EMERGENCE OF INFORMAL CLINICAL LEADERSHIP AMONG BEDSIDE NURSES IN THE ACUTE CARE CLINICAL SETTING: A MIXED METHODS STUDY

by

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DEDICATION

I dedicate this dissertation to my husband, David. Dave, without your support, understanding, encouragement, patience, and love, I would not have been able to complete this study, and I most certainly would not be who I am today. From my heart, I thank you. And, following your caring and generous example, I would also like to dedicate this work to the bedside nurses who navigate the complexities of the modern healthcare system every day and night taking care of patients. I can only hope that this work is one more step toward helping nurses provide the best care possible to their patients and supporting each other in the process.

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The nurses who participated in this study made it evident that nurses are interconnected in practice. Throughout my dissertation process, I have also learned that nurses are interconnected in scholarship. Thank you to my dissertation committee members for your commitment, support, time, and amazing insights about nursing research and about nursing practice. You have all been wonderful sources of inspiration and have helped me grow tremendously as a person, an educator, and a nurse scholar.

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Last, but certainly not least, thank you to the bedside nurses who took their time to participate in the study and share their experiences. I appreciate you and all the work you do for patients and for each other, and hope one day we will be able to improve nursing practice and patient outcomes based on the data you supplied.

TABLE OF CONTENTS

Page

ACKNOWLEDGMENTS v

LIST OF TABLES ix

LIST OF FIGURES xi

LIST OF APPENDICES xii

ABSTRACT xiii

CHAPTER

1. INTRODUCTION TO THE STUDY 1

Statement of the Problem 3
Background and Significance 4
Purpose of the Study 4
Research Questions 5
Conceptual Framework 6
Complex Adaptive Systems 8
Complexity Leadership Theory 9
Definition of Terms 13
Summary 16

2. REVIEW OF RELATED LITERATURE 18

Synthesis of Literature 18
Informal Clinical Leadership 19
Nurse Personal Attributes as Influences on Informal Clinical Leadership 23
Individual Characteristics 24
Professional Experience 25
Psychological Capital 27

TABLE OF CONTENTS (Continued)

Situational Context 28
Inferences for Current Study 33
Summary 37

3. METHODOLOGY 40

Research Design 40
Setting 42
Sample 43
Justification for Sample Size 45
Protection of Human Subjects 45
Instrumentation 47
Participant Questionnaire 48
Clinical Leadership Behaviors Questionnaire (CLB-Q) 49
Psychological Capital Questionnaire 12 Item (PCQ-12) 51
Qualitative Data Gathering 53
Procedures 54
Overview of Data Analysis 57
Quantitative Data Analysis Plan 57
Qualitative Data Analysis Plan 59
Converged Data Analysis Plan 62
Summary 63

4. RESULTS 64

Overview of Data Analysis 64
Description of Sample 65
Psychometric Properties of the Study Instruments 75
Clinical Leadership Behaviors Questionnaire (CLB-Q) 75
Psychological Capital Questionnaire 12 Item (PCQ-12) 77
Refining the Analytic Data Model 78
Missing Data Analysis 79
Multiple Imputation 81
Preparing the multiple imputation data model 83
Running multiple imputation in SPSS 87
Analytic Data Set Creation 88
Data Analysis Addressing Research Questions 99
Quantitative Data Analysis 99
Qualitative Data Analysis 106
Bedside Nurses Seek Guidance and Direction from Experienced Peers 111

TABLE OF CONTENTS (Continued)

"Attitude is Everything" 115
Bedside Nurses are Interconnected in Practice 117
Teamwork and supporting each other 118
Workplace history and workplace issues influence practice behavior 121
Influences of new nurses in the practice setting 123
Converged Data Analysis 124
Summary 128

5. DISCUSSION AND RECOMMENDATIONS 129

Discussion of Findings 129
Nurse Personal Attributes 131
Psychological Capital 131
Professional Experience 135
Demographic Characteristics 137
Situational Context 138
Informal Clinical Leadership 141
Recommendations for Nursing Practice and Education 146
Recommendations for Future Research 149
Limitations 152
Conclusion 153

REFERENCES 156

APPENDICES 168

LIST OF TABLES

Table 1. Study Variables and Levels of Measurement

Table 2. Demographic Characteristics in Sample

Table 3. Professional Experience Characteristics in Sample

Table 4. Situational Context Sample Workplace Characteristics

Table 5. Situational Context Peer Interactions in Sample

Table 6. Comparing Sample Demographics to 2015 National Workforce Survey

Table 7. Comparing Sample by Age Group to 2015 National Workforce Survey

Table 8. Comparison of CLB-Q Scores from Pilot Study with Current Study

Table 9. Internal Consistency Reliability of the CLB-Q from Pilot Study and Current Study

Table 10. Internal Consistency Reliability of the PCQ-12 in Prior Studies and Current Study

Table 11. Missing Values from the Original Analytic Data Set

Table 12. Skewness and Kurtosis Statistics for Nurse Age and Years as RN Variables

Table 13. Proposed Dichotomous Predictors of Informal Clinical Leadership Behavior

Table 14. Descriptive Statistics for Original, Imputed, and Pooled Interval-Ratio Variables

Table 15. Bivariate Correlations of the Predictor Variables – Original Data Set

Table 16. Bivariate Correlations of the Predictor Variables – Pooled Imputed Data Set

Table 17. CLB-Q Subscale Mean and Total Scores in Original and Pooled Imputed Data Sets

Table 18. Bivariate Correlations Between Nurse Personal Attributes and Situational Context and Informal Clinical Leadership Behavior

Table 19. Multiple Linear Regression Model Summary of Nurse Personal Attribute and Situational Context as Predictors of Informal Clinical Leadership Behavior

Table 20. Standardized Beta Weights for Potential Predictors of Clinical Leadership Behavior

Table 21. Spearman's Rho Correlation Analysis of Psychological Capital Subscales

Table 22. Multiple Linear Regression Model Summary of Psychological Capital Subscales as Predictors of Informal Clinical Leadership Behavior

Table 23. Standardized Beta Weights for Psychological Capital Subscales as Predictors of Clinical Leadership Behavior

Table 24. Qualitative Data Set Characteristics by Question

LIST OF FIGURES

Figure 1. Conceptual framework depicting influences on emergence of informal clinical leadership among bedside nurses in the acute care setting

Figure 2. Convergent parallel design diagram for study

Figure 3. Generation of the analytic data set

Figure 4. Frequencies of first and second cycle codes indicative of individual nurse attributes

Figure 5. Frequencies of first and second cycle codes indicative of situational context

LIST OF APPENDICES

Appendix A. Online Survey Questions

Appendix B. Permission to Use CLB-Q

Appendix C. Permission to Use Remote PCQ-12

Appendix D. Mercer IRB Approval Letters

Appendix E. Nurse Recruitment Email Template

ABSTRACT

DARLENE M. ROGERS
EMERGENCE OF INFORMAL CLINICAL LEADERSHIP AMONG BEDSIDE NURSES IN THE ACUTE CARE CLINICAL SETTING: A MIXED METHODS STUDY
Under the direction of LANELL BELLURY, PhD, RN

Quality and safety initiatives direct all nurses to lead practice change. Existing nurse leadership research predominantly focuses on formal nursing leaders and overlooks a critical resource pool: informal leaders at the point of care. This study explored influences on the emergence of informal clinical leadership among bedside nurses in the acute care hospital setting. Nurse personal attributes (demographic characteristics, professional experience, and psychological capital) and situational context in the acute care workplace setting were examined as predictors of clinical leadership behavior. The study used a convergent parallel mixed methods design with an exploratory correlational quantitative strand and a descriptive qualitative strand.

A convenience sample of 134 nurses (mean age = 35.62 years, 94% female, 81% white, 85% BSN-prepared) were recruited from eight acute care hospitals in three different geographic areas in the United States. The data collection instrument included a researcher-developed personal attributes questionnaire, the Clinical Leadership

Behaviors Questionnaire (CLB-Q), the Psychological Capital Questionnaire 12-Item (PCQ-12), and three open-ended questions. Data collection occurred through an online survey.

The findings supported nurses are interconnected in practice, and informal clinical leaders can emerge from this network. Nurses described preferring to seek clinical guidance from peers with a positive attitude about providing help or work in general or from experienced peers. Psychological capital was the only significant predictor in the regression model accounting for 42% of the variance in clinical leadership behavior scores. Whereas, the professional experience variables were not supported statistically as predictors of clinical leadership behavior. Additional research is needed to further explore the complexities of the interpersonal relationships among nurses and the resulting influences on informal leadership at the point of care. However, given the strength of the association between psychological capital and informal clinical leadership and the other positive nursing practice outcomes associated with psychological capital, nurse professional development in the clinical setting, in academia, or informally among nurse peers should afford opportunities for nurses to increase their psychological capital. Given the emphasis on positive attitude, nurses with specialized knowledge and skills should be afforded opportunities to develop interpersonal skills to promote their emergence as informal clinical leaders.

CHAPTER 1

INTRODUCTION TO THE STUDY

Modern healthcare systems are facing an unprecedented web of challenges. The entangled threads include increasingly complex client needs, rapidly advancing technology, changing client and clinician demographics, and shifting social, economic, and political environments affecting both reimbursement and care delivery strategies (Clarke, 2013; Institute of Medicine, 2010; Porter-O'Grady & Malloch, 2013; Weberg, 2012). The Institute of Medicine (IOM) has charged nursing as a discipline with leading change and advancing health by improving the quality, safety, and efficiency of healthcare in this environment. Nurses must be prepared to adjust to uncertainty and complexity at the point of care to fulfill this goal of leading change (Grossman & Valiga, 2017).

Failures to respond effectively and in a timely fashion to the complexities of modern healthcare have led to wasted healthcare resources, missed health promotion opportunities, substandard care, and other potentially avoidable untoward patient care events. The Committee on the Learning Health Care System in America estimated the potential for 75,000 fewer patient deaths nationally if more healthcare systems were better prepared for continuous change and adaptation at the point of care (IOM, 2013). According to the Office of Inspector General (OIG), a projected 134,000 Medicare patients hospitalized in 2008 experienced at least one adverse event resulting in $324

million unplanned patient care expenses (2010). Wasted or misused resources accounted for national healthcare fiscal losses of $750 billion in 2009 (IOM, 2013). Current approaches to ensuring the quality of care and patient safety and increasing system efficiency have not fully addressed the needs of American healthcare clients or the healthcare systems themselves (IOM, 2013; Landrigan et al., 2010; OIG, 2010).

Historically, healthcare organizations appointed visionary formal leaders to address organizational challenges and navigate the complexities of modern healthcare (Downey, Parslow, & Smart, 2011). However, at a time when healthcare organizations and clinicians need to increase their ability to adapt to complexity and continuous change for safety, quality, and efficiency, hierarchical healthcare leadership structures are being flattened. The trend to streamline the formal leadership structure and reduce overhead expenses has the net effect of increasing administrative and managerial responsibilities assigned to nurse managers and first-line supervisors (Downey et al., 2011). Although underlying rationale differs, the flattening of hospital management structures coincides with the American Nurses Credentialing Center (ANCC) Magnet® Recognition Program Force 2 concept in which nursing organizational structures are flat rather than deep to promote structural empowerment and decentralized decision-making (Messmer & Turkel, 2010). To navigate the complexities of the modern healthcare environment, bedside nurses must have informal clinical leadership skills to support and empower each other as they make important decisions at the point of care.

Informal leaders at the point of care are a valuable resource pool in healthcare (Downey, et al., 2011). Bedside nurses are positioned at the point of care to make critical contributions by coordinating complex care, promoting patient safety, reducing medication errors, reducing infection rates, and ensuring safe patient transition throughout healthcare systems (IOM, 2010). Registered nurses comprise the largest sector of the healthcare workforce. The number of registered nurses working in acute care hospitals is projected to increase to over 1.9 million by 2022 in the United States (U.S. Department of Labor, 2015). This is a significant pool of resources from which point of care leaders can emerge to address context-specific challenges.

Statement of the Problem

The complex modern healthcare environment is rife with challenges to providing safe, high quality, and effective care. Nurses at all practice levels are called to lead the charge to address these challenges (IOM, 2010). Healthcare leadership research predominantly focuses on the attributes and behavior of managers or other leaders with formal authority and fails to distinguish the unique leadership behavior and contributions of clinicians at the point of care (Downey et al., 2011; Howieson & Thiagarajah, 2011; Mannix, Wilkes, & Daly, 2013). There is a lack of research investigating the personal attributes and situational contexts influencing informal clinical leadership behavior emerging among nurses in the clinical setting. A more comprehensive understanding of the clinical leadership behavior and informal

leadership capacity of bedside nurses will be instrumental in helping nurses prepare to lead change and advance health at the point of care.

Background and Significance

Bedside nurses who are not in formal leadership roles directly influence the quality and safety of patient care and could be valuable informal leaders in the clinical environment (Downey et al., 2011; Flodgren, Rojas-Reyes, Cole, & Foxcroft, 2012; IOM, 2010; NHS Leadership Academy, 2013). There is a paucity of evidence with regard to the emergence of informal clinical leadership among bedside nurses. The data generated from this study can inform nurse educators and scholars in developing and empirically testing educational and practice interventions to promote informal clinical leadership among bedside nurses. Once a greater knowledge base about informal clinical leadership among nurses has been established, the next step would be to conduct studies measuring the clinical outcomes associated with increased levels of informal clinical leadership. Ultimately the knowledge from this and subsequent studies and resultant interventions will assist nurses in helping each other deliver high quality and safe patient care and improve healthcare organization efficiency.

Purpose of the Study

Therefore, the purpose of this study was to explore the influences of personal attributes and situational context on the emergence of informal clinical leadership among bedside nurses in the acute care hospital setting. Due to the lack of research about informal clinical leadership in this specific study setting, a mixed methods design

was used to formulate a more inclusive understanding of the phenomenon. A mixed methods study incorporates quantitative and qualitative components called strands, and each strand is intended to achieve a specific purpose in the research process (Creswell & Plano Clark, 2011). The purpose of the quantitative strand was to investigate the relationships among nurse personal attributes, situational context, and bedside nurse clinical leadership behavior. The purpose of the qualitative strand was to explore bedside nurses' perceptions about the factors influencing their own and their peers' clinical leadership behavior.

Research Questions

Distinct research questions guided each separate strand of the mixed methods study. The research question for the quantitative strand was:

1. Do bedside nurse personal attributes and situational context account for a significant amount of variance in clinical leadership behavior in the acute care setting?

The research question for the qualitative strand was developed to support or expand on the findings about bedside nurse informal clinical leadership from the quantitative strand:

2. How do bedside nurses describe influences on clinical leadership behavior in the acute care setting?

The overall mixed methods research question guided how the data from both strands were merged to produce a more complete picture of the phenomenon:

3. To what extent do the qualitative data generated from bedside nurses' descriptions of influences on informal clinical leadership relate to or expand upon the quantitative results about relationships among personal attributes, situational context, and clinical leadership behavior?

Conceptual Framework

The primary phenomenon under investigation was informal leadership demonstrated by bedside nurses in the acute care clinical setting. A broad definition of leadership is the influence people have on each other with respect to attitudes, beliefs, behavior, or outcomes (Stentz, Plano Clark, & Matkin, 2012; Yukl, 2010). Studying how bedside nurses influence each other's practice in the acute care hospital setting is effectively studying informal clinical leadership. The general concepts of informal leadership and the power of informal networks have been studied by organizational behavior scholars since the late 20th century (Pielstick, 2000). More recently, informal *clinical* leadership has garnered attention in the international healthcare arena as oversight organizations work to restructure 21st century healthcare systems (Downey et al., 2011; Fealy et al., 2012; Long et al., 2011; Mannix et al., 2013; NHS Leadership Academy, 2013; Patrick, Laschinger, Wong, & Finegan, 2011; Stanley, 2006, 2014). Although informal clinical leadership is regarded as a solution to many of the challenges faced by the modern nursing profession, it is inconsistently defined as a concept in the

literature (Mannix et al., 2013). Several recurring or complementary themes occurred in descriptions of informal clinical leadership with a nursing focus. Integrating these themes, informal clinical leadership is characterized by providing high quality, safe, and efficient care in the clinical setting through clinical competence and evidence-based practice in conjunction with using interpersonal skills to empower other clinicians to provide the same level of care (Abraham, 2011; Fealy et al., 2012; Johansson, Andersson, Gustafsson, & Sandahl, 2010; Martin, McCormack, Fitzsimons, & Spirig, 2012; Miskelly & Duncan, 2014; Patrick et al., 2011; Stanley 2006).

Leadership, as with all sociological phenomenon, can be viewed in the macro, meso, and micro contexts. In sociological studies, the macro perspective examines the highest level of behavioral patterns at an organizational or regional level; the meso perspective examines patterns within and among groups; and the micro perspective examines patterns between or within individuals (Bolíbar, 2016). From the macro view, the complexity in the social, economic, political, and legal environments surrounding healthcare systems pressure the organizations to adapt continuously to deliver safe, high quality healthcare and survive in the 21st century healthcare environment. Organizational pressures trigger administrative leaders to endeavor to direct and manage change by developing visions and strategic plans to lead the organization through change. Administrative leaders are responsible for controlling change. However, while administrative leaders are responding to macro level pressures, clinicians at the point of care delivery are responding not only to the implementation of

the strategic plans but also to the meso and micro level pressures unique at the various points of care delivery. These meso and micro level influences at the point of care delivery are dynamic and include social interactions among clinicians, social interactions with patients and family members, and perceptions of work load specific to patient care assignments and resources (Casey, McNamara, Fealy, & Geraghty, 2011; Chaffee & McNeill, 2007; Hannes et al., 2007; Janssen et al., 2012; Melnyk, Fineout-Overholt, Gallagher-Ford, & Kaplan, 2012; Paley, 2007; Weberg, 2012). The primary area of focus for this study was the interpersonal context at the meso level; however, the potential for influences at the macro and micro levels must be acknowledged and were included as literature-supported situational context components in the conceptual framework for the study.

Complex Adaptive Systems

The theoretical lens guiding this investigation of informal clinical leadership was healthcare organizations and operational subunits function as complex adaptive systems. Complex adaptive systems are dynamic networks of interacting, independent components or agents with a common directive or need, capable of adaptation or evolution over time, and whose interactions ultimately influence the emergence of behavior and outcomes for the individuals as well as the system network as a whole (Chaffee & McNeill, 2007; Paley, 2007; Plsek & Greenhalgh, 2001; Uhl-Bien, Marion, & McKelvey, 2007). The situational emergence of behavior and its potential to affect outcomes is fundamental to the conceptual framework of this study. Research

precedents exist for examining healthcare organizations and specifically nursing practice using the complex adaptive systems lens (Booth, Zwar, & Harris, 2013; Chaffee & McNeill, 2007; Hanson & Ford, 2010; McDaniel, Lanham, & Anderson, 2009).

A healthcare organization is not a single complex adaptive system but an aggregation of multiple complex adaptive systems interacting with each other or functioning in parallel (Plsek & Greenhalgh, 2001). A member of any one system can also be a member of other systems. A bedside nurse working in a hospital setting is a licensed member of the nursing profession, a hospital employee, a staff member on a particular unit or service area, part of a patient's interdisciplinary care team, and a worker on a particular shift. Each level of membership re-frames the network of peer interactions in a slightly different context. The conceptual framework for this study was developed to include the literature-supported variables representing the multiple levels of membership in complex adaptive subsystems.

