handoff event

Nurse 1 (Incoming nurse): scores the quality of the handoff

Nurse 2 (Outgoing nurse): scores the quality of the handoff

B. Analyze comparisons between the two nurses (incoming and outgoing) on how they rated the quality of the handoff

NCCS

A. Nurses rate themselves and their handoff counterpart

Nurse 1 (Incoming nurse): scores herself and her handoff counterpart (Nurse 2 Outgoing nurse)

Nurse 2 (Outgoing nurse): scores herself and her handoff counterpart (Nurse 1 Incoming nurse)

B. Analyze comparisons on NCCS total score and subscale scores on:

Nurse 1 (Incoming nurse) rating of self AND Nurse 2 (Outgoing nurse) rating of Nurse 1

Nurse 2 (Outgoing nurse) rating of self AND Nurse 1 (Incoming nurse) rating of Nurse 2

(Example: How do I rate myself and how does my counterpart rate me? How does my perception of myself compare to how my handoff counterpart perceives me regarding communication competence?)

C. Analyze associations between the NCCS scores and quality of handoff scores.

Appendix C

Demographics

Please answer the following demographic questions:

1. Please indicate your current age:

- ○ 18–24
- ○ 25–36
- ○ 37–45
- ○ 45–60
- ○ 60 +

2. Gender:

- ○ Male
- ○ Female

3. Years of experience as a registered nurse:

- ○ < 1 year
- ○ 1–5 years
- ○ 6–10 years
- ○ 11–20 years
- ○ > 20 years

4. Years of experience at current organization:

- ○ < 1 year
- ○ 1–5 years
- ○ 6–10 years
- ○ 11–20 years
- ○ > 20 years

5. Years of experience in current department:

- ○ < 1 year
- ○ 1–5 years
- ○ 6–10 years

- ○ 11–20 years
- ○ > 20 years

6. Highest nursing degree obtained:

- ○ Associate degree
- ○ Bachelor's degree
- ○ Master's degree
- ○ Doctoral degree

Appendix D

Global Quality Measure of Handoff Report

Please rate the overall quality of the handoff report (based on your personal opinion) from 1 to 10, with 1 indicating a poor quality report and 10 indicating a high quality report.

Poor Quality Report									Superior Quality Report
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Appendix E

Nurse Communication Competence Scale (Streeter, 2010)

Incoming Nurse Portion

Complete this survey based on the handoff interaction with your identified counterpart. A portion of the scale will be self-analysis noted by "I did a good job of" with the second portion asking you to rate your peer, noted by "The outgoing nurse did a good job of". Only choose one response for each question.

1. I did a good job of providing relevant historical information about the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

2. I did a good job of answering the outgoing nurse's questions thoroughly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

3. I did a good job of answering the outgoing nurse's questions honestly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

4. I did a good job of offering my recommendation and/or input regarding the patient's care.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

5. I did a good job of getting the answers to my questions.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

6. I did a good job of asking questions related to the patient's needs.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

7. I did a good job of asking questions in a clear, understandable manner.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

8. I did a good job of asking for recommendations and/or input.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

9. I did a good job of getting all the information I needed.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

10. I did a good job of repeating important or complex information to check for accuracy.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

11. I did a good job of reviewing important or complex information to make sure I understood correctly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

12. I did a good job of letting the outgoing nurse know when I didn't understand her or his explanation.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

13. I did a good job of making sure I understood her or his directions.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

14. I did a good job of checking my understanding of what he or she said.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

15. I did a good job of using language that the outgoing nurse could understand.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

16. I did a good job of being warm and friendly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

17. I did a good job of contributing to a trusting relationship.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

18. I did a good job of showing that I cared about the outgoing nurse.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

19. I did a good job of making the outgoing nurse feel relaxed or comfortable.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

20. I did a good job of showing compassion.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

21. I did a good job of being open and honest.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

22. The outgoing nurse did a good job of explaining the patient's current condition.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

23. The outgoing nurse did a good job of explaining recent/anticipated changes in the patient's status.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

24. The outgoing nurse did a good job of explaining the care needed by the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

25. The outgoing nurse did a good job of explaining medication needs of the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

26. The outgoing nurse did a good job of explaining treatment/s needed by the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

27. The outgoing nurse did a good job of explaining services needed for the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

28. The outgoing nurse did a good job of providing relevant historical information about the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

29. The outgoing nurse did a good job of answering my questions thoroughly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

30. The outgoing nurse did a good job of answering my questions honestly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

31. The outgoing nurse did a good job of offering recommendations and/or input regarding the patient's care.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

32. The outgoing nurse did a good job of encouraging me to ask questions.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

33. The outgoing nurse did a good job of asking me questions related to the patient's needs.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

34. The outgoing nurse did a good job of asking me questions in a clear understanding manner.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

35. The outgoing nurse did a good job of asking me for my recommendations and/or input.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

36. The outgoing nurse did a good job of making sure I had all the information I needed.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

37. The outgoing nurse did a good job of repeating important or complex information to check for accuracy.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