Complexity Leadership Theory

There are innumerable leadership theories, however, few differentiate between the functions of formal and informal leaders. Complexity leadership theory addresses membership in multiple complex adaptive systems and recognizes multiple co-existing layers of leadership including the administrative leadership occurring in a traditional hierarchical organizational structure and adaptive leadership emerging from informal leaders at the point of service in response to specific contexts and situations (Uhl-Bien et al., 2007). Administrative leadership is directly associated with job title, formal

authority, and positional power. In contrast, adaptive leadership is a more organic, grass roots leadership emerging among agents in any role, with or without formal authority, and may be transient or sustained (Uhl-Bien et al., 2007). In this study, informal clinical leadership as defined in the literature was equated with adaptive leadership in the complexity leadership model.

The interactions among agents in a complex adaptive system are nonlinear, variable, and have the potential for producing new modes of operation (Paley, 2007). For example, organizationally-supported, evidence-based nursing practice changes with local champions, such as restraint usage reduction or pressure ulcer prevention, are familiar across many in-patient clinical settings. However, irrespective of planning, formal organization support, and strong levels of evidence, it is not uncommon for bedside nurses to effectively reject these changes in part or in whole by reverting to former practice or finding workarounds (Hannes et al., 2007; Janssen et al., 2012; Johnson, Ostaszkiewicz, & O'Connell, 2009; Marchionni & Ritchie, 2008; Melnyk et al., 2012; Tinkler, Hoy, & Martin, 2014). Specific human factors such as nurse personal attributes and peer interactions in the clinical setting were supported as influences on unexpected nurse decisions and behavior at the point of care (Caldwell, Roby-Williams, Rush, & Ricke-Kiely, 2009; Charles, McKee, & McCann, 2011; Hannes et al., 2007; Hauck, Winsett, & Kuric, 2012; Melnyk et al., 2012). Using the complexity leadership theory lens, adaptive leadership occurred when the effects of nurse personal attributes or nurse interactions produced normative behavior for the unit or shift. To explore the

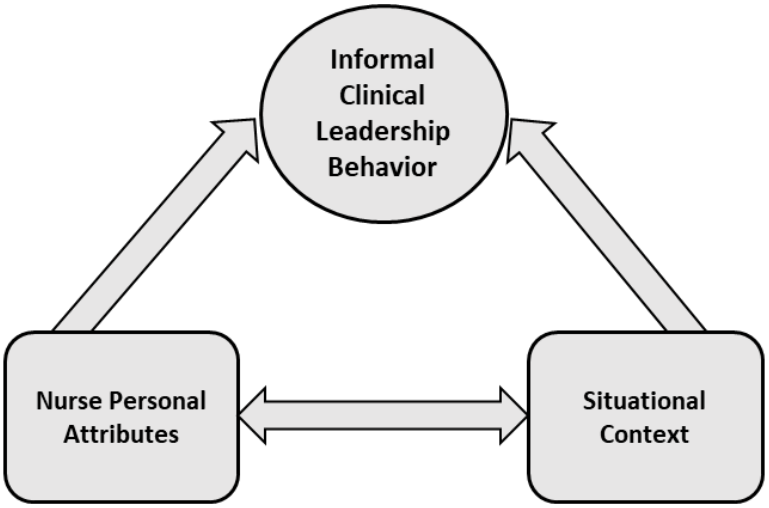
influences on the emergence of informal clinical leadership behavior at the point of care, key literature-supported nurse personal attributes and situational contexts were included in the conceptual framework.

The co-existence of formal, structured, hierarchical leadership and emergent, point-of-care, adaptive leadership introduces a confounding challenge. To effect change and promote the delivery of high quality, safe, and effective care in a healthcare organization, administrative leaders are challenged with managing and controlling situations and behavior that might be unpredictable. The complexity leadership theory solution to this conundrum is for administrative leaders to learn to find an effective equilibrium between their structured leadership role and the adaptive leadership role of bedside clinicians who possess the potential to influence other clinicians in response to unpredictable complexity pressures during care delivery (Uhl-Bien, 2012). Effective administrative leaders in a complex adaptive system recognize and capitalize on the adaptive leadership potential of agents at all levels including the informal leaders at the point of care (Porter-O'Grady & Malloch, 2013; Weberg, 2012).

A literature review revealed few empirical studies about informal clinical leadership among bedside nurses and no consensus model about the factors influencing this phenomenon. The conceptual framework for this study was developed from an integration of common patterns identified in informal clinical leadership literature (Fealy et al., 2012; Mannix et al., 2013; NHS Leadership Academy, 2013), complexity leadership theory (Uhl-Bien et al., 2007), and factors correlating to nursing leadership and informal

leadership in general. This aligns with complexity leadership theory, which supports studying leader, follower, and contextual interaction within the microsystem of an acute care clinical unit but allows for influences from the various macrosystems to which the nurses belong.

The specific bedside nurse personal attributes and situational contexts in the conceptual framework were derived from multiple areas of study identifying predictors of nurse or worker behavior. To further incorporate the concept of leadership into the framework, influences on leadership in general relevant to bedside nurses were also included in the conceptual framework. There were two general categories of predictors of clinical leadership behavior supported in the literature: nurse personal attributes and situational context. The nurse personal attributes were subcategorized as demographic characteristics, professional experience, and psychological capital as defined by Luthans, Youssof, and Avolio (2007). Situational context included the practice setting characteristics and the interactions between nurses within the practice setting. *Figure* 1 is a diagram of the conceptual framework illustrating the concepts under investigation as predictors of informal clinical leadership behavior. The literature used to develop the conceptual framework is reviewed in Chapter 2.



NURSE PERSONAL ATTRIBUTES			SITUATIONAL CONTEXT
Demographic Characteristics	**Professional Experience**	**Psychological Capital**	
• Age • Education	• Years as a nurse • Participation in residency program • Nursing specialty certification • Intent to work in management • Service as temporary charge nurse • Service as a preceptor • Participation in QI projects • Participation in shared governance activities	▪ Hope ▪ Optimism ▪ Resilience ▪ Efficacy	▪ Hospital type ▪ Magnet designation ▪ Practice area ▪ Usual shift worked ▪ Peer interactions • Frequency with which peers ask nurse for guidance with patient care issues • Frequency with which nurse asks peers for guidance with patient care issues

Figure 1. Conceptual framework depicting influences on the emergence of informal clinical leadership behavior among bedside nurses in the acute care clinical setting.

Definition of Terms

- Bedside nurse – a registered nurse who spends more than 75% of his or her time providing direct care to patients in the acute care setting, is not an advanced practice nurse (clinical nurse specialist, nurse practitioner, certified registered nurse anesthetist, or nurse midwife), and does not routinely function in a formal

supervisory or management capacity. This nurse can have specialized basic practice training and experience such as critical care, oncology, obstetrics, emergency, perioperative, and so forth but not advanced nursing practice training or experience.

- Complex adaptive system – a dynamic network of interacting, independent components or agents with a common directive or need, capable of adaptation or evolution over time, and whose interactions ultimately influence the emergence of behavior and outcomes for the individuals as well as the system network as a whole (Chaffee & McNeill, 2007; Paley, 2007; Plsek & Greenhalgh, 2001; Weberg 2012).
- Complexity leadership theory – in a complex adaptive system, leadership occurs on multiple, interacting layers and can be categorized as a formal hierarchical reporting structure focused on control and management, as an informal response emerging during specific situations requiring adaptation, or as a moderating response to balance formal and informal leadership functions (Uhl-Bien et al., 2007).
- Efficacy – application of Bandura's concept; a component of psychological capital representing having the confidence in one's abilities to engage in, navigate, and accomplish challenging tasks in the work environment (Luthans, Avolio, & Avey, 2014).
- Emergence – in the context of complexity leadership theory and in the context of this study, the emergence of informal clinical leadership occurs in response to a situational context. Emergent leadership is spontaneous, self-organizing, and

resultant from interactions among members of a clinical system (Uhl-Bien et al., 2007).

- Hope – a component of psychological capital representing the desire for positive outcomes and the determination to pursue them in the work environment (Luthans et al., 2014).
- Informal clinical leadership - providing high quality, safe, and efficient care in the clinical setting through clinical competence and evidence-based practice in conjunction with using interpersonal skills to empower other clinicians to provide the same level of care to optimize clinical and health outcomes (Abraham, 2011; Fealy et al., 2012; Johansson et al., 2010; Martin et al., 2012; Miskelly & Duncan, 2014; Patrick et al., 2011; Stanley 2006).
- Optimism – a component of psychological capital representing the positive belief about capacity to succeed in work-related tasks and functions (Luthans et al., 2014).
- Psychological capital – a composite state of individual development consisting of hope, optimism, resilience, and efficacy; thought to influence a worker's behavior, responses, and productivity (Luthans, Youssef, & Avolio, 2007).
- Resilience – a component of psychological capital representing sustaining progress and adapting when faced with challenges and adversity in the work setting (Luthans et al., 2014).
- Situational context – context refers to the general factors comprising the environment around a point of interest. Situation describes a specific state or

configuration of the context at a point in time. In this study, informal clinical leadership is a response emerging from an immediate need in the patient care setting. As such, situational context characterizes the environmental factors in the clinical setting (including peer interactions) influencing a bedside nurse either to emerge as an informal clinical leader at the point of care or to seek clinical leadership from a peer in relation to the delivery of patient care.

Summary

This chapter provided an overview of the complexity of modern healthcare systems, the implications of complexity on patient safety, quality of care, and cost of healthcare, and the need for bedside nurses to be leaders at the point of care in this environment. Management and leadership in general are studied extensively across professions including healthcare and nursing. In contrast, informal clinical leadership especially as it applies to bedside nurses at the point of care is sparsely addressed in the literature.

Complexity leadership theory in which leadership occurs at multiple levels in an organization provided the foundation for the conceptual framework for this study (Uhl-Bien et al., 2007). Agents at the point-of-service level have the potential to affect each other's behavior and produce normative change at that level and throughout the organization. In the complexity leadership model, informal leadership that emerges at the point of service is called adaptive leadership (Uhl-Bien et al., 2007). In this study,

adaptive leadership was equated with informal clinical leadership practiced by nurses in the acute care setting.

The structure of the conceptual framework for this study was described in this chapter; however, the predictors thought to influence clinical leadership behavior among nurses were identified in multiple sources in the literature. The review of literature is presented in Chapter 2. The overarching purpose of this study was to contribute to filling in the knowledge gap by exploring the influences on the emergence of informal clinical leadership among bedside nurses at the point of care in the acute care hospital setting. Building this knowledge base is the first step to developing and testing interventions to promote informal clinical leadership behavior among bedside nurses in the acute care setting.

CHAPTER 2

REVIEW OF RELATED LITERATURE

The Institute of Medicine (2010) has charged all nurses with leading change and advancing health. There is an abundance of research related to leadership in general. However, there is a paucity of research regarding leadership demonstrated by bedside nurses in the acute care setting at the point of care. This chapter contains a review of the current literature used to synthesize a definition of informal clinical leadership as applicable to bedside nurses and to identify the variables of interest ultimately investigated in the study.

Synthesis of Literature

The conceptual framework for this study integrated current but limited theoretical and research-based knowledge about informal clinical leadership (Fealy et al., 2012; Mannix et al., 2013; NHS Leadership Academy, 2013), complexity leadership theory (Uhl-Bien et al., 2007), and factors from multiple related research areas applicable to bedside nurse leadership behavior in a clinical setting. *Figure* 1 in Chapter 1 is a diagram of the conceptual framework for this study. This synthesis of literature section is organized by the three domains in the conceptual framework: informal clinical leadership, nurse personal attributes, and situational context.

Informal Clinical Leadership

Informal leadership, or the process by which peers in any work environment influence each other with respect to attitudes, behavior, and outcomes, is an established phenomenon recognized in the organizational behavior field (Bass, 2008; Krackhardt & Hanson, 1993; Cross, Nohria, & Parker, 2002; Yukl, 2010). Conceptually, informal *clinical* leadership is known to be practiced by nurses at the point of care (American Association of Colleges of Nursing, 2008; Downey et al., 2011; IOM, 2010; Mannix et al., 2013; NHS Leadership Academy, 2013; Stanley, 2006). However, research providing a comprehensive picture of the predictors or influences on the emergence of informal clinical leadership among nurses in the clinical setting was lacking (Abraham, 2011; Fardellone, Musil, Smith, & Click, 2014; Downey et al., 2011).

Leadership is a complex topic whose conceptual definitions have evolved and typically vary by the context in which leadership is examined (Bass, 2008). Demonstrating the extent of the variation of the conceptual definition of leadership, one systematic literature review of 21st century leadership identified 66 different domains of leadership theories currently under review or recently applied in research (Dinh et al., 2014). The theory domains ranged from leader-centric approaches to studies in group and team dynamics and social systems. The breadth and variety of leadership theories support leadership as a dynamic composite concept emerging from the unique attributes and behavior of leaders and followers, their interactions, and situational contexts.

One common theme across leadership definitions is the influence people have on each other with respect to attitudes, beliefs, behavior, or outcomes (Dinh et al., 2014; Stentz et al., 2012; Yukl, 2010). Bass (2008) asserted leadership involves interactions among members of a group producing changes in perceptions of a situation, changes in motivations of the group members, adaptation to the situation, and setting and achieving goals. Leadership is not associated solely with formal designation as a leader within a given structure. Any member of a group can demonstrate some level of leadership by influencing other group members' attitudes, beliefs, behavior, or outcomes (Bass, 2008).

Clinical leadership, specific to a healthcare setting, is receiving growing attention in response to the increasingly complicated nature of the modern healthcare environment (AACN, 2008; Howieson & Thiagarajah, 2011; IOM, 2010, 2013; Long et al., 2011; NHS Leadership Academy, 2013). Both management and leadership in the acute care clinical setting were included in this literature review, because these concepts were often intermingled, and leadership was most frequently studied and reported in a managerial context. This treatment posed a challenge to identifying a precise, measurable definition of informal leadership in the clinical setting.

Clinical leadership studies in nursing predominantly described the effectiveness of formal leaders from the front-line through executive nursing management levels in terms of either transformational or relationship-based leadership styles, empowering nurses at the bedside, and decentralizing decision making (Martin et al., 2012; Patrick et

al., 2011). While there are established similarities between the behaviors of formal and informal leaders in the clinical setting, few studies have focused explicitly on the leadership behaviors of bedside nurses. This study distinguished formal and informal clinical leadership and investigated the attributes, influences, and behavior of bedside nurses who may be clinical leaders but are not formal managers. The term *informal clinical leadership* was used to emphasize this point of care context in the clinical setting rather than managerial context.

No single conceptual definition of informal clinical leadership was evident in the literature with definitions varying by study and study context. The recurring patterns in the literature characterized informal clinical leadership among nurses at the point of care as providing high quality, safe, and efficient care in the clinical setting through clinical competence and evidence-based practice in conjunction with using interpersonal skills to empower other clinicians to provide the same level of care to optimize clinical and health outcomes (Abraham, 2011; Fealy et al., 2012; Johansson et al., 2010; Martin et al., 2012; Miskelly & Duncan, 2014; Patrick et al., 2011; Stanley 2006). These themes were synthesized to form the conceptual definition of informal clinical leadership for this study.

Operational definitions of informal clinical leadership occurring among bedside nurses combined intrapersonal attributes and beliefs and interpersonal relationship skills and behavior (Fealy et al., 2011; Patton et al., 2013). Clinical competence and credibility are supported as the foundational components of informal clinical leadership among

nurses who lead at the point of care (Casey et al., 2011; Fealy et al., 2013). However, when individual nurses moved away from exclusive care delivery into formal leadership roles such as first line supervisors and unit managers, they reported dwindling clinical competence, which was indicative of their clinical leadership becoming more a function of managerial skills rather than epitomizing clinical excellence (McNamara et al., 2011). This underscores the differences between clinical leaders who are nurse managers and those who are bedside nurses at the point of care. Informal clinical leaders often do not self-identify as leaders but describe their nursing practice as doing their best (Downey et al., 2011; Stanley, 2006). Doing their best can result in positive effects on their nurse colleagues' attitudes and behavior. The operational definition used in this study accounts for these informal clinical leaders who do not describe themselves as leaders.

Multiple studies emphasized the importance of self-awareness among informal clinical leaders (Abraham, 2011; Fealy et al., 2012; Miskelly & Duncan, 2014; Patton et al., 2013). Self-awareness was supported as a pre-requisite to developing other clinical leadership competencies (Patton et al., 2013). Multiple empirical studies associated informal clinical leadership among bedside nurses with clinical expertise, effective communication skills, inter-professional collaboration, striving to provide and promote a high standard of patient care, interest in making informed patient care decisions, focus on quality and safety, contributing to the support and development of other nurses, desire to participate in shared decision-making, and acceptance of responsibility for individual practice (Abraham, 2011; Johansson et al., 2010; Miskelly & Duncan, 2014;

Patrick et al., 2011). The informal clinical leader was described as a role model of exemplary professional behavior and supportive of others achieving their professional best (Abraham, 2011; Miskelly & Duncan, 2014; Supamanee, Krairiksh, Singhakhumfu, & Turale, 2011).

Over time, the numerous theories of leadership within organizations have asserted various antecedents of leadership such as inherent individual traits, psychological states and affective responses, sources of power, leader behavior and styles, follower behavior and styles, and situational contexts. As categorized by Yukl (2010), the level of conceptualization of leadership theories varies among intra-individual processes, interpersonal processes, group processes, and organizational processes. This study employed an integrative approach exploring multiple types of correlates to informal leadership relevant to bedside nursing practice in the acute care clinical setting with a primary focus on interpersonal and group processes. This aligns with complexity leadership theory, which supports studying leader, follower, and contextual interaction within the microsystem of an acute care clinical unit but allows for influences from the various macrosystems to which the nurses belong.

Nurse Personal Attributes as Influences on Informal Clinical Leadership

One domain to be investigated for influences on the emergence of informal clinical leadership was nurse personal attributes. Literature describing personal attribute theory associated with administrative leaders or other formal leaders abounded, while literature addressing personal attributes of bedside nurses as

predictors of informal clinical leadership behavior was scant. However, personal factors and environmental contexts were supported as significant influences on the professional practice behaviors of bedside nurses (Manojlovich, 2005). To develop a conceptual framework for this study, additional literature was reviewed for personal attributes supported as influences on either bedside nurse practice behavior or worker behavior in general. This revealed three subcategories of personal attributes: individual characteristics, professional experience, and psychological state. The latter was best represented as the concept of psychological capital for purposes of this study.

Individual characteristics. Various demographic characteristics are commonly collected in leadership studies and analyzed as non-modifiable influences on leadership. In both nursing-specific and general leadership studies, an individual's age is supported as a predictor of leadership behavior with respect to how the leaders engage with their followers (Barbuto, Fritz, Matkin, & Marx, 2007; Caldwell et al., 2009). One study specific to informal clinical leadership among bedside nurses in the United States found participants' age to be negatively correlated with leadership practice scores at a statistically significant level (Fardellone et al., 2014). Older nurses in this study produced lower scores on the Leadership Practices Inventory (LPI; Kouzes & Posner, 2012). All the studies reviewed consistently reported years of professional experience to be the more proximal positive or negative influence on leadership behavior rather than age in isolation (Barbuto et al., 2007; Caldwell et al., 2009; Fardellone et al., 2014).