38. The outgoing nurse did a good job of reviewing important or complex information to make sure I understood correctly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

39. The outgoing nurse did a good job of making sure I understood her or his explanations.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

40. The outgoing nurse did a good job of making sure I understood her or his directions.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

41. The outgoing nurse did a good job of checking my understanding of what she or he said.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

42. The outgoing nurse did a good job of using language that I could understand.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

43. The outgoing nurse did a good job of being warm and friendly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

44. The outgoing nurse did a good job of contributing to a trusting relationship.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

45. The outgoing nurse did a good job of showing she or he cared about me.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

46. The outgoing nurse did a good job of making me feel relaxed or comfortable.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

47. The outgoing nurse did a good job of showing compassion.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

48. The outgoing nurse did a good job of being open and honest.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

Nurse Communication Competence Scale (Streeter, 2010)

Outgoing Nurse Portion

Complete this survey based on the handoff interaction with your identified counterpart. A portion of the scale will be self-analysis noted by "I did a good job of" with the second portion asking you to rate your peer, noted by "The incoming nurse did a good job of". Only choose one response for each question.

1. I did a good job of explaining the patient's current condition.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

2. I did a good job of explaining recent/anticipated changes in the patient's status.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

3. I did a good job of explaining the care needed by the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

4. I did a good job of explaining medication needs of the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

5. I did a good job of treatment/s needed by the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

6. I did a good job of explaining services needed for the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

7. I did a good job of providing relevant historical information about the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

8. I did a good job of answering the other nurse's questions thoroughly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

9. I did a good job of answering the other nurse's questions honestly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

10. I did a good job of offering recommendations and/or input regarding the patient's care.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

11. I did a good job of encouraging the incoming nurse to ask questions.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

12. I did a good job of asking questions related to the patient's needs.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

13. I did a good job of asking questions in clear, understandable manner.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

14. I did a good job of asking for recommendations and/or input.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

15. I did a good job of making sure the incoming nurse had all the information she or he needed.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

16. I did a good job of repeating important or complex information to check for accuracy.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

17. I did a good job of reviewing important or complex information to make sure the incoming nurse understood me correctly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

18. I did a good job of making sure the incoming nurse understood my explanations.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

19. I did a good job of making sure she or he understood my directions.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

20. I did a good job of checking his or her understanding of what I said.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

21. I did a good job of using language the incoming nurse could understand.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

22. I did a good job of being warm and friendly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

23. I did a good job of contributing to a trusting relationship.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

24. I did a good job of showing that I cared about the incoming nurse.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

25. I did a good job of making the incoming nurse feel relaxed or comfortable.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

26. I did a good job of showing compassion.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

27. I did a good job of being open and honest.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

28. The incoming nurse did a good job of providing relevant historical information about the patient.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

29. The incoming nurse did a good job of answering my questions thoroughly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

30. The incoming nurse did a good job of answering my questions honestly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

31. The incoming nurse did a good job of offering recommendations and/or input regarding the patient's care.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

32. The incoming nurse did a good job of getting the answers to her or his questions.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

33. The incoming nurse did a good job of asking me questions related to the patient's needs.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

34. The incoming nurse did a good job of asking questions in clear, understandable manner.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

35. The incoming nurse did a good job of asking for recommendations and/or input.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

36. The incoming nurse did a good job of getting all the information she or he needed.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

37. The incoming nurse did a good job of repeating important or complex information to check for accuracy.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

38. The incoming nurse did a good job of reviewing important or complex information to make sure she or he understood correctly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

39. The incoming nurse did a good job of letting me know when she or he didn't understand my explanations.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

40. The incoming nurse did a good job of making sure she or he understood my directions.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

41. The incoming nurse did a good job of checking her or his understanding or what I said.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

42. The incoming nurse did a good job of using language that I could understand.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

43. The incoming nurse did a good job of being warm and friendly.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

44. The incoming nurse did a good job of contributing to a trusting relationship.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

45. The incoming nurse did a good job of showing she or he cared about me.

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46. The incoming nurse did a good job of making me feel relaxed or comfortable.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

47. The incoming nurse did a good job of showing compassion.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

48. The incoming nurse did a good job of being open and honest.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

Appendix F

GUNDERSEN
HEALTH SYSTEM®

DATE: 4 / 17 / 2018

Megan Smith, MSN
Gundersen Clinic, Ltd.
La Crosse, WI 54601

Dear Ms. Smith,

The Human Subjects Committee using the expedited review process gave approval for the following protocol on (Date) 4 / 17 / 2018. A progress report for this study will be due in one year.

2-18-04-011 AN EXPLORATION OF COMMUNICATION COMPETENCE DURING THE HANDOFF REPORT

As mandated by federal guidelines, we remind you of the following requirements:

a. That the researcher report any proposed changes in the research and any unanticipated problems involving risks to the subjects or others promptly to the Committee;

b. That the researcher promptly report any such problems, including adverse reactions to biological drugs, radioisotope labeled drugs, or to medical devices to the Department of Health and Human Services and/or other participating agencies or organizations; and

c. That the researcher report to the Committee concerning approved research no less than annually and in addition on the termination of the research project.

We wish you success in your work. If you have further questions, please feel free to contact me.

Sincerely,

Thomas Harter, Ph.D.
Chair, Human Subjects Committee/IRB

Gundersen Lutheran Medical Center, Inc. | Gundersen Clinic, Ltd.
1900 South Avenue • La Crosse, Wisconsin 54601 • (608) 782-7300 • (800) 362-9567 • www.gundersenhealth.org

Appendix G

IRBNet Board Action

1 message

Meg Rayner <no-reply@irbnet.org> Tue, May 1, 2018 at 12:58 PM

Reply-To: Meg Rayner <meg.rayner@unlv.edu>

To: Catherine Dingley <catherine.dingley@unlv.edu>, Megan Smith <smithm25@unlv.nevada.edu>

Please note that UNLV Biomedical IRB has taken the following action on IRBNet:

Project Title: [1184969-1] An Exploration of Nursing Communication Competence During the Handoff Report Principal Investigator: Catherine Dingley, Ph.D.

Submission Type: New Project

Date Submitted: April 29, 2018

Action: EXEMPT

Effective Date: May 1, 2018

Review Type: Exempt Review

Should you have any questions you may contact Meg Rayner at meg.rayner@unlv.edu.

Thank you,

The IRBNet Support Team

www.irbnet.org

Appendix H

Recruitment Flyer

UNLV

Participants Needed for an Upcoming Research Study Regarding Handoff Reporting

The purpose of this study is to analyze handoff reporting from the perspective of the incoming and outgoing nurse during handoff report.

WHO: Registered nurses with 3 months or more of experience performing handoff report during shift change

WHEN: Study will be conducted on medical surgical units this summer

WHAT: If you decide to participate, you will be asked to complete a survey after you perform handoff report which will be delivered to you electronically.

All Participants will be entered into a drawing to win an iPad

If you have any questions, please do not hesitate to contact:
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Wittenberg-Lyles, E., Goldsmith, J., Ferrell, B., & Burchett, M. (2014). Assessment of an interprofessional online curriculum for palliative care communication training. *Journal of Palliative Medicine, 17*(4), 400–406. doi:10.1089/jpm.2013.0270

Curriculum Vitae

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EDUCATION

University of Nevada, Las Vegas, PhD, Nursing Education	May 2019
University of New Mexico, MS, Nursing Education	June 2013
University of New Mexico, BS, Nursing	December 2010
University of Wisconsin La Crosse, BS, Economics	December 2002

LICENSURE & CERTIFICATION

State of California Registered Nurse License # 747550

State of Minnesota Registered Nurse License # 185095-8

State of Wisconsin Registered Nurse License # 177315-30

Certified Nurse Educator 10/2014

TEACHING EXPERIENCE

Viterbo University, Assistant Professor	2013–Present

HOSPITAL AFFILIATIONS/CLINICAL EXPERIENCE

Gundersen Health System, La Crosse, WI	2012–2017
University of Wisconsin Hospitals & Clinics, Madison, WI	2011–2012
Christus St Vincent Regional Medical Center, Santa Fe, NM	2008–2011

PROFESSIONAL PRESENTATIONS

Smith, M. (2014). The Importance of Mentorship for the Retention of New Graduate Nurses: The Role of the Clinical Nurse Educator, Poster Presented at Nursing Research on the Green, La Crosse, WI

Smith, M. (2014). Implementing Team Learning Strategies to Improve Caring and Communication in Clinical Settings, Poster & Lecture Presented via WebEx Session, Las Vegas, NV

Smith, M. (2015). Bridging Practice and Theory Through Active Learning Strategies in the Classroom, Poster Presented at Elsevier Faculty Development Conference, Scottsdale, AZ

Smith, M. (2017). An Exploration of Nursing Communication Competence During Handoff Reporting, Western Institute of Nursing, Denver, CO

GRANTS AND AWARDS

Tony and Renee Marlon Scholarship	2018
National Society of Leadership Excellence in Teaching Award	2017
Sigma Theta Tau Pi Phi Chapter Graduate Research Grant	2016
Lind Family Nursing Faculty Doctoral Degree Completion Incentive Program	2015–2016
School of Nursing Faculty Development Fund, Viterbo University	2014

PROFESSIONAL MEMBERSHIPS

American Society of PeriAnesthesia Nurses

Association of periOperative Registered Nurses

National League of Nursing

Sigma Theta Tau International Pi Phi Chapter

Western Institute of Nursing

CERTIFICATIONS

American Heart Association Basic Life Support

American Heart Association Advanced Cardiac Life Support

American Heart Association Pediatric Advanced Life Support

Trauma Nurse Certification Course

Emergency Nurse Pediatric Course

Level One Healing Touch Practitioner

Certificate of Completion – Online Learning Instruction, Viterbo University

National Institute of Health Protection of Human Subjects