Level of formal education was supported as a significant influence on both professional nursing practice and leadership behaviors. Nurses with higher levels of formal education demonstrated greater adaptability to change in practice and innovation (Caldwell et al., 2009; Hannes et al., 2007; Manojlovich, 2005). One systematic review of literature reported higher levels of leader education among formal nursing leaders corresponded to perceptions of greater leader effectiveness; however, this review did not expound on specific leadership behaviors corresponding with academic educational levels (Cummings et al., 2008). A study of formal leaders across multiple disciplines and organizations supported a significant main effect between a leader's educational level and follower reports of transformational versus transactional leadership style but no significant relationship between educational level and interpersonal leadership skills. (Barbuto et al., 2007).

Professional experience. Years of experience is commonly believed to be an influence on leadership in terms of both the leaders' skills and the followers' perception of the leaders' capabilities (Yukl, 2010). With respect to nursing practice, this occurs when the most experienced bedside nurses on a unit are expected to be the naturally emerging informal leaders, the "go to" nurses. In one systematic review of literature, years of experience in nursing and in management was generally supported as a positive influence on the leadership effectiveness of nurse managers in four studies, but one study in the review reported a negative correlation between length of time in position and leadership effectiveness (Cummings et al., 2008). Further, a separate study specific

to bedside nurses reported nurses' age and years of experience had statistically significant negative correlations with leadership practice scores (Fardellone et al., 2014).

A leader's source of power can be derived from his or her positional authority, expertise, interpersonal skills, and the cultural norms of the group (Bass, 2008; Oh, 2012; Yukl, 2010). Therefore, sources of power can influence the emergence of leadership behavior. Clinical competence is the foundational source of power or influence for informal leadership in the acute patient care setting where bedside nurses do not have formal positional authority. Nurses who are confident in their clinical competence are more likely to demonstrate leadership behaviors, and followers consider peers' clinical competence and knowledge when determining whether to follow a peer's lead (Fealy et al., 2011; Stanley, 2006; Supamanee et al., 2011). Engagement in clinical practice development activities such as achievement of specialty certification and participation in shared governance were supported as relating to perceptions of clinical competence and bedside nurse informal leadership behavior (Cummings et al., 2008; Manojlovich, 2005; Patrick et al., 2011). Service as a nurse preceptor and participation in unit-based quality or process improvement initiatives were other bedside nurse activities suggested for future study regarding their correlation with informal clinical leadership (Fardellone et al., 2014). Previous leadership education and experience were supported as influences on nurse leadership behavior (Cummings et al., 2008).

The American Association of Colleges of Nursing (AACN, 2008) listed basic leadership skills as essential to delivering quality care and promoting patient safety. The AACN described the leadership outcomes from baccalaureate programs as the culmination of effective communication skills, good interpersonal skills, engagement in quality and safety promotion initiatives, application of quality improvement processes, coordination of interdisciplinary teams, and promotion of factors contributing to a culture of safe and high quality care. Nurse residency programs have been supported as promoting the development of such informal clinical leadership behaviors during the transition from the student environment to professional clinical practice (Commission on Collegiate Nursing Education, 2008; Goode, Lynn, Krsek, Bednash, & Jannetti, 2009; Kowalski & Cross, 2010).

Psychological capital. Organizational behavior researchers identified maximizing human capital as a critical component to surviving the 21st century business environments demanding flexibility, innovation, and speed. In this context, human capital is an employee's knowledge, skills, and expertise (Luthans et al., 2014). Certain psychological states were found to be more predictive of the capacity of employees to effectively apply their knowledge, skills, and expertise in the work place. Multiple empirical studies supported hope, efficacy, resilience, and optimism in the work place as having positive correlations with work-related outcomes such as job satisfaction, commitment, well-being, and good organizational citizenship behavior, and negative

correlations with counterproductive work behavior, cynicism for change, stress, and anxiety (Luthans et al., 2014; Simmons & Buitendach, 2013).

Collectively the psychological states of hope, efficacy, resilience, and optimism have been identified as the core components of psychological capital (Luthans et al., 2014). Studying the influence of psychological states on worker behavior is valuable because psychological states can be fostered through professional development activities (Hoffman, Woehr, Maldagen-Youngjohn, & Lyons, 2011). Research is inconclusive; however, psychological states are supported as being more proximally predictive of leader performance than personal attributes (Van Iddekinge, Ferris, & Heffner, 2009). Studying psychological capital, a composite of multiple psychological states, is valuable in organizational behavior research, because psychological capital can be promoted among workers, which in turn can promote positive work place behaviors.

The phenomenon of psychological capital is not industry or discipline specific but more a function of general worker attributes. It is congruent with findings from studies on factors influencing bedside nurse behavior. Resilience, efficacy, and positivism were found to be predictive of bedside nurse ability to adapt to and lead change in the work environment (Caldwell et al., 2009; Charles et al., 2011; Gage, 2013; Hennerby & Joyce, 2011; Shirey & Fisher, 2008).

Situational Context

Several leadership theories define leadership as the product of an individual's traits, where other domains incorporate situational elements into leadership models

(Bass, 2008; Dinh et al., 2014). Situational leadership theory originated by Hersey and Blanchard is a general managerial leadership approach in which effective leadership behavior is a function of follower needs and complexity of the task under supervision (Yukl, 2010). Situational leadership theory is popularly referenced, but the key propositions of the original theory and its more recent variations have not been extensively supported in empirical studies (Thompson & Vecchio, 2009; Yukl, 2010). The effectiveness of formal leaders applying adaptive leadership behavior is generally supported; however, the lack of evidence supporting situational leadership theory in its entirety has been attributed to the dynamic nature of leader-follower interactions and to study designs too specific and rigid to account for variations due to unpredicted social dynamics (Thompson & Vecchio, 2009).

In response to the influence of situational context on leadership effectiveness, Kerns (2015) proposed a practice-oriented framework describing the spheres of influence on organizational leadership as core organizational identity, internal environment, transactional environment, and extended external environment. Kerns also proposed a situational context management cycle for examining an organizational problem or challenge in the context of both the spheres of influence and specific situational dynamics then formulating context-specific action plans. As with situational leadership theory, this framework acknowledges the significance of situational context on leadership, but focuses on the adaptability of formal leaders to situational context.

Rather than viewing positional authority as a requirement for leadership, other situationally-based theories modeled leadership as a naturally emerging social process in which leaders arise by virtue of their influence on other group members (Dinh et al., 2014; Yukl, 2010). This viewpoint aligns closely with the concept in complexity leadership theory in which the interactions among members of a complex adaptive system within specific contexts are the source of emergent but sometimes transient adaptive leadership behavior (Uhl-Bien et al., 2007). The situational contexts influencing the emergence of informal clinical leadership among bedside nurses are largely unexplored.

Although not specific to informal clinical leadership behavior, clinical context in terms of peer interactions, specific clinical situations being addressed, and physical and organizational environment has been supported as an influence on nurses' clinical behavior (Bucknall, 2003). ANCC Magnet®-designated hospitals are characterized by promoting leadership and empowerment at all levels of practice (Messmer & Turkel, 2010). As such, informal clinical leadership behavior would be expected to be present at Magnet®-designated hospitals. Leadership behavior and nurse clinical decision-making has been analyzed within specific practice areas such as critical care or the operating room because nurse-to-nurse dynamics may be affected by the workflow unique to those areas (Lean Keng & Alqudah, 2017; Rydenfält, Johansson, Odenrick, Åkerman, & Larsson, 2015). Given this precedent in nursing leadership studies, informal clinical leadership needs to be examined across nursing practice areas. In the context of

different physical environments, when faced with unfamiliar or non-routine patient care situations, nurses reported turning to nurse peers for direction almost twice as frequently as clinical managers, other professionals, clinical nurse specialists, or written guidelines (O'Leary & Ni Mhaolrunaigh, 2012). When bedside nurses ask other bedside nurses to provide guidance and direction about nursing practice or patient care, they are providing their peers with the opportunity to demonstrate informal clinical leadership behavior.

The literature reviewed supported the relationship between nurses' capacity for leadership and certain personal attributes as previously discussed. Some of these personal attributes are potentially interrelated such as age, years of nursing experience, and education level. However, what appear to be trait-based influences on informal clinical leadership might actually be latent situational context factors that influence clinical leadership behavior. For example, in the Fardellone et al. (2014) study in which nurses' age negatively correlated with leadership practice scores, a latent situational context factor might have been younger, less experienced nurses tend to work more night shifts than their older, more experienced counterparts. If this was the case, the situational context of shift worked might have a more proximal correlation with informal clinical leadership than age or years of nursing experience in isolation. Further nurses primarily working night shifts reported feeling disconnected with formal nurse leaders but highly dependent on interactions with peers on the night shift (Powell, 2013). This

high reliance on peers for direction on the night shift may be a catalyst for the emergence of informal clinical leadership.

Members of the millennial generation tend to be more inclined than members of other generations to seek frequent feedback and advice from peers and others and are described as *heavily connected* with others (Cogin, 2012). The overall effect of having multiple nurses from the millennial generation on a unit or shift continuously seeking assurance or direction might create the situational context triggering the emergence of informal clinical leadership among other millennials or older more experienced peers (Uhl-Bien, 2012). In the complexity leadership theory paradigm, the interactions among members of the complex system effect emergence of behavior. While the connectedness of nurses from the millennial generation has the potential for catalyzing informal clinical leadership behavior, the impact of peer interactions is not limited to nurses from the millennial generation.

Although few studies describe the influence bedside nurses have on the emergence of informal leadership behavior among peers, numerous studies describe how interactions among bedside nurses influence other clinical behavior. Nursing practice is highly relational and nursing decision-making is context driven (Gillespie & Peterson, 2009). Nurses' perceptions about how they were viewed by peers affected their patient care behavior (Hannes et al., 2007; Melnyk et al., 2012). Negative criticisms from peers diminished nurses' motivation and capacity to effect change, even strong evidence-based change, in patient care (Hannes et al., 2007; Janssen et al., 2012; Melnyk

et al., 2012). Perception of a lack of control over the local environment was reported as an inhibitor of informal leadership behavior (Casey et al., 2011). Situational context in these studies influenced bedside nurse behavior and may translate into influences on informal clinical leadership behavior.

Factors influencing clinical decision-making and therefore clinical behavior can be categorized into micro level contexts between the nurse and patient; meso level contexts among nursing peers and other members of the healthcare organization; and macro level contexts with the professional or government institutions (Gillespie & Peterson, 2009). Leadership occurs when one individual influences the behavior and attitudes of others. In complexity leadership theory, informal leaders emerge when they step up and adapt to a particular situation or when peers look to each other for direction. In this study, situational context characterizes the environmental factors in the clinical setting influencing a bedside nurse either to emerge as an informal clinical leader at the point of care or to seek clinical leadership from a peer in relation to the delivery of patient care. Clinical situational contexts were primarily explored at the meso or peer-to-peer level; however, micro or macro level contexts may have surfaced as influences on clinical leadership behavior.

Inferences for Current Study

There was no consensus model or theory of informal clinical leadership in the literature reviewed for this study. As such multiple theories and sources of evidence were integrated to develop the conceptual framework. For purposes of this study,

informal clinical leadership was characterized by providing high quality, safe, and efficient care in the clinical setting through clinical competence and evidence-based practice in conjunction with using interpersonal skills to empower other clinicians to deliver the same level of care (Abraham, 2011; Fealy et al., 2012; Johansson et al., 2010; Mannix et al., 2013; Martin et al., 2012; Miskelly & Duncan, 2014; Patrick et al., 2011; Stanley 2006). Given the complexities and challenges of the modern healthcare environment, bedside nurses have numerous opportunities to serve as informal clinical leaders applying this definition.

Based on this literature review, the source of power for informal clinical leaders is their clinical performance and interpersonal skills rather than any formal authority associated with an appointed position. Consequently, informal clinical leaders often do not self-identify as leaders (Downey et al., 2011; Oh, 2012). Rather, they emerge as impromptu leaders when their behavior intentionally or unintentionally provides direction to peers in the clinical setting when the solution to a point of care problem is uncertain. This lack of self-identification and formal designation is significant to the design of this study. Informal clinical leaders may not be readily identifiable as formal nurse managers would be. Therefore, the study was designed in a manner which best accommodated the transient nature of informal clinical leadership.

Consistent with complex adaptive systems theory, nurses are agents who belong to multiple subsystems based on the organization in which they work, the unit on which they work, the shift they work, and their personal attributes. These agents regularly

interact with each other directly or indirectly by virtue of a shared clinical work environment. This network of interactions provides numerous opportunities for nurses to influence each other's behavior. The influence can occur in the form of explicitly providing peers with direction related to solutions to problems at the point of care, which may include workarounds and even breaking the rules when needed. The influence can also occur in the form of role modeling acceptable behavior or setting precedents in the clinical setting. Peer influence can have both positive and negative connotations. For purposes of this study, informal clinical leadership is a type of peer influence in which the resultant bedside nurse behavior contributes to high quality, safe, and efficient patient care.

In complexity leadership theory, adaptive leaders emerge when individuals in a work place setting respond to situational tensions in a way that influences the behavior of others and ultimately the outcomes of the situation (Uhl-Bien et al., 2007). Adaptive leadership may be a transient, situation-specific leadership behavior, or a continuous behavioral pattern in which the individual responds to situations. In this study, informal clinical leadership was considered a type of adaptive leadership emerging among bedside nurses.

The literature reviewed for this study described the informal clinical leadership behaviors of bedside nurses but did not discuss predictors of informal clinical leadership. Although not specific to informal clinical leadership, personal attributes and situational context were supported as influences on leadership in general and on nurse behavior in

the clinical setting. Within the personal attributes domain, psychological capital was a significant predictor of worker behavior. If a positive association is supported between psychological capital and informal clinical leadership behavior among bedside nurses, specific interventions fostering psychological capital among nurses can be tested in future studies as facilitators of leadership at the point of care.

Studying individual traits or psychological states in isolation was shown to account for only modest variations in nurse or leader behavior. Within the situational context domain, peer interactions were supported as influences on nurse and other worker professional behavior (Hannes et al., 2007; Hoffman et al., 2011; Janssen et al., 2012; Melnyk et al., 2012). Both situational leadership theory and the situational context management cycle emphasized the importance of formal leaders adapting tactics to situational context (Kerns, 2015; Yukl 2010). However, lack of accommodation for the dynamic nature of leader-follower interactions and study designs too specific and rigid to account for variations due to unpredicted social dynamics constrained the findings of situational leadership studies (Thompson & Vecchio, 2009). This supported the need for the design of the study to be flexible enough to capture both the situational contexts expected to influence the emergence of informal clinical leadership as well as the unforeseen influences in the clinical environment.

From the associations in the literature, one can infer the potential influence of personal attributes and situational context including peer interactions on the emergence

of informal clinical leadership. However, what is unknown is how these factors interact to support the emergence of informal clinical leadership among bedside nurses.

Summary

Bedside nurses without formal authority over peers and other staff are expected to be more autonomous in practice and assume increased leadership responsibilities at the point of care delivery in the modern healthcare environment. Informal clinical leadership is a named phenomenon referenced in the literature as essential for bedside nurses to adapt to the complexity and volatility in this environment. Although there were clearly overlapping leadership attributes and behaviors, formal and informal leaders were supported as being different in particular with respect to sources of power and antecedents to leadership. Further, informal leaders often do not self-identify and emerge as needed in response to contextually specific events. This suggests the current, extensive knowledge base about formal leaders might not be entirely transferrable to informal leaders and may not fully explain the role of the informal clinical leader. Of note, much of the nursing leadership literature either used the concepts of manager and leader indiscriminately, or solely focused on formal nurse leaders with position-related authority.

The literature explicitly addressing informal clinical leadership as practiced by bedside nurses was limited. Although there was no consistent operational definition or measure of informal clinical leadership among bedside nurses, there was a pattern in the literature characterizing informal clinical leadership among bedside nurses as both role

modeling exemplary clinical practice and facilitating others achieving their professional best. Literature describing the predictors of informal clinical leadership among bedside nurses was absent.

In order to narrow this knowledge gap about the predictors of informal clinical leadership among bedside nurses, a conceptual framework was developed for this study from theoretical and research-based leadership and nursing practice literature. The study framework was predicated on viewing acute patient care units in hospitals as complex adaptive systems. Complexity leadership theory provides the basis for viewing informal clinical leadership as a type of adaptive leadership in which bedside nurses have the potential to emerge as impromptu informal clinical leaders on an as needed basis in response to specific situations at the point of care. The three domains of informal clinical leadership, nurse personal attributes, and situational context completed the study framework. Nurse personal attributes included bedside nurse demographics, professional experience, and psychological capital (hope, efficacy, resilience, and optimism). Situational context included characteristics of the practice environment (hospital type, hospital location, hospital ANCC Magnet® designation, current practice area, and usual shift worked, frequency which with peers ask the nurse for clinical guidance, and frequency with which the nurse asks peers for clinical guidance) and other unnamed peer interactions among nurses. *Figure 1* in Chapter 1 is a diagram of the conceptual framework.

The overarching purpose of this study was to explore the predictors of the emergence of informal clinical leadership among bedside nurses in the acute care hospital setting. Data generated about the predictors of informal clinical leadership will provide the foundational knowledge for promoting the emergence of informal clinical leadership behavior among bedside nurses at multiple levels. Examining relationships between psychological capital and informal clinical leadership among bedside nurses can inform the creation of professional development activities to promote the relevant psychological capital components. Isolating any nurse personal attributes associated with informal clinical leadership can inform the creation of the professional development activities and identify the target audiences for specific activities. Finally, the data generated can be used to design clinical setting modifications to create work environments most conducive to fostering the relevant psychological capital components among bedside nurses and establishing contexts correlating with informal clinical leadership.

CHAPTER 3

METHODOLOGY

The purpose of this study was to explore the influences of personal attributes and situational context on the emergence of informal clinical leadership among bedside nurses in the acute care hospital setting. Informal clinical leadership exhibited by bedside nurses at the point of care is a developing concept without a single unifying theory or extensively validated model. Multiple theories and sources of evidence were integrated to produce the conceptual framework for this study.

The research methodology was selected and implemented for this study to accommodate the exploration of the composite conceptual framework. Design decisions were made to provide the most comprehensive picture of this phenomenon by studying related theories about the factors influencing the emergence of informal leadership and identifying any previously unspecified factors. This chapter describes the research design, setting, sampling plan, target participants, instrumentation, procedures, and the data analysis plan.

Research Design

The study used a convergent parallel mixed methods design with an exploratory correlational quantitative strand and a descriptive qualitative strand due to the lack of a prevailing model of informal clinical leadership specific to bedside nurses in the acute

care clinical setting. This approach provided the opportunity to study a phenomenon as it occurred naturally (Polit & Beck, 2012). Nurse personal attributes were categorized as demographic characteristics, professional experience, and psychological capital (hope, optimism, resilience, and efficacy). Nurse personal attributes as well as situational context were investigated as predictors of informal clinical leadership behavior. Situational context included both the quantitative descriptors and qualitative descriptions participants provided about their experiences as an informal clinical leader or with informal clinical leaders.

Given the complex and multifactorial nature of leadership, mixed methods design is an established approach to studying leadership (Stentz et al., 2012). A convergent parallel mixed methods (QUAN + QUAL) design was used to collect and generate the most comprehensive set of data within the study framework. The study design followed Creswell and Plano Clark (2011) guidelines for mixed methods research. Quantitative and qualitative data were collected concurrently via the same web-based survey but initially analyzed separately. Data from the quantitative strand were used to test if bedside nurse personal attributes and situational context accounted for a significant amount of variance in the emergence of informal clinical leadership behavior at the point of care as asserted by the integrated theories and models. Bedside nurse written narratives from the qualitative strand were used to generate a list of the influences on the emergence of informal clinical leadership at the point of care. The final step in the process was to compare the quantitative and qualitative findings and to

explore for any previously undocumented influences on the emergence of informal clinical leadership among bedside nurses. *Figure* 2 illustrates the sequence of the data collection and analysis procedures in this mixed methods design.

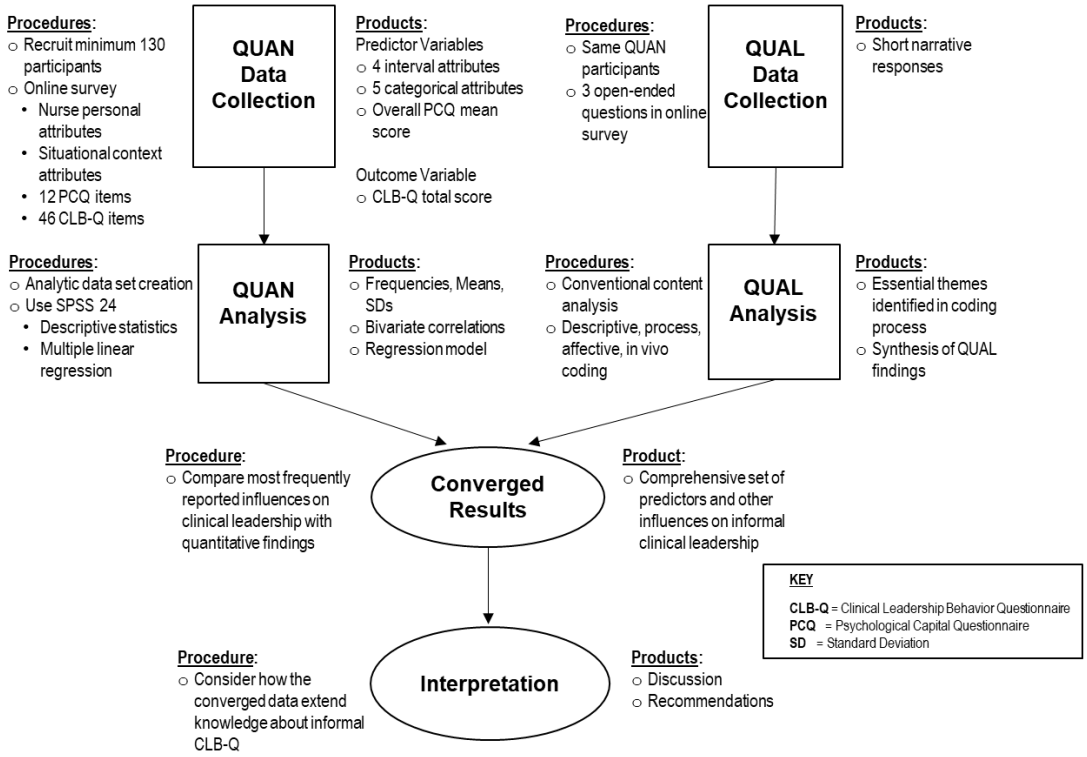


Figure 2. Convergent parallel design diagram for study

Setting

The overall study setting for participant recruitment was multiple acute care hospitals in the United States. A variety of hospitals were identified as sites for recruitment to reduce under or over emphasizing any localized influence on informal clinical leadership. Recruiting participants from multiple sites and settings is an

accepted approach to reduce sampling bias and increase a study's generalizability (Polit & Beck, 2012). To encourage participation in the study, hospitals and individual participants were assured the data would be reported in a summarized format and could not be traced directly back to any single hospital or any individual nurse within the hospital. The study had to occur in multiple hospitals to fulfill this assurance.

The setting for data collection was naturalistic. Data collection for both strands of the mixed methods study occurred through a secure, web-based survey. Therefore, participants were able to complete the survey in an environment of their choosing in which they have access to the hospital email system and to the Internet.

Sample

A two-stage convenience sampling strategy was used with a focus on achieving maximum variation within the sample to increase generalizability of the findings. Common patterns emerging from a diverse sample are more likely to be core experiences among bedside nurses and therefore more generalizable (Polit & Beck, 2012). During the first sampling stage and after receiving Mercer Institutional Review Board (IRB) approval, the researcher contacted authorized representatives at acute care hospitals to obtain permission to recruit participants at their sites. The goal was to recruit participants from six to eight different hospitals. In the second stage, nurses working at those hospitals were invited to participate in the study by answering a one-time web-based survey. Nurses were recruited from a variety of patient care areas

including medical-surgical, critical care, maternal and children's health, perioperative services, and emergency services units.

The inclusion criteria for study participants were registered nurses in acute care hospitals who:

- currently provide direct basic practice care to patients as more than 75% of their job;
- have Internet and email access in the work environment;
- read and write in English;
- are able to complete a web-based survey; and
- do not have permanently assigned supervisory, managerial, or administrative job roles.

The exclusion criteria for study participants were:

- non-nurses and non-registered nurses;
- formally titled nurse leaders with staff who report to them;
- advanced practice nurses such as clinical nurse specialists, nurse practitioners, clinical nurse midwives, and certified registered nurse anesthetists;
- nurses with formal leadership training in management or administration other than the foundational courses or classes in a basic practice, pre-licensure nursing education program; and
- nurses who worked in formal leadership positions in previous careers or jobs.

Licensed practical nurses (LPNs) were excluded from the study because their scope of practice and source of clinical power may differ from RNs. Advanced practice nurses were excluded from the study sample because there is a type of formal authority associated with their roles that is not generally attributed to bedside nurses. Other masters-prepared nurses who were not advanced practice nurses were included in data collection if they provided direct patient care for a minimum of 75% of their job.

Justification for Sample Size

A priori power analysis was conducted to estimate an adequately powered sample size. As no study akin to the quantitative strand of this study was identified in the literature review, anticipated effect sizes for correlational and multiple linear regression were unknown. A small to medium effect size is appropriate to use for power analysis when the effect size is unknown (Polit & Beck, 2012). Using an a priori power analysis formula for multiple linear regression (Warner, 2008), a medium effect size (f^2=0.15), α = 0.05, β = 0.80 and an estimated maximum of 10 predictors in the analytic model for this study, the recommended minimum sample size for the quantitative strand was 130 participants. The same participants were included in both the quantitative and qualitative strands, which is an acceptable design for a convergent parallel study (Creswell & Plano Clark, 2011).

Protection of Human Subjects

There were minimal foreseeable risks associated with participation in this study. The potential risks to participants in Internet-based research included threats to

participant autonomy and potential harm to personal or professional reputations as well as the reputation of the hospital if any identifiable controversial information is released. To promote individual autonomy, online informed consent in compliance with the Mercer University Office of Research Compliance (ORC) was obtained from each participant as the first question in the web-based survey. If the nurse did not explicitly express consent to participate in the survey, the nurse was unable to access the survey questions. Emphasis was placed on voluntary participation in the study and participants could withdraw at any time during the survey by closing their browser without concern over any professional repercussions. Another point of emphasis in the consent text was the study was originating from outside of the hospital, and the employing hospital did not require participation in this study. One hospital requested a minor revision to the text of the nurse recruitment email explicitly stating that particular hospital was aware of this study but participation was voluntary. This revision was submitted to and approved by the Mercer IRB.

To preserve the confidentiality of the participating hospitals and participants, data were stored securely. Only the researcher and her dissertation committee members had specifically purposed access to the raw data. Only aggregate findings which cannot be connected with an individual or a single hospital will be reported. The researcher did not collect direct identifiers such as hospital name or nurse name as part of the data set. The researcher did not have access to the email addresses of the nurse participants. If any participants had inadvertently supplied identifying information in the

short narrative responses in the qualitative strand, the identifying information was redacted.

To further assure confidentiality of the participants, the use of a third-party Internet-based data collection service (SurveyMonkey®) managed through the Mercer University Information Technology department separated the researcher from direct access to the participants. The researcher only saw general demographic data associated with responses and no participant contacted the researcher or the committee chair directly with questions or concerns. The data collection service used encrypted, secured connections. The master data set was stored on a physically secured server, which requires password, account-based authentication. The data set extracted from SurveyMonkey® for statistical analysis and any backups were physically secured in local password protected settings. The laptop computer and auxiliary storage devices were controlled by the researcher in a physically secured environment.

The researcher reserved the right to archive the data collected and generated from this study for future secondary analysis studies. The archived data are stored in password-protected files on physically-secured devices. Any use in future studies will require separate IRB approval and oversight.

Instrumentation

The data collection instrument for this study included nurse demographic questions developed by the researcher, two externally developed instruments for the quantitative strand of the study, and three open-ended questions for the qualitative

strand. Appendix A contains the template for the online data collection survey. The instrument required approximately 15 to 20 minutes to complete.

Participant Questionnaire

After online informed consent was obtained, participants responded to six questions used to screen for inclusion and exclusion criteria. Following screening, eleven nurse personal attributes (age, educational level, years of nursing experience, participation in a nurse residency program, intent to work in management, nursing specialty certification, frequency of service as a preceptor, frequency of service as a temporary charge nurse, frequency of participation in shared governance, frequency of participation in unit-based nurse-sensitive initiatives, and psychological capital) were collected for possible inclusion as predictors in the analytic model. Six situational context attributes (hospital type, ANCC Magnet® designation of the hospital, nursing specialty area, usual shift worked, frequency with which peers ask the participant for guidance about patient care, and frequency with which the participant asks peers for guidance about patient care) were collected for possible inclusion in the analytic data model. Next, two questions were posed inquiring about the frequency with which peers ask participants for guidance about patient care or with which participants ask peers for guidance. Participants were provided with a 5-item Likert-type response scale with responses ranging from never (0) to always (4). Other data were collected to help describe the sample such as years working at hospital, years working in clinical specialty,

number of beds on the unit, and number of patients typically assigned to a nurse per shift.

Clinical Leadership Behaviors Questionnaire (CLB-Q)

The Clinical Leadership Behaviors Questionnaire (CLB-Q) was developed by Fealey and colleagues (2012) to measure clinical leadership behavior among bedside nurses as part of a clinical leadership education and evaluation program, which was developed from the United Kingdom National Health Service (NHS) healthcare leadership initiatives (NHS Leadership Academy, 2013). Clinical leadership behavior was operationalized in this instrument across seven areas of competence, each of which is a subscale on the CLB-Q (Fealy et al., 2012):

- self-awareness
- advocacy and empowerment
- decision making
- communication
- quality and safety
- team working
- clinical excellence

These components of clinical leadership behavior are congruent with findings in the literature reviewed for this study describing clinical leadership as practiced by bedside nurses at the point of care. This concordance was expected because the NHS

Leadership Framework used many of the sources of evidence included in the review of literature for this current study.

The CLB-Q contains 46 items in which participants self-rated the frequency with which they typically engage in clinical leadership behaviors such as providing evidence-based patient care; accepting accountability for outcomes; contributing to team building; communicating effectively with clinical peers and clients; and supporting clinical peers in achieving their clinical best (Fealy et al., 2012). The response scale for each item ranges from never (1) through always (5). Subscale scores are reported as arithmetic averages of the subscale item responses and could range from 1 to 5 (Fealy et al., 2012). The summated total CLB-Q score is also reported with a range from 46 to 230 with higher scores indicating greater clinical leadership behavior.

The CLB-Q was validated among nurses and midwives during a pilot clinical leadership development program in Ireland (Fealy et al., 2012). Using the criterion of alpha .70 or greater, the Cronbach's alpha scores for internal consistency among the subscales ranged from below acceptable to good: advocacy and empowerment (.677), communication (.745), decision-making (.758), clinical excellence (.810), quality and safety (.815), self-awareness (.829), and team working (.842).

Concurrent validity for the CLB-Q was supported when scores were compared with the Leadership Practices Inventory (LPI), a cross-industry gold standard instrument (Fealy et al., 2012). Although widely used internationally, the LPI is not specific to nursing or to informal leadership. The CLB-Q was selected for use in this study because

of its unique application of informal clinical leadership among bedside nurses. The CLB-Q had minor revisions to reflect American spelling and terminology (behaviour to behavior; recognise to recognize; organisations to organizations; maximise to maximize; and ward-based to unit-based). The letter conferring consent to use this instrument for this study is in Appendix B.

Psychological Capital Questionnaire 12 Item (PCQ-12)

Psychological capital is a composite construct of four psychological states (hope, efficacy, resilience, and optimism) among workers associated with behaviors and outcomes in the work environment (Luthans et al., 2014; Simmons & Buitendach, 2013). Because they are states, these constructs are more malleable among workers than intrinsic personality traits (Luthans, Avolio, Avery, & Norman, 2007). Psychological capital can be developed and promoted among workers. Because of this potential for development, psychological capital is being examined as a predictor of informal clinical leadership among bedside nurses.

The short form Psychological Capital Questionnaire (PCQ-12) contains 12 items. Each requires the participant to report extent of agreement with the statement on a Likert-type scale ranging from strongly disagree (1) through strongly agree (6). The instructions for scoring the instrument described reporting an overall mean score for the entire instrument and mean scores for each of the four dimensions (Luthans et al., 2014), which is the approach used in this study. The range for the mean scores is 1 to 6. Of note, in a study evaluating use of the PCQ across other studies, Dawkins, Martin,

Scott, and Sanderson (2013) described some researchers reporting approaches such as a summated score for the PCQ. This was not the approach recommended in the instructions for scoring the instrument.

Using the criterion of alpha .70 or greater, Cronbach's alpha scores calculated on the total PCQ-12 scores from 5 cross-industry studies generally supported the reliability of the instrument .70 (*n* = 341 university employees), .91 (*n* = 380 undergraduate students), .68 (*n* = 456 mining employees), .92 (*n* = 199 cross-industry employees), and .88 (*n* = 828 cross-industry employees) (Dawkins et al., 2013). The reliability statistics for the total instrument fall within the below acceptable to good range (DeVellis, 2012).

The PCQ and PCQ-12 instruments have been used extensively internationally to measure the influence of psychological capital on a variety of work-related constructs including job performance, job satisfaction, and employee attitudes (Luthans, Avolio, Avery, & Norman, 2007). The instrument was not developed for any specific business sector and was reviewed by dissertation committee members for face validity and applicability to bedside nurses.

The researcher obtained written consent from Mind Garden (www.mindgarden.com) for conditional remote use of the PCQ-12 for purpose of data collection for this non-commercial study only. The researcher agreed to use the PCQ-12 in its exact form without changes to the instructions, rating scales/anchors, or order of the items. Other than in the data collection survey, the researcher has been prohibited

from reproducing, publishing, or sharing the entire contents of the PCQ-12. The letter conferring consent to use this instrument for this study is in Appendix C.

Qualitative Data Gathering

The purpose of the qualitative strand was to generate data about bedside nurses' descriptions of the influences on clinical leadership behavior in the acute care setting to expand on the findings about bedside nurse informal clinical leadership from the quantitative strand. Three open-ended questions were included on the web-based survey with free-form text fields for short narrative responses. The questions were derived from the composite definition of informal clinical leadership synthesized from the literature review. Informal clinical leadership in nursing is characterized by providing high quality, safe, and efficient care in the clinical setting through clinical competence and evidence-based practice in conjunction with using interpersonal skills to empower other clinicians to deliver the same level of care (Abraham, 2011; Fealy et al., 2012; Johansson et al., 2010; Martin et al., 2012; Miskelly & Duncan, 2014; Patrick et al., 2011; Stanley 2006). To prevent any confusion between informal and managerial leadership, the word *leader* was not explicitly used in the open-ended data collection questions. Instructions for the three open-ended questions asked participants to take a few minutes to briefly share their personal experiences at work regarding these questions. Participants were assured their identity would be protected to help them feel comfortable responding as accurately as they could.

The open-ended questions on the survey were:

- Consider a situation when another bedside nurse sought your guidance or direction with a patient care issue. Why do you believe he or she sought help from you in particular? Describe how you responded.
- Reflect on a time when you turned to another bedside nurse for guidance or direction in a patient care issue particularly reflecting quality or safety. Why did you choose to reach out to that particular nurse? Describe how the nurse's response influenced you.
- Please add anything else you would like to share that has not already been covered in your responses about how nurses' behavior and attitudes influence each other's practice either positively or negatively at the point of patient care.

Procedures

After Mercer University IRB approval was obtained, the researcher contacted authorized individuals at 23 hospitals by email and requested to use those hospitals as data collection sites at which bedside nurses would be recruited to respond to a web-based survey. A copy of the Mercer University IRB approval letter is included in the Appendices (Appendix D). Site recruitment included hospitals at a variety of geographic locations but was limited by the researcher's ability to identify points of contact at each hospital for nursing research.

The administrators of six hospitals agreed to participate; contacts at the other 17 hospitals did not respond to the researcher's inquiries. Four of the six participating hospitals required the researcher to obtain approval from hospital-associated IRBs and

nursing research councils. Two of the hospitals only required the oversight of the Mercer IRB. Due to the differing research protocol and process requirements among the hospitals and other concurrent data collection initiatives, data collection began at varying times from August 2016 to April 2017.

Once the appropriate approvals were obtained at each hospital, the researcher worked with a single point of contact at each hospital to recruit nurse participants into the study. The hospital contacts were hospital-based nurse researchers at two of the hospitals, bedside nurse members of nursing research councils at three hospitals, and a nurse residency program coordinator at the sixth hospital.

Each hospital contact was asked to send a standard recruitment email to all bedside nurses who could possibly be included. The hospitals had differing processes for communicating with the bedside nurses. The two hospital-based research nurses had access to distribution lists and were able to send the recruitment email to the nurses directly. Two of the hospital contacts forwarded the recruitment email to multiple members of the nursing research councils who in turn forwarded the recruitment email on to the bedside nurses. The contacts at the remaining two hospitals forwarded the recruitment email on to administrative assistants of specialty area directors (e.g., critical care director, perioperative services director, etc.) at those hospitals who in turn forwarded the recruitment email on to the bedside nurses.

Nurses in the acute care setting are frequently targeted for receiving web-based surveys from their employers and from professional nursing organizations in addition to

researchers. Some units and specialty divisions were excluded from data collection at the hospitals because at least one other survey was running concurrently and employers wished to minimize work disruptions. One hospital asked for a delay in the data collection start date to give the nurses time after a hospital-sponsored survey.

As shown in the template in Appendix E, the nurse recruitment email contained a link to the live survey. The first question in the survey complied with Mercer IRB requirements for informed online consent. The participant could only proceed with the survey, if he or she provided consent through question 1. The first six questions corresponded with inclusion and exclusion criteria, if the participant answered those questions in a way that would exclude him or her from the study, the participant was redirected to another screen away from the survey, thanked for his or her interest in the study, and provided an explanation of why he or she was redirected.

Data collection occurred over a four-week period for each hospital starting when the participant recruitment email was sent. At two weeks, a combination thank-you and reminder email was sent to all of the nurses initially recruited. After the four-week data collection period had completed at all six original sites, the researcher determined the number of participants had not reached the 130 minimum sample size. The researcher obtained Mercer IRB permission to include five additional hospital recruitment sites. Authorized representatives from two of the five additional hospitals permitted the researcher to recruit nurses from those hospitals. The researcher

received approval from the local hospital IRBs, and the four-week data collection process repeated as described for the original six hospitals.

Overview of Data Analysis

Initially quantitative and qualitative data were managed and analyzed independently in separate strands. Data from the two strands were then converged and compared to cross-validate findings and to identify influences on informal clinical leadership behavior not fully addressed by the quantitative instruments. The description of each step of the data analysis is provided in this section.

Quantitative Analysis Plan

The Mercer Office of Research Compliance provided data extracts from SurveyMonkey® in a comma-separated variable (CSV) format. All data elements collected, their levels of measurement, and data ranges are listed in Table 1. Data elements that were under consideration as predictors of clinical leadership behavior based on the literature review are italicized. The categorical variables were recoded in Microsoft Excel for Windows 2016 in accordance with the re-defined codes then imported into IBM® Statistical Package for Social Sciences (SPSS) 24 for Windows for analysis (IBM, 2016).

Table 1

Study Variables and Levels of Measurement

Variables	Level of Measurement
Age	*Interval-Ratio*
Sex	Categorical
Ethnicity/Race	Categorical
Years of nurse experience	*Interval-Ratio*
Highest level nursing education	*Categorical*
Highest level non-nursing education	Categorical
Participated in a nurse residency program	*Categorical*
Hospital type	*Categorical*
Years of experience at this hospital	Interval-Ratio
Hospital ANCC Magnet® designation	*Categorical*
Full-time employee	Categorical
Current practice area	*Categorical*
Years in practice area	Interval-Ratio
Age range of patients	Categorical
Number of beds on the unit	Interval-Ratio
Number of patients are typically assigned to one nurse	Interval-Ratio
Nursing specialty certification	*Categorical*
Intent to work in management	*Categorical*
Usual shift worked	*Categorical*
Frequency of service as temporary charge nurse	*Categorical*
Frequency of service as a preceptor	*Categorical*
Frequency of participation in nurse sensitive QI projects	*Categorical*
Frequency of participation in shared governance activities	*Categorical*
Frequency with which peers ask nurse for guidance	*Categorical*
Frequency with which nurse asks peers for guidance	*Categorical*
Psychological Capital Questionnaire 12 items	*Ordinal*
Clinical Leadership Behavior Questionnaire 46 items	*Ordinal*

Note. ANCC = American Nurses Credentialing Center; QI = quality improvement

The quantitative research question was *Do bedside nurse personal attributes and situational context account for a significant amount of variance in clinical leadership behavior in the acute care setting?* Multiple linear regression was the planned analytic

approach to answer this question. Before the analytic data set could be fully identified, descriptive statistics were run at the item level to analyze value ranges and to identify missing data. An analytic data set meeting all assumptions needed to be constructed for the regression analysis. The results of the data cleaning, missing data analysis, data imputation, and other data transformations required to prepare the analytic data set are reported in Chapter 4 with the results of the multiple linear regression.

Qualitative Data Analysis Plan

The research question for the qualitative strand was *How do bedside nurses describe influences on clinical leadership behavior in the acute care setting?* A convergent parallel mixed methods (QUAN + QUAL) design was selected so the quantitative and qualitative data would have equal priority in this study and be treated separately until the two sets of findings were compared at the end of the study.

There were three open-ended questions at the end of the online survey in which participants were asked to share their personal experiences at work. The questions are listed in the Qualitative Data Gathering section of this chapter. A conventional content analysis approach was selected for the brief narrative responses to these questions. This is an appropriate strategy when existing theory or research literature is limited and the researcher plans to let the categories materialize from the data rather than predetermined models (Hsieh & Shannon, 2005), which was the case for this study. Further, conventional content analysis allowed the themes of the content to emerge during analysis as compared to directed content analysis where the researcher begins

with known themes from a theory or model and evaluates their application to the content. Allowing the themes to emerge from the participant responses aligned with the convergent parallel mixed methods design.

Krippendorff (2013) described content analysis as a structured, reproducible research technique with six analytical components: unitizing, sampling, recording (recoding), reducing, inferring, and narrating. The units of measure for the content analysis were the narrative responses, which ranged from a few words to a few phrases that were recorded in and extracted verbatim from SurveyMonkey®. Sampling was defined by the study participants who wrote responses to these questions. All responses were included as part of the corpus of data for the content analysis.

Functionally, reducing and inferring are collectively comparable to the first and second cycle coding processes with within-case and cross-case analysis described by Miles, Huberman, and Saldaña (2014). The researcher analyzed the responses to each of the three open-ended questions separately. The researcher performed an initial read of all responses to one question to code for patterns in the responses using Saldaña (2013) guidelines for descriptive, process, affective (values), and in vivo codes using lexical analysis. The process was repeated on the same set of responses to consolidate overlapping codes and generate new codes representative of repeating patterns in the responses. After a set of codes were identified to represent the patterns in the responses, the researcher counted the codes to document the frequency of participant

discussion of each code and identify the prevalent themes found in the response to the open-ended question. This process was repeated for all three open-ended questions.

The narrating component of content analysis effectively answers the qualitative research question (Krippendorff, 2013). To answer the research question, the researcher compared the themes generated from the three open-ended questions and described what participants reported were the main influences on informal clinical leadership behavior in the acute care setting. The findings are documented in Chapter 4. Lincoln and Guba's (1985) guidelines were followed for achieving trustworthiness in the analysis.

Qualitative analysis in this study occurred separately from and prior to the quantitative analysis, which helped the researcher bracket the findings between the two strands before the planned convergence of the two strands. An essential component to promoting the trustworthiness of a study is maintaining an audit trail of the data collection and generation process (Lincoln & Guba, 1985). The researcher developed and documented a structured coding process based on established guidelines (Krippendorff, 2013; Miles et al., 2014; Saldaña, 2013). To assist with remaining true to the data and therefore true to the participants' responses, the researcher maintained an audit trail of coding decisions with examples from the narrative responses that prompted each coding decision. Wherever logical and reasonable, the researcher used an in vivo code to represent more faithfully the words of the participants. The committee chair independently repeated the coding process. Both sets of codes were

compared and consensus was reached. These steps promoted the credibility, confirmability, and dependability of the findings as defined by Lincoln and Guba (1985).

Transferability is the potential for qualitative research findings to be applied in other contexts and is roughly analogous to the generalizability of quantitative research findings (Lincoln & Guba, 1985). Recruiting participants from a variety of hospitals and geographic locations is a proactive data collection and generation strategy a researcher can use to promote transferability (Miles et al., 2014) and was employed with this study. However, the decision of transferability ultimately resides with the consumers of the findings when assessing applicability to their specific contexts (Lincoln & Guba, 1985). To assist readers of these findings, the researcher provided a *thick* description of the qualitative findings with representative quotes from the responses and a detailed description of the demographics of the study participants in Chapter 4.

Converged Data Analysis Plan

The purpose of the parallel convergent mixed methods design is to produce the most complete picture of predictors of clinical leadership behavior. The mixed methods research question was *To what extent do the qualitative data generated from bedside nurses' descriptions of influences on informal clinical leadership relate to or expand upon the quantitative results about relationships among personal attributes, situational context, and clinical leadership behavior?* After data analysis was completed on both strands, the results from the multiple linear regression analysis were compared with the

themes generated from the content analysis. The comparison of findings is reported in Chapter 4.

Summary

The overall study design was convergent parallel mixed methods with an exploratory correlational quantitative strand and a descriptive qualitative strand. The setting for data collection was eight acute care hospitals, and the study participants were bedside registered nurses who spent at least 75% of their work time providing direct care for patients and were not formal leaders, managers, or advanced practice nurses. Participants completed an online survey composed of demographic and sample description questions, the Clinical Leadership Behaviors Questionnaire (CLB-Q), the Psychological Capital Questionnaire 12-Item (PCQ-12), and three open-ended questions. This chapter described the procedures for sampling, recruitment, protection of human subjects, data collection including the instruments used, and data analysis by research question. Chapter 4 will present and discuss the findings of this study.

CHAPTER 4

RESULTS

Data from this convergent parallel mixed methods study exploring the influences on the emergence of informal clinical leadership among bedside nurses in the acute care hospital setting are presented in this chapter. The characteristics of the study participants are described in detail. Additionally, descriptions of the data cleaning methods, missing data analysis procedures, data imputation procedures, creation of interim variables for analysis, other data transformations, and refinement of the analytic data set are provided. Finally, the quantitative, qualitative, and mixed methods results are provided for each research question.

Overview of Data Analysis

Quantitative data analysis, data imputation, and data transformation were performed using IBM SPSS version 24 (IBM, 2016). Data cleaning and assumption testing followed guidelines by Pallant (2013). The original study proposal included 17 predictors of clinical leadership behavior. Psychological capital was operationalized as a single mean score derived from the 12 items on the Psychological Capital Questionnaire (PCQ). All potential predictors identified through the literature review are listed in *Figure 1* in Chapter 1. Frequency analysis of the categorical predictors, bivariate correlational analysis of all predictors, and sample size supported refining the model to

10 unique predictors of clinical leadership behavior, which was operationalized as the summation of the 46 item scores on the Clinical Leadership Behaviors Questionnaire (CLB-Q). Multiple linear regression was performed on the resultant model.

Qualitative data analysis followed the content analysis process described by Krippendorff (2013). A conventional content analysis approach was selected for the qualitative data, which would allow for the codes and themes to emerge naturally from the responses to the three open-ended questions in the study (Hsieh & Shannon, 2005). The reducing and inferring components of the process described by Krippendorff (2013) followed the Saldaña (2013) guidelines for descriptive, process, affective (values), and in vivo coding using lexical analysis. A detailed description of the qualitative data analysis process was provided in Chapter 3.

After data analysis was completed on the qualitative and quantitative strands of this mixed methods study, the separate findings were compared to answer the mixed methods research question. The results of the comparison are summarized in the Converged Data Analysis section of this chapter.

Description of the Sample

Data were collected from August 15, 2016 through May 19, 2017. Initially, contacts from six hospitals provided authorization to collect data at their sites. Data collection start times were staggered through December 2016 due to differences in nursing research protocols among the hospitals and coordination with other scheduled data collection initiatives at the sites. As of January 11, 2017, the data set consisted of

86 usable cases. The target minimum sample size was 130. The researcher submitted a modification request to the Mercer IRB to recruit nurses from five additional hospitals and a request to continue Mercer IRB oversight of the study beyond April 5, 2017. The Mercer IRB granted both. In March 2017, contacts from two additional hospitals provided authorization to collect data at their sites.

The inclusion criteria were registered nurses who spent at least 75% of their work time providing direct care to patients and the exclusion criteria were formal managers and supervisors, advanced practice nurses, nurses who had formal management training, or who worked in managerial positions in previous jobs. *Figure 3* illustrates the generation of the data set from the recruitment of the eight participating hospitals to the final 134 cases that were included in the analytic data set. Of a pool of potentially 7,860 nurses invited to participate in the study, 421 (5%) respondents consented to participate and 134 matched the inclusion criteria.

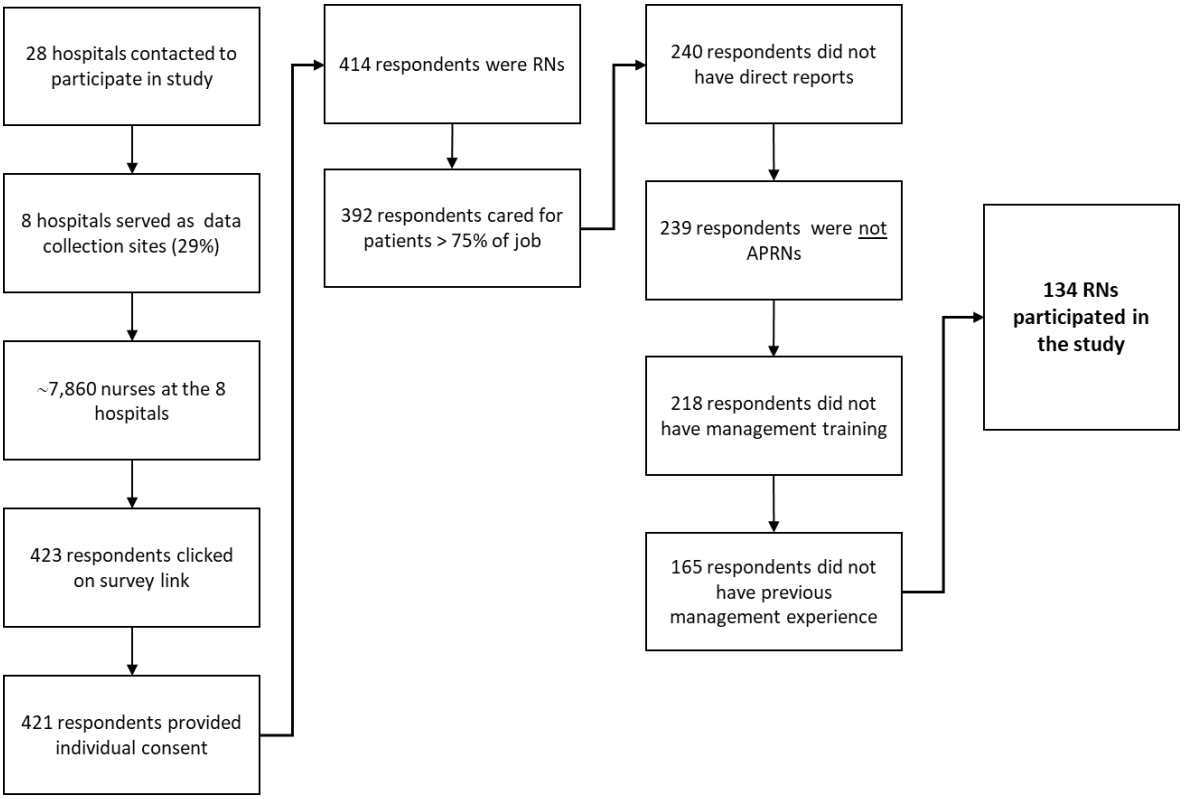


Figure 3. Generation of the analytic data set

Administrators from eight acute care hospitals allowed the researcher to recruit nurses from those hospitals in the study. Of the eight, two were in one healthcare system and three were in another healthcare system. The other three hospitals were independent hospitals. The hospitals were from three different geographic areas in the United States: the northeast, the west coast, and the southeast. Hospital sizes ranged from 25 to 659 in-patient beds.

The predictors in the analytic model included nurse personal attributes (demographic characteristics, professional experience, and psychological capital) and situational context descriptors from the conceptual framework for this study, which is

diagrammed in *Figure 1* in Chapter 1. Tables 3, 4, and 5 list the sample characteristics grouped by the categories from the conceptual framework.

Table 2

Demographic Characteristics in Sample (N=134)

Variables	*n*	Mean (SD) or Frequency (%)	Observed Range
Age in years	130	35.62 (11.9)	22 to 75
Sex	132		
Female		124 (93.9)	
Male		8 (6.0)	
Race/Ethnicity	131		
American Indian or Alaska Native		0	
Asian		7 (5.3)	
Black or African American		6 (4.6)	
Hispanic or Latino/Latina		3 (2.3)	
Native Hawaiian/Pacific Islander		2 (1.5)	
White (not Hispanic or Latino/Latina)		106 (80.9)	
Multiracial		7 (5.3)	
Highest Level of RN Education	132		
Diploma		6 (4.5)	
ADN/ASN		10 (7.6)	
BSN		112 (84.8)	
MSN†		3 (2.3)	
DNP		0	
PhD		1 (0.8)	

Note. SD = Standard Deviation; †MSN is collapsed in this table to include all Masters-level nursing degree options on the questionnaire

Table 3

Professional Experience Characteristics in Sample (N=134)

Variables	*n*	Mean (*SD*) or Frequency (%)	Observed Range
Years as RN	130	11.01 (11.1)	1 to 53
Participated in Nurse Residency Program	133		
Yes		70 (52.6)	
No		63 (47.4)	
Intent to Work in Management	134		
Yes		7 (5.2)	
No		127 (94.8)	
Nursing Specialty Certification	134		
Yes		66 (49.3)	
No		68 (50.7)	
Serve as Temporary Charge RN	133		
Always		2 (1.5)	
Frequently		23 (17.3)	
Sometimes		16 (12.0)	
Infrequently		17 (12.8)	
Never		75 (56.4)	
Serve as Preceptor	134		
Always		6 (4.5)	
Frequently		30 (22.4)	
Sometimes		47 (35.1)	
Infrequently		21 (15.7)	
Never		30 (22.4)	
Volunteer for QI Projects	133		
Always		13 (9.8)	
Frequently		26 (19.5)	
Sometimes		36 (27.1)	
Infrequently		31 (23.3)	
Never		27 (20.3)	
Participate in Shared Governance	132		
Always		21 (15.9)	
Frequently		31 (23.5)	
Sometimes		25 (18.9)	
Infrequently		16 (12.1)	
Never		39 (29.5)	

Note. SD = Standard Deviation

Table 4

Situational Context Sample Workplace Characteristics (N=134)

Variables	*n*	Mean (*SD*) or Frequency (%)
Hospital Type	131	
Academic medical center		123 (93.9)
Community hospital		0
Rural hospital		8 (6.1)
Magnet Status	134	
Magnet designation		125 (93.3)
On Magnet journey		7 (5.2)
No Magnet plan		2 (1.5)
Specialty Area	134	
Critical Care		48 (35.8)
Emergency		8 (6.0)
L&D		2 (1.5)
Medical		31 (23.1)
Mixed med-surg		16 (11.9)
Mother-baby		1 (0.7)
NICU		7 (5.2)
Perioperative		6 (4.5)
Surgical		15 (11.2)
Patient Age Group	134	
Adult/geriatric		75 (56.0)
Pediatric/adolescent		37 (27.6)
Neonatal		9 (6.7)
Mixed age group		13 (9.7)
Usual Shift Worked	134	
Day shift		66 (49.3)
Night shift		48 (35.8)
Evening shift		4 (3.0)
Rotating shifts		14 (10.4)
Weekend only days		1 (0.7)
Weekend only nights		1 (0.7)
Average Number of Patients Assigned to an RN†	134	
Critical Care		2.0
Emergency		3.8
L&D		2.0
Medical		4.1
Mixed med-surg		4.7
Mother-baby (1 case)		8.0
NICU		2.1
Perioperative		2.7
Surgical		6.0

Note. SD = Standard Deviation; † some participants reported ranges of patients assigned to one RN

The outcome variable under investigation in this study was informal clinical leadership behavior. One example of when informal clinical leadership can emerge is when nurses respond to peers who seek direction or guidance from them at the point of care. The researcher developed two questions to explore respondents' experience with how often nurses turn to peers for clinical guidance or direction. Table 5 presents nurses' responses to these questions. Of relevance to this study is zero respondents reported that they *never* looked to peers for clinical guidance or direction. In other words, all 130 respondents looked to peers for clinical guidance or direction about patient care issues, and 100 respondents (76.9%) do so at least frequently.

Table 5

Situational Context Peer Interactions in Sample (N=134)

Variables	*n*	Frequency (%)
Peers Look to Me for Guidance	130	
Always		12 (9.2)
Frequently		49 (37.7)
Sometimes		50 (38.5)
Infrequently		14 (10.8)
Never		5 (3.8)
I Look to Peers for Guidance	130	
Always		31 (23.8)
Frequently		69 (53.1)
Sometimes		26 (20.0)
Infrequently		4 (3.1)
Never		0

To assess representativeness of the sample, the demographics and professional experience of the nurses who participated in this study were compared with those of the nurses who participated in the 2015 National Nursing Workforce Survey (Budden et al., 2016). Table 6 lists the age, sex, race/ethnicity, and educational preparation of the bedside nurses who participated in this study and the same characteristics of nurses reported as *staff nurses* in the national survey.

As shown in Table 6, the sex and ethnicity participants reported in this study were similar to those reported in the national survey. There were differences in the age of the nurses in the current study and those in the national survey. A single sample *t*-test was conducted to determine if a statistically significant difference existed between the nurses who participated in the current study and those who participated in the workforce survey. The age of nurses participating in the current study ($\bar{X}$ = 35.62 years, SD = 11.87) was significantly lower than the age of nurses participating in the national survey ($\bar{X}$ = 48.8 years), $t(129) = -12.66$, $p < .001$, two-tailed. The percentage of nurses with a BSN in the current study was 84.8% as compared to the 46% of nurses with a BSN in the national survey.

Table 6

Comparing Sample Demographics to 2015 National Workforce Survey

Variable	Participants in Current Study Mean (*SD*) or Frequency (%)	2015 National Nursing Workforce Survey Staff Nurses Only (Budden et al., 2016) Mean (SD) or Frequency (%)
Nurses' Mean Age[‡] in Years	*n* = 130 35.6 (11.9)	*n* = 41,258.6 48.8
Sex	*n* = 132	*n* = 20,633
Female	124 (93.9)	18,713.4 (90.7)
Male	8 (6.0)	1,919.4 (9.3)
Race/Ethnicity	*n* = 131	*n* = 21,800
American Indian or Alaska Native	0	85.8 (0.4)
Asian	7 (5.3)	2,014.2 (9.2)
Black or African American	6 (4.6)	1,221.4 (5.6)
Hispanic or Latino/Latina	3 (2.3)	957.0 (4.4)
Native Hawaiian/Pacific Islander	2 (1.5)	105.1 (0.5)
White (not Hispanic or Latino/a)	106 (80.9)	16,762.0 (76.9)
Multiracial[‡‡]	7 (5.3)	653.8 (3.0)
Highest Level of RN Education	*n* = 132	*n* = 21,002
Diploma	6 (4.5)	1,398.0 (6.7)
ADN/ASN	10 (7.6)	6,714.7 (32.0)
BSN	112 (84.8)	9,649.6 (46.0)
MSN	3 (2.3)	902.7 (4.3)
DNP	0	.6 (0)
PHD	1 (0.8)	3.9 (0)

Note. SD = Standard Deviation

[‡] 2015 National Nursing Workforce Survey did not report the age of respondents by nursing titles (i.e., staff nurse vs. nurse executive vs. nurse faculty).

[‡‡] Race and ethnicity categories for the values Mixed (194.2 [0.9%] and Other (459.6 [2.1%]), which were not on the data collection instrument for this study.

Although contacts at both Magnet® and non-Magnet® hospitals were approached to permit the researcher to recruit nurses from those hospitals, the majority of administrators who permitted nurse participant recruitment were from Magnet®

hospitals. As shown in Table 4, 93.3% of the respondents reported working at a Magnet® hospital and another 5.2% reported working at a hospital on the Magnet® journey.

To assist with data analysis and interpretation in this study, Table 7 reports nurses' age by group. The median age of nurses in the original data set for this study was 31 years, the mode was 26 years, and the geometric mean, which is less sensitive to extreme values, was 33.9 years. The minimum and maximum ages were 22 and 75 years. As reported in Table 7, 42.3% of the sample in the current study was between 22 and 29 years of age.

Table 7

Comparing Sample by Age Group to 2015 National Workforce Survey

Respondents' Age	Current Study Frequency (%) *n* = 130		2015 National Nursing Workforce Survey for Staff Nurses† Frequency (%) *n* = 19,755	
29 and under	55	(42.3)	3,073.0	(15.6)
30 to 34	21	(16.1)	2,572.0	(13.0)
35 to 39	13	(10.0)	2,210.0	(11.2)
40 to 44	10	(7.7)	2,202.5	(11.2)
45 to 49	12	(9.2)	2,284.9	(11.6)
50 to 54	6	(4.6)	2,212.4	(11.2)
55 to 59	7	(5.4)	2,432.5	(12.3)
60 to 64	5	(3.8)	1,805.8	(9.1)
65 and over	1	(0.8)	962.4	(4.9)

Note. SD = Standard Deviation; †Budden et al., 2016

Psychometric Properties of the Study Instruments

Data collection for both strands of the mixed methods study occurred concurrently through a secure, web-based survey. The data collection instrument included nurse demographic, personal attribute, and situational context questions developed by the researcher, two externally developed instruments for the quantitative strand of the study, and three open-ended questions developed by the researcher for the qualitative strand. The externally developed instruments are the Clinical Leadership Behaviors Questionnaire (CLB-Q) and the Psychological Capital Questionnaire (PCQ). General content validity was established for both externally developed instruments in previous studies (Fealy et al., 2012; Luthans et al., 2014) and described in Chapter 3. The internal consistency reliability of the CLB-Q and PCQ is discussed in this section.

Clinical Leadership Behaviors Questionnaire (CLB-Q)

The Clinical Leadership Behaviors Questionnaire (CLB-Q) was developed for program evaluation of a National Clinical Leadership Development Project Pilot specific to bedside nurses and midwives in Ireland (Fealey et al., 2012). Table 8 compares the subscale and total instrument scores of non-managerial participants in the pilot program (n = 21) with the scores from the original data set in the current study (n = 89). In a one-sample t-test using a two-tailed .05 level of significance, the CLB-Q total score mean from the nurses in the current study ($\bar{X}$ = 188.18, SD = 18.50) was significantly higher than the CLB-Q total score mean of nurses in the Fealey et al. (2012) pilot study ($\bar{X}$ = 183.33 years), $t(88)$ = , p = .013. However, given the range for CLB-Q total scores is 46 to

230 and the scores from the pilot and current studies were both approaching the upper range of the CLB-Q total scores, the 4.85 difference between the two CLB-Q total score means is not large enough to support practical significance.

Table 8

Comparison of CLB-Q Scores from Pilot Study with Current Study

	Non-managerial Respondents in Pilot Study†			Original Data Set in Current Study		
	n	$\bar{X}$	*SD*	*n*	$\bar{X}$	*SD*
Self-Awareness Subscale Mean	21	4.06	.61	128	4.30	.46
Advocacy & Empowerment Subscale Mean	21	4.18	.38	129	4.25	.44
Decision Making Subscale Mean	21	4.13	.42	116	4.22	.48
Communication Subscale Mean	21	3.98	.48	132	4.00	.51
Quality and Safety Subscale Mean	21	3.85	.58	121	4.08	.54
Teamworking Subscale Mean	21	4.03	.56	123	4.18	.53
Clinical Excellence Subscale Mean	21	3.78	.53	119	3.64	.66
Total CLB-Q Summated Score	21	183.33	14.78	89	188.18	18.50

Note. SD = Standard Deviation; CLB-Q = Clinical Leadership Behaviors Questionnaire; † (Fealy et al., 2012) The subscale mean range was 1 to 5. The total CLB-Q score range was 46 to 230 where higher scores represent more frequent demonstration of clinical leadership behaviors.

A comparison of the Cronbach's alpha scores of the subscales from the 2012 pilot of the CLB-Q and the scores from the current study is shown in Table 9. Using the criterion of alpha .70 or greater, the internal consistency reliability scores from this study

range from acceptable to good (DeVellis, 2012). Cronbach's alpha for the entire CLB-Q instrument was not reported from the pilot study but was .94 from the current study suggesting strong internal consistency reliability for the CLB-Q instrument (Pallant, 2013).

Table 9

Internal Consistency Reliability of the CLB-Q from Pilot Study and Current Study

CLB-Q Subscales	Pilot Study† Cronbach's α *n* = 30	Original Data Set in Current Study Cronbach's α *n* = 89
Self-Awareness Subscale	.83	.78
Advocacy and Empowerment Subscale	.68	.83
Decision-Making Subscale	.76	.81
Communication Subscale	.75	.80
Team Working Subscale	.84	.83
Quality and Safety Subscale	.82	.81
Clinical Excellence Subscale	.81	.85
Total CLB-Q Instrument	Not reported	.94

Note. CLB-Q = Clinical Leadership Behaviors Questionnaire; †Fealey et al., 2012

Psychological Capital Questionnaire 12 Item (PCQ-12)

Psychological capital is a composite construct of four psychological states (efficacy, hope, resilience, and optimism) among workers associated with behaviors and outcomes in the work environment (Luthans et al., 2014; Simmons & Buitendach, 2013). The original PCQ 24-item instrument and the PCQ 12-item instrument used in this study have been used extensively internationally to measure the influence of psychological capital on a variety of work-related constructs including job performance, job

satisfaction, and employee attitudes (Luthans, Avolio, Avery, & Norman, 2007). Table 10 reports on the internal consistency reliability in other published studies and in this study.

Table 10

Internal Consistency Reliability of the PCQ-12 in Prior Studies and Current Study

	Prior Studies	Original Data Set in Current Study
	n not reported by study	*n* = 121
Efficacy Subscale	.75 to .85†	.81
Hope Subscale	.72 to .80†	.76
Resilience Subscale	.66 to .72†	.72
Optimism Subscale	.69 to .79†	.85
	n = 199 to 828	*n* = 121
Entire PCQ Instrument	.68 to .92‡	.84

Note. PCQ = Psychological Capital Questionnaire; † Luthans et al., 2014; ‡ Dawkins et al., 2013

Refining the Analytic Data Model

Informal clinical leadership was the outcome variable for this study and was operationalized as the summated total CLB-Q score. The review of literature supported 17 potential predictors of informal clinical leadership behavior among bedside nurses. *Figure 1* in Chapter 1 illustrates the conceptual framework depicting the full set of potential predictors. The data analysis plan was to run multiple linear regression analysis on the analytic data model to determine how much variance in the level of clinical leadership was attributable to the predictors both as a set and individually. Multiple linear regression requires a continuous outcome variable, total CLB-Q score, and either continuous or dichotomous independent variables (Pallant, 2013). This

section describes how the set of 17 potential predictor variables from the original conceptual framework was refined to 10 predictor variables meeting the assumptions for standard multiple linear regression.

Missing Data Analysis

The analytic data set contained 134 cases. If the data set did not have missing values, there would be 134 cases times 15 variables (14 predictors plus 1 outcome), or 2,010 discrete data values in the analytic model. However, there were 81 data values missing from the analytic data set, or 4% of the data from the analytic model were missing. Table 11 lists the number of missing values for each of the 15 variables. If total values for one of the items comprising the PCQ or CLB-Q scores were missing, then the scores could not be calculated, which produced the high numbers of missing values for the overall PCQ mean and total CLB-Q scores.

There were 108 CLB-Q item-level values missing out of the total set of 6,164 CLB-Q item-level values (134 cases x 46 items), or 1.75% of the CLB-Q item values were missing. There were 30 PCQ item values missing out of a total set of 1,608 (134 cases x 12 items), or 1.87% of the PCQ items were missing. If case-wise deletion was applied to the corresponding cases, there would be a maximum of 89 cases remaining in the analytic data set. There would be fewer cases for those with CLB-Q or PCQ scores but other missing predictors. Case-wise deletion may be acceptable with large data sets, but even in large data sets if there are patterns to the *missingness*, case-wise deletion may produce biases in the resultant data set (Garson, 2015). In addition to possibly

introducing bias into the data set, case-wise deletion would impact the statistical power of the analysis.

Table 11

Missing Values from the Original Analytic Data Set

Variables in the Analytic Data Set	Number of Missing Values
Nurse Personal Attributes	
1. Age of RN	4
2. Highest Nursing Education Level	2
3. Years as RN	4
4. Nursing Specialty Certification	0
5. Participation in a Nurse Residency Program	1
6. Temporary Charge Nurse Frequency Score	1
7. Preceptor Frequency Score	0
8. Nurse-Sensitive QI Project Frequency Score	1
9. Shared Governance Frequency Score	2
10. Overall Psychological Capital Mean (PCQ Mean Score)	13
Situational Context	
11. Nursing Specialty Area	0
12. Usual Shift Worked	0
13. Peers Look to Me for Guidance Frequency Score	4
14. I Look to Peers for Guidance Frequency Score	4
Total Clinical Leadership Behavior Score (CLB-Q Score)	45
Total Missing Values	81

Before the strategy for treating missing data was identified, the data were tested using the SPSS version 24 Missing Value Analysis tool with the Expectation-Maximization (EM) option selected to perform Little's Missing Completely at Random (MCAR) analysis to characterize any pattern to the missingness. To comprehensively test for patterns of missingness, the 13 discrete predictors, the 12 items comprising the overall PCQ mean

score, and the 46 items comprising the total CLB-Q were selected for the MCAR analysis. The null hypothesis in Little's MCAR theory is there is no relationship predictive of missingness among the missing variables in the model (Little, 1988). The MCAR analysis yielded χ^2 (3084) = 2972.149, p = .924. Using a 0.05 significance level, Little's MCAR null hypothesis cannot be rejected, which supports the data in the model from this sample were missing completely at random.

Multiple Imputation

The missing completely at random characterization of the data supported multiple options for imputing the missing data values including multiple imputation (MI). A common misconception about imputation is imputation involves creating fictitious data (Graham, 2009). Although imputation does insert missing values into a data set, the application of the strategy is not to generate the discrete missing values, but "to preserve important characteristics about the data set and keep the parameter estimates unbiased" (Graham, 2009, p. 559).

Single iteration imputation fails to account for the variability and uncertainty in the missing data and can yield data with underestimated standard error (Sterne et al., 2009). Regression imputation or conditional mean imputation produces imputed values with diminished variability; resultant standard deviation statistics may be unnaturally small and the strength of correlations may be overestimated (Graham & Schafer, 1999). Rather than predicting a single value for a missing datum, MI generates sets of simulated values based on observed values then randomly selects one of the simulated values for

the missing value for each imputation cycle (Garson, 2015). Observed data are included as predictors in the imputation data set but are unchanged in the imputation process. The number of imputed data sets generated is specified by the analyst, and statistical analysis is performed on a pooled data set derived from all imputed data sets. This approach both leverages predictive characteristics among the observed data and simulates natural error variance (Graham, 2009; Schafer & Graham, 2002). MI better estimates the true variation and character in the data over single iteration regression or expectation maximization strategies and prevents biases introduced by standard mean imputation due to reduced variance of variables (Garson, 2015). MI has been used in both medical and social behavioral sciences to improve the validity of the research (Graham & Schafer, 1999; Sterne et al., 2009). MI is supported to perform well even in small samples sizes as small as n = 50 (Graham & Schafer, 1999).

To remain true to the character of the data in the data set, all variables from the analytic model, including outcome variables, should be included in the imputation data set (Graham, 2009; Sterne et al., 2009). Excluding outcome variables may introduce bias because excluding any variable assumes no correlation between the omitted variable and the remaining variables in the imputation data set (Graham, 2009). To preserve the character of the data in this study and minimize biases in the imputation data set, the composite variables for the overall psychological capital mean score and the clinical leadership behaviors total score were removed from the imputation data set and replaced with the 12 and 46 items contributing to those scores.

Preparing the multiple imputation data model. MI has been proven effective with non-normally distributed data; however, the general recommendation is to transform non-normally distributed data before imputation then transform back as needed for analysis (Graham & Schafer, 2009; Sterne et al., 2009). The age and years as an RN values were positively skewed. SPSS 24 log10 transformation of age and years as an RN produced a distribution approaching normal distribution as evidenced by the skewness z-scores having absolute values less than 3.29 (Kim, 2013). Both sets of variables with distribution statistics are listed in Table 12. The transformed log10 RN age and log10 years as RN variables were used in the imputation data set.

Table 12

Skewness and Kurtosis Statistics for Nurse Age and Years as RN Variables

	Skewness Statistic	Skewness SE	Skewness / SE	Kurtosis Statistic	Kurtosis SE	Kurtosis/ SE
Age of RN	1.041	.216	4.82	.330	.428	.77
Years as RN	1.501	.216	6.95	1.817	.428	4.25
Log Age of RN	.578	.216	2.68	-.744	.428	-1.74
Log Years as RN	-.108	.216	-.50	-.879	.428	-2.05

Note. SE = Standard Error; YearsRN = Number of years working as registered nurse

Per instructions for the CLB-Q and PCQ instruments, the values for the item-level and instrument-level variables were treated as scale data in the analysis. The CLB-Q items were to be summed for a total CLB-Q score for each case (Fealy et al., 2012), and the PCQ items were to be averaged for each case. There were 108 out of 6,164 CLB-Q item-level variables (1.75%) missing from the original analytic data set, and 30 out of 1,608 item-level PCQ variables (1.87%) missing. To be most representative of respondents' observed item-level data, imputation was planned for the missing item-level values rather than the missing instrument-level values. All of the CLB-Q and PCQ item-level variables were included in the imputation data model both as predictors of any missing data and as imputed data elements for the 138 missing item-level values. The instrument-level scores were computed after imputation.

In general, the CLB-Q and PCQ item-level values were negatively skewed. Respondents tended to select the higher frequency responses more often than the lower frequency responses. Reflection and SPSS log10 transformation were used to

transform the original variables into a more normal distribution pattern (Pallant, 2013). After transformation of the CLB-Q and PCQ item-level variables, the absolute value of the z-scores computed by dividing the skewness statistic by the standard error for skewness was less than 3 for all CLB-Q and PCQ item-level variables. For a sample with between 50 and 300 cases, the absolute values of z-scores for skewness or kurtosis less than 3.29 are acceptable as approaching the normal distribution (Kim, 2013).

As multiple linear regression was planned for the analytic data set, the categorical predictors with more than two levels had to be collapsed into dichotomous variables prior to final analysis (Pallant, 2013). Dichotomous variables may be used directly in MI without further transformation while categorical variables with more than two levels would have to be dummy coded prior to MI (Graham, 2009). For inclusion in the data model, the dichotomous variables were required to have no more than 90% of the responses in one category. There were eight categorical predictors in the conceptual framework for the current study; however, three did not meet this response distribution criterion. As seen in Tables 3 and 4, 94.8% of the respondents expressed no intention to apply for a management position in the next two years, 93.9% worked at an academic medical center, and 93.3% worked at a Magnet®-designated hospital. These three categorical predictors were excluded from the imputation data set.

Of the five remaining categorical predictors, two were missing values. Participation in a nurse residency program, originally a dichotomous variable, was missing one value. Highest nursing education, which had 13 possible levels, was missing

two values and would need to be transformed into a dichotomous predictor for multiple linear regression. To manage the categorical predictors consistently in the MI data set, all responses to multilevel categorical predictors were collapsed into dichotomous variables prior to MI. In all instances, the dichotomization resulted in an acceptably balanced distribution of scores within the dichotomy and a conceptually logical grouping. Table 13 lists the dichotomous predictors in the imputation data set and their frequencies. All dichotomized variable values were scored with 0 = no and 1 = yes.

The researcher developed four variables to characterize bedside nurses' professional experience in terms of engaging in unit-level leadership activities such as precepting, serving as temporary charge nurse, engaging in local quality improvement projects, and participating in shared governance activities. There were two additional situational context variables describing the frequency with which nurses engaged in peer interactions either providing or seeking guidance about clinical or patient care issues. Responses were coded from never (0) to always (4). These were included in the imputation data set.

Table 13

Proposed Dichotomous Predictors of Informal Clinical Leadership Behavior

BSN or Higher – derived from multi-level Highest Nursing Education variable			
n = 132	Yes	116 (88%)	BSN or higher
	No	16 (12%)	ASN, ADN, or Diploma Education
Critical Care – derived from multi-level Nursing Specialty Area variable			
n = 134	Yes	63 (47%)	Works in ICU or ED
	No	71 (53%)	Works in non-ICU and non-ED specialty areas
Works Day Shift - derived from multi-level Usual Shift Worked variable			
n = 134	Yes	66 (49%)	Usually works day shift
	No	68 (51%)	Usually works shift other than day shift
Participation in a Nurse Residency Program – originally dichotomous			
n = 133	Yes	70 (53%)	Participated in a Nurse Residency Program
	No	63 (47%)	Did not participate in a Nurse Residency Program
Nursing Specialty Certification – originally dichotomous			
n = 134	Yes	66 (49%)	Achieved a nursing specialty certification
	No	68 (51%)	Has not achieved a nursing specialty certification

Running multiple imputation in SPSS. The finalized imputation data set had 71 variables for each of the 134 cases or 9,514 discrete values. Prior to running MI in SPSS, the SPSS Multiple Imputation Data Analysis Tool with minimum percentage missing parameter set to 0.01% was used to comprehensively analyze patterns of missing data in this data set and confirm the appropriateness of this data set for MI. The MI data analysis confirmed 161 out of 9,514 discrete values are missing (1.69% of the total data set). Without imputation, there would be 75 out of 134 cases (55.97%) comprising the entire analytic data set. The MI data analysis missing value pattern diagrams corroborated Little's MCAR analysis from the SPSS Missing Value Analysis that there was

no pattern of missingness or monotonicity in the data set to be used for imputation. Therefore, it was acceptable to impute the missing data values.

The Mersenne Twister option was selected to prime the SPSS random number generator, and the starting point was set to fixed value with the default value. The SPSS MI utility was configured to use the automatic method, which programmatically scanned the data for one final confirmation of the missingness pattern. As the missingness pattern was not monotonic, the Markov Chain Monte Carlo method for simulation was used by SPSS. The default number of five imputations was selected, which is acceptable for imputing a small number of missing values, 1.69% in this data set (Garson, 2015; Graham, 2009). Constraints were set for the imputed reflected log CLB-Q items (Reflected SPSS log10 transformation of minimum = 1, maximum = 5), reflected log10 PCQ items (Reflected SPSS log10 transformation of minimum = 1, maximum = 6), log RN age (SPSS log10 transformations of 22 and 75 years), log10 years as RN (SPSS log10 transformations of 1 and 53 years), and the six variables characterizing the frequency in which respondents reported engaging in different unit-level nursing leadership behaviors (minimum = 0, maximum = 4).

Analytic Data Set Creation

Multiple imputation produced five imputed data sets with 134 complete cases in each. The log10 RN age and log10 years as RN values were transformed back to base-10 values and saved as new variables. The transformed PCQ and CLB-Q item-level variables were reverted back to the non-reflected base-10 values and saved as new variables.

The overall PCQ mean score was calculated by summing the 12 base-10 item-level scores and dividing by 12 (Luthans et al., 2014). The total CLB-Q scores were computed by summing the 46 base-10 item-level scores (Fealy et al., 2012). Table 14 shows the descriptive statistics for the interval and ratio level variables in the original data set and in the five imputed data sets. The minimum age in the original data set was 22 years and the maximum was 75 years. The minimum number of years as an RN in the original data set was 1 and maximum was 53. The valid range for overall PCQ mean score is 1 to 6. The valid range for total CLB-Q score is 1 to 5. The means and the ranges in the imputed data sets were consistent with these ranges.

Table 14

Descriptive Statistics for Original, Imputed, and Pooled Interval-Ratio Variables

	$\bar{X}$	*SD*	Min	Max
Age of RN in Years				
Original Data Set (*n* = 130)	35.62	11.87	22.00	75.00
Imputed Set 1 (*n* = 134)	35.75	11.86	22.00	75.00
Imputed Set 2 (*n* = 134)	35.69	11.81	22.00	75.00
Imputed Set 3 (*n* = 134)	35.64	11.87	22.00	75.00
Imputed Set 4 (*n* = 134)	35.74	11.76	22.00	75.00
Imputed Set 5 (*n* = 134)	35.92	12.06	22.00	75.00
Years as RN				
Original Data Set (*n* = 130)	11.01	11.05	1.00	53.00
Imputed Set 1 (*n* = 134)	11.26	11.11	1.00	53.00
Imputed Set 2 (*n* = 134)	11.28	11.15	1.00	53.00
Imputed Set 3 (*n* = 134)	11.32	11.25	1.00	53.00
Imputed Set 4 (*n* = 134)	11.25	11.27	1.00	53.00
Imputed Set 5 (*n* = 134)	11.14	11.00	1.00	53.00
Overall PCQ Mean Score				
Original Data Set (*n* = 121)	4.72	.59	3.00	6.00
Imputed Set 1 (*n* = 134)	4.72	.59	3.00	6.00
Imputed Set 2 (*n* = 134)	4.72	.59	3.00	6.00
Imputed Set 3 (*n* = 134)	4.72	.59	3.00	6.00
Imputed Set 4 (*n* = 134)	4.73	.59	3.00	6.00
Imputed Set 5 (*n* = 134)	4.72	.60	3.00	6.00
Total CLB-Q Score				
Original Data Set (*n* = 89)	188.18	18.50	135.00	226.00
Imputed Set 1 (*n* = 134)	187.51	18.39	135.00	226.05
Imputed Set 2 (*n* = 134)	187.37	18.51	135.00	226.52
Imputed Set 3 (*n* = 134)	187.42	18.48	135.00	226.63
Imputed Set 4 (*n* = 134)	187.39	18.45	135.00	226.00
Imputed Set 5 (*n* = 134)	187.23	18.79	135.00	226.35
Pooled Imputed Means				
Age of RN in Years	35.75			
Years as RN	11.25			
Overall PCQ Mean Score	4.72			
Total CLB-Q Score	187.38			

The sample size was 134 cases. Using the formula N > 50 + 80*m*, where *m* is the number of predictor variables (Warner, 2008), a maximum of 10 predictor variables could be analyzed using standard multiple regression for this sample. The relationships among the 14 predictor variables were investigated using Spearman rho because not all predictor variables were normally distributed. Table 15 lists the correlations among the predictors in the original data set. Table 16 lists the correlations among the predictors in the pooled imputed data set for comparison.

Spearman rank correlation was used to examine the correlations among the predictor variables. There was a very strong, positive correlation with a two-tailed alpha of .01 between RN age and years as RN, $r_s = .87$ ($n = 89$) in the original data set and $r_s = .86$ in the pooled data set ($n = 134$), $p < .01$. A strong correlation ($r > .7$) suggested the potential for multicollinearity if RN age and years as RN were both included in the multiple regression analysis (Pallant, 2013). Three studies in the review of literature supported years of experience is a more proximal influence on informal leadership behavior than age studied in isolation (Barbuto et al., 2007; Caldwell et al., 2009; Fardellone et al., 2014). For these reasons, RN age was removed from the analytic data set and years as RN was retained as one of the predictors of clinical leadership behavior.

Table 15

Bivariate Correlations of the Predictor Variables – Original Data Set (N=134)

Original Data Set	1	2	3	4	5	6	7	8	9	10	11	12	13
1. RN age	1.00												
2. Years as RN	.87**	1.00											
3. BSN or Higher	-.32**	-.23*	1.00										
4. Residency Program	-.44**	-.51**	.15	1.00									
5. Works in Critical Care	-.11	.01	-.07	.13	1.00								
6. Achieved Specialty Certification	.33**	.45**	-.05	-.25**	-.09	1.00							
7. Works Day Shift	.14	.13	.04	.01	-.18*	.07	1.00						
8. Temporary Charge Nurse Frequency Score	.33**	.41**	-.24**	-.24**	.01	.29**	.07	1.00					
9. Service as Preceptor Frequency Score	.21*	.37**	-.15	-.11	.03	.29**	.23**	.38**	1.00				
10. Participation in QI Projects Frequency Score	.08	.18*	.02	.10	.11	.24**	.12	.17	.40**	1.00			
11. Participation in Shared Governance Frequency Score	.02	.15	-.03	.02	.07	.21*	.15	.29**	.38**	.52**	1.00		
12. Peers Seek Guidance from Me Frequency Score	.16	.36**	-.01	-.12	.06	.26**	.12	.41**	.47**	.41**	.34**	1.00	
13. I Seek Guidance from Peers Frequency Score	-.42**	-.43**	.22*	.23*	.07	-.18*	-.02	-.26**	-.07	-.13	.05	-.08	1.00
14. Overall PCQ Mean	-.02	.06	-.06	.08	-.02	.06	.24**	.22*	.21*	.35**	.20*	.48**	.06

Note. ** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed)

Table 16

Bivariate Correlations of the Predictor Variables – Pooled Imputed Data Set (N=134)

Pooled Data Set	1	2	3	4	5	6	7	8	9	10	11	12	13
1. RN Age	1.00												
2. Years as RN	.86**	1.00											
3. BSN or Higher	-.33**	-.22*	1.00										
4. Residency Program	-.43**	-.49**	.14	1.00									
5. Works in Critical Care	-.10	-.01	-.09	.13	1.00								
6. Achieved Specialty Certification	.33**	.42**	-.04	-.25**	-.09	1.00							
7. Works Day Shift	.13	.12	.05	.01	-.18*	.07	1.00						
8. Temporary Charge Nurse Frequency Score	.34**	.41**	-.22*	-.25**	.00	.28**	.06	1.00					
9. Service as Preceptor Frequency Score	.22*	.35**	-.13	-.11	.03	.29**	.23**	.37**	1.00				
10. Participation in QI Projects Frequency Score	.08	.17*	.02	.10	.11	.24**	.12	.16	.40**	1.00			
11. Participation in Shared Governance Frequency Score	.04	.14	-.04	.03	.07	.22*	.16	.28**	.38**	.52**	1.00		
12. Peers Seek Guidance from Me Frequency Score	.18*	.36**	-.01	-.14	.05	.27**	.14	.41**	.46**	.40**	.34**	1.00	
13. I Seek Guidance from Peers Frequency Score	-.39**	-.42**	.15	.21*	.05	-.19*	-.01	-.25**	-.08	-.15	.03	-.10	1.00
14. Overall PCQ Mean	-.02	.04	.01	.11	-.01	.06	.20*	.16	.22*	.35**	.17	.46**	.12

Note. ** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed)

The researcher created survey items measuring how frequently nurses served in meso-level formal leadership roles such as temporary charge nurse, nurse preceptor, nurse-sensitive quality improvement project team member, or shared governance participant. Literature supported these activities were associated with the perception of clinical competence and clinical leadership (Cummings et al., 2008; Fardellone et al., 2014; Manojlovich, 2005; Patrick et al., 2011). These data were collected as discrete variables; however, conceptually could be summed and treated as a single unit leadership activity index. The Unit Leadership Activity Index was a composite variable created for the analytic data set with a range of values of 0 to 16.

Prior to performing the multiple linear regression analysis, the analytic data set was evaluated to determine if the assumptions of multiple regression were met using the Pallant (2013) guidelines. With the removal of the RN age variable and the creation of a single unit leadership activity index variable from four separate variables, the resultant analytic regression model had 10 predictors. The minimum sample size for 10 predictors is 130 cases (Warner, 2008), and the imputed data sets had 134 complete cases. The multiple linear regression analysis was conducted on the pooled data set to fulfill the assumptions of a minimal sample size of 130.

Total CLB-Q score was the outcome variable, which should be normally distributed for multiple linear regression analysis. Assuming a level of significance of 0.05, Komolgorov-Smirnov with Lilliefors significance correction and Shapiro-Wilk

statistics for the total CLB-Q score were not statistically significant in the original data set or in the five imputed data sets. This finding supported the total CLB-Q scores were approaching normal distribution and appropriate as outcome variables in multiple linear regression testing.

The SPSS-generated probability (P-P) plots of the regression of the standardized residuals from the predicted and observed total CLB-Q scores showed no major deviations from normality and linearity. Visual inspection of the residual scatterplots of the total CLB-Q score standardized predicted values and standardized residuals did not indicate any outliers outside of the -3 to 3 range, and data points formed a generally distributed rectangular pattern with a heavier concentration of points in the middle around zero. This distribution of data points in the scatterplots supports homoscedasticity of the residuals (Tabachnick & Fidell, 2013).

In the SPSS Residual Statistics report, there were absolute values of standard residuals in the original and imputed data sets greater than 3. This was attributable to one case where the total CLB-Q score was 135. This score was computed directly from a complete set of observed CLB-Q item level scores. The mean total CLB-Q score and standard deviation from the original data set were 188.18 (18.50), and the closest total CLB-Q score from the original data set was 148. To preserve the information provided by this one outlying case, a new variable for winsorized total CLB-Q score was created. This variable was initialized with the total CLB-Q scores for all cases, and the outlier total CLB-

Q score was winsorized by adding 6.5 (derived from 148 – 135 divided by 2) to the scores of 135 in the original and imputed data sets. As described in Tabachnick and Fidell (2013), transforming outlier score values so they are deviant but not as deviant as prior to winsorization is an acceptable approach to reducing the influence of the outliers. When the assumptions were reviewed after the outlier total CLB-Q score was winsorized, the absolute values of the standardized residuals were less than three.

The maximum Mahalanobis Distance across the original and imputed data sets was 20.075. Tabachnick and Fidell (2013) recommended evaluating the Mahalanobis Distance with a χ^2 critical value at $p < .001$, which, for df = 10, is 29.588. The Mahalanobis Distance statistic in the analytic data set did not exceed the $\chi 2$ critical value, which supported there were no additional outliers in the analytic data set. The maximum value for Cook's Distance across all the original and imputed data sets was .154, which is less than the maximum value of 1, which Tabachnick and Fidell (2013) asserted as an indicator of adverse effects of unusual cases on the model.

An independent samples *t*-test was conducted on the original observed data set to compare the total CLB-Q scores between nurses who reported peers frequently or always seeking guidance from them and nurses who reported peers seeking guidance from them sometimes, infrequently, or not at all. The total CLB-Q score met the assumptions for *t*-test except equal variances were not assumed. There was a significant difference in total CLB-Q scores between nurses who reported peers frequently seeking

guidance from them ($\bar{X}$ = 194.12, *SD* = 14.72) and nurses who did not report peers seeking frequent guidance from them ($\bar{X}$ = 182.47, *SD* = 19.64; *t*(81) = -3.142, *p* = .002, two-tailed). Using the Cohen (1988) criteria, the magnitude of the differences in the means (mean difference = -11.65, 95% CI:-19.01 to -4.27) was medium (Cohen's *d* = .67).

The total CLB-Q scores were used in the multiple linear regression model to explore predictors of clinical leadership behavior. The CLB-Q instrument also provided subscale mean scores. The total CLB-Q score is a summation of all CLB-Q item-level scores and was expected to range from 46 to 230. The CLB-Q subscales are mean averages of the item scores comprising each subscale and were expected to range from 1 to 5. Table 17 lists the CLB-Q subscale mean scores and total scores for the original data set and the pooled imputed data set. The original data set values were generated from complete, observed item-level data. If there were any item-level values missing, the subscale mean or total scores are missing. The pooled mean scores were calculated in SPSS from the five imputed data sets.

An independent samples *t*-test was conducted on the original observed data set to compare the overall PCQ mean scores between nurses who reported peers frequently or always seeking guidance from them and nurses who reported peers seeking guidance from them sometimes, infrequently, or not at all. The overall PCQ mean scores met the assumptions for *t*-tests. There was a significant difference in the overall PCQ mean scores between nurses who reported peers frequently seeking guidance from them ($\bar{X}$ =

4.95, *SD* = .55) and nurses who did not report peers seeking frequent guidance from them ($\bar{X}$ = 4.54, *SD* = .56; *t*(117) = -3.994, *p* < .001, two-tailed). Using the Cohen (1988) criteria, the magnitude of the differences in the means (mean difference = -.41, 95% CI: -.61 to -.21) was medium approaching large (Cohen's *d* = .74).

Table 17

CLB-Q Subscale Mean and Total Scores in Original and Pooled Imputed Data Sets

CLB-Q Subscale	Original Data Set					Pooled Imputed Data Set	
	n	Min	Max	$\bar{X}$	SD	*n*	$\bar{X}$
Self-Awareness Mean	128	3.0	5.00	4.30	.46	134	4.29
Advocacy and Empowerment Mean	129	3.17	5.00	4.25	.44	134	4.26
Decision Making Mean	116	2.57	5.00	4.22	.48	134	4.23
Teamworking Mean	123	2.50	5.00	4.18	.53	134	4.15
Quality and Safety Mean	121	2.71	5.00	4.08	.54	134	4.06
Communication Mean	132	2.67	5.00	4.00	.51	134	3.99
Clinical Excellence Mean	119	1.38	5.00	3.64	.66	134	3.64
Total CLB-Q Score	89	135.00	226.00	188.18	18.50	134	187.39

Note. SD = Standard Deviation; SPSS does not report SD for the means calculated from the pooled imputed data; CLB-Q = Clinical Leadership Behaviors Questionnaire

For the quantitative analysis, the analytic dataset with 134 cases after imputation, 10 predictors, and one winsorized total CLB-Q score met all assumptions for multiple linear regression specified by Pallant (2013). For qualitative data analysis, the

data were reviewed and analyzed exactly in the format provided by respondents. One respondent included the hospital name in a response, which was redacted, prior to analysis.

Data Analysis Addressing Research Questions

This section will present the findings from the quantitative, qualitative, and mixed methods analyses organized by research question.

Quantitative Data Analysis

The quantitative research question was *Do bedside nurse personal attributes and situational context account for a significant amount of variance in clinical leadership behavior in the acute care setting?* After data imputation, refinement of the analytic model to 10 predictors, and winsorization of one outlier total CLB-Q score, all assumptions were met for standard multiple linear regression as specified by Pallant (2013). The six bedside nurse personal attribute predictors were years as an RN, BSN or higher nursing educational level, certification in a nursing specialty, participation in a nurse residency program, frequency of participation in unit leadership activities (such as filling in as temporary charge nurse, precepting, volunteering for nurse-sensitive quality improvement projects, and participating in shared governance) and psychological capital. The four situational context predictors were works in critical care, usually works day shift, peer clinical guidance provision frequency, and peer clinical guidance seeking

frequency. Clinical leadership behavior, the outcome variable, was operationalized as the total CLB-Q score.

The bivariate Pearson product moment correlations between the 10 predictors and total CLB-Q score are reported in Table 18. Correlations are reported for the original data set and the pooled imputed data set. The frequency with which peers seek guidance from the respondent (r = .39, n = 77; r = .31, n = 134) and overall psychological capital mean scores (r = .62, n = 77; r = .64, n = 134) were positively correlated with total clinical leadership behavior score at $p < .001$. Nurses who reported greater frequencies of peers seeking clinical guidance from them and nurses who had greater psychological capital mean scores had greater total CLB-Q scores. The unit leadership activity index (r = .29, n = 77; r = .23, n = 134) was positively correlated with informal clinical leadership behavior at $p < .01$. The greater the frequency with which participants engaged in unit-based leadership activities (such as precepting, filling in as temporary charge nurse, volunteering for nurse-sensitive quality improvement projects, and participating in shared governance respondents), the greater their clinical leadership behavior scores. In the pooled imputed data set, the frequency with which respondents sought guidance from peers was positively correlated with clinical leadership behavior (r = .22, n = 134, $p < .01$). Nurses who more frequently sought clinical guidance from peers had greater clinical leadership behavior scores. In the original data set, working day shift had a positive correlation with clinical leadership scores (r = .23, n = 77, $p < .05$).

Table 18

Bivariate Correlations Between Nurse Personal Attributes and Situational Context and Informal Clinical Leadership Behavior

Predictor Variables	Original Data Set Pearson's *r* (*n* = 77)	Pooled Imputed Data Set Pearson's *r* (*n* = 134)
Nurse Personal Attributes		
Years as RN	0.04	0.00
BSN or Higher Nursing Education	0.13	0.11
Participated in Residency Program	0.05	0.11
Nursing Specialty Certification	0.14	0.06
Unit Leadership Activity Index	0.29**	0.23**
Overall PCQ Mean	0.62***	0.64***
Situational Context		
Works in Critical Care	-0.07	0.04
Usually Works Day Shift	0.23*	0.14
Peers Seek Guidance from Nurse Frequency	0.39***	0.31***
Nurse Seeks Guidance from Peers Frequency	0.15	0.22**

Note. * p < .05; **p < .01; *** p < .001

The summary data from the multiple linear regression analysis are presented in Table 19 grouped by imputation data set. A statistically significant amount of variance (42.4 to 44.3%) in the clinical leadership behavior scores was explained by the predictors. The *F* statistics for the original and imputed data sets range from 4.868 in the original data set to 9.790 in imputed data set 3, and the *p* values were less than .001 with all *F* statistics.

Table 19

Multiple Linear Regression Model Summary of Nurse Personal Attribute and Situational Context as Predictors of Informal Clinical Leadership Behavior

	R	R Square	Adjusted R Square	F	Sig.
Original data	.652	.424	.337	4.868	< .001
Imputed data set 1	.659	.434	.388	9.440	< .001
Imputed data set 2	.658	.433	.387	9.405	< .001
Imputed data set 3	.666	.443	.398	9.790	< .001
Imputed data set 4	.652	.425	.379	9.110	< .001
Imputed data set 5	.654	.441	.395	9.693	< .001

Standardized beta weights for the pooled imputed data set were not available in the SPSS multiple linear regression output. Table 20 lists the standardized beta weights and *p* values for all predictors in the original and imputed data sets. When the standardized beta weights were examined, overall PCQ mean score made the largest unique contribution to the model accounting for the variance in the total CLB-Q scores across all data sets and was the only statistically significant predictor in the model. No other predictors accounted for statistically significant variance in the total CLB-Q scores. At $p < .001$, these findings supported higher PCQ mean scores were predictive of higher CLB-Q scores.

Table 20

Standardized Beta Weights for Potential Predictors of Clinical Leadership Behavior

	Original Data Set Std. Beta Weight	Imputed Data Set 1 Std. Beta Weight	Imputed Data Set 2 Std. Beta Weight	Imputed Data Set 3 Std. Beta Weight	Imputed Data Set 4 Std. Beta Weight	Imputed Data Set 5 Std. Beta Weight
Nurse Personal Attributes						
BSN or Higher	.127	.106	.101	.103	.098	.084
Years as RN	.108	.048	.045	.053	.041	.042
Specialty Certification	.017	.028	.024	.020	.009	.019
Residency Program	.023	.049	.042	.058	.049	.059
Unit Leadership Activity Index	.052	.044	.030	.032	.018	.028
Overall PCQ Mean Score	.585***	.603***	.601***	.607***	.600***	.595***
Situational Context						
Works in Critical Care	-.035	.026	.015	.016	.010	.009
Usually Works Day Shift	-.002	.000	-.018	-.011	-.020	-.023
Peers Seek Guidance from Me Frequently	-.004	-.003	.018	.016	.031	.020
I Seek Guidance from Peers Frequently	.164	.083	.091	.083	.076	.118

Note. *** *p* value < 0.001

The overall PCQ mean score was calculated as an average of 12 scale items representing four psychological states: hope, efficacy, resilience, and optimism (Luthans et al., 2014). The next step in the analysis was to determine the amount of variance each PCQ subscale score contributed to the variance in the total CLB-Q scores. The PCQ subscale scores were not normally distributed as indicated by skewness and kurtosis z-scores. Spearman's rho correlation analysis was conducted among the four psychological capital subscale predictors. Table 21 presents the bivariate correlations among the four PCQ subscale scores. Using Pallant's (2013) guideline of $r > .7$, multicollinearity did not exist among the psychological capital subscales.

Table 21

Spearman's Rho Correlation Analysis of Psychological Capital Subscales

PCQ Subscales	1	2	3	4
1. Hope Mean Score	1.000			
2. Efficacy Mean Score	.484	1.000		
3. Resilience Mean Score	.601	.324	1.000	
4. Optimism Mean Score	.388	.254	.390	1.000

Outlier, normality, linearity, homoscedasticity, and independence assumptions were evaluated and were met, and multiple linear regression was conducted with the four PCQ subscale mean scores and the transformed winsorized total CLB-Q score as the

outcome. Pooled imputed data set information was not available in SPSS for the multiple linear regression analysis. Table 22 lists the SPSS-generated model summary data for the original data set and the five imputed data sets. A statistically significant amount of variance (40%) in the clinical leadership behavior scores was explained by the psychological capital subscales collectively. The *F* statistics for the original and imputed data range from 13.157 in the original data set to 23.615 in imputed data set 3, and the *p* values were less than .001 with *F* statistics.

Table 22

Multiple Linear Regression Model Summary of Psychological Capital Subscales as Predictors of Informal Clinical Leadership Behavior

	R	R Square	Adjusted R Square	F	Sig.
Original Data Set	.630	.397	.367	13.157	<.001
Imputed Data Set 1	.644	.414	.396	22.824	<.001
Imputed Data Set 2	.643	.413	.395	22.677	<.001
Imputed Data Set 3	.650	.423	.405	23.615	<.001
Imputed Data Set 4	.638	.407	.389	22.168	<.001
Imputed Data Set 5	.646	.418	.400	23.138	<.001

Standardized beta weights for the pooled imputed data set were not available in the SPSS multiple linear regression output. Table 23 lists the standardized beta weights and *p* values for all psychological capital subscale predictors in the original and imputed

data sets. The efficacy mean score made the largest unique contribution to the model (*beta* = .255 through *beta* = .332) and was statistically significant at $p < .01$. The resilience mean score made the second largest contribution to the model (*beta* = .200 to *beta* = .294) and was statistically significant at $p < .05$ in all data sets. The optimism mean score was significant at $p < .05$ in the 5 imputed data sets only with beta weights ranging from .171 to .185. The hope mean score did not make a consistently statistically significant unique contribution to the psychological capital predictor model.

Table 23

Standardized Beta Weights for Psychological Capital Subscales as Predictors of Clinical Leadership Behavior

Psychological Capital Subscale	Original Data Set	Imputed Data Set 1	Imputed Data Set 2	Imputed Data Set 3	Imputed Data Set 4	Imputed Data Set 5
	Std. Beta Weight	Std. Beta Weight	Std. Beta Weight	Std. Beta Weight	Std. Beta Weight	Std. Beta Weight
Efficacy Mean	.332**	.270**	.275***	.260**	.255**	.263**
Resilience Mean	.294**	.225*	.217*	.222**	.200*	.217*
Optimism Mean	.072	.173*	.185*	.181*	.171*	.179*
Hope Mean	.146	.195*	.186	.205*	.220*	.203*

Note. * p < .05; ** p < .01; *** p < .001

Qualitative Data Analysis

The research question for the qualitative strand was *How do bedside nurses describe influences on clinical leadership behavior in the acute care setting?* The

detailed content analysis and theme generation process is documented in Chapter 3. Table 24 shows the number of responses to each open-ended survey questions and the total number of words in the qualitative data set. Every narrative response was included in the qualitative data analysis.

Table 24

Qualitative Data Set Characteristics by Question (N=134)

	Number of Non-Empty Cases‡	Total Words‡	Average Words per Case
Question 1	94	2952	31.40
Question 2	87	2807	32.26
Question 3	41	1663	40.56

Note. ‡ Calculated in JMP Pro 3.0 Text Explorer (SAS, 2016)

To increase the trustworthiness of the qualitative analysis, the dissertation chair independently coded the qualitative data set following the procedures documented in Chapter 3. The researcher performed a side-by-side comparison of the codes. There were minor differences in terminology for several codes and subcodes that were not in vivo codes (words or phrases quoted directly from the narratives). The researcher added three codes, *formal role*, *workplace history,* and *influence on practice*, to provide a richer description of the findings. There were no coding differences that would have

generated different themes from the narratives. An audit file of all coding cycles was created and saved in Microsoft Excel®.

Open-ended question 1 asked respondents to describe why they believed peers sought guidance or direction from them about clinical or patient issues and how they responded to their peers. Open-ended question 2 asked respondents to describe why they sought guidance or direction from a particular peer and how that peer's response influenced them. *Figure 4* illustrates the codes that occurred most frequently among from Questions 1 and 2, which had a potential of 268 responses total (134 cases x 2 questions).

Open-ended question 3 asked respondents to share anything else not addressed in their responses to the first two open-ended questions that described how nurses' behavior and attitudes influence each other's practice either positively or negatively at the point of patient care. This survey question was intended to expand upon the situational context component of the conceptual framework for this study and describe workplace environment characteristics where survey questions 1 and 2 explored nurses' personal attributes. However, responses to open-ended questions 1 and 2 included direct and indirect references to situational context. *Figure 5* illustrates the frequency of the situational context codes from all three of the open-ended questions.

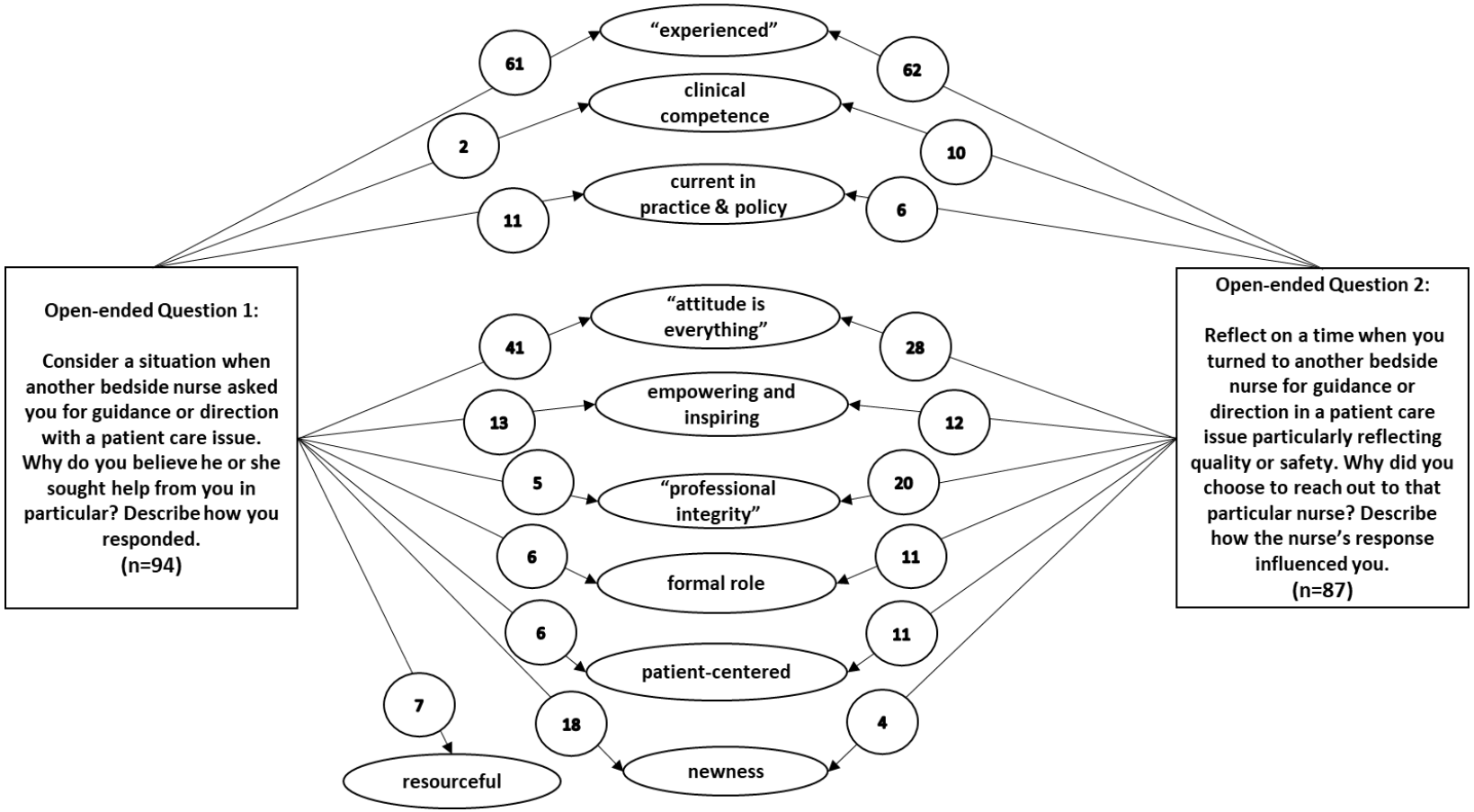


Figure 4. Frequencies of first and second cycle codes indicative of individual nurse attributes

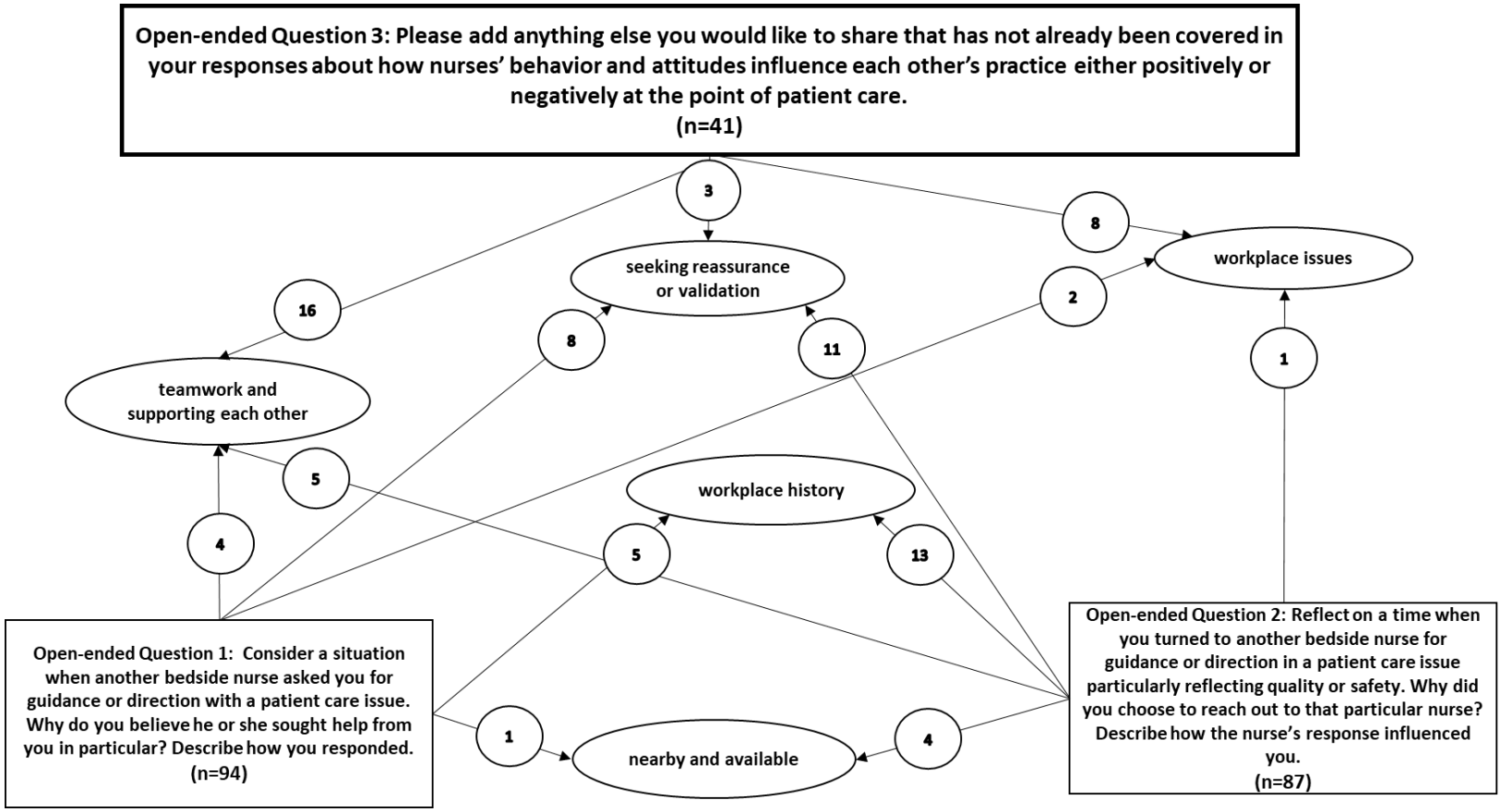


Figure 5. Frequencies of first and second cycle codes indicative of situational context

Nurses provided complex descriptions of the attributes and situations influencing how they sought guidance from and provided guidance to each other. For this reason, multiple codes were applied to many of the responses. Analysis of the nurses' narratives and frequencies of the descriptive, process, values, and in vivo codes identified the following 3 themes and 3 subthemes:

1. Bedside nurses seek guidance and direction from *experienced* peers
2. "Attitude is everything"
3. Bedside nurses are interconnected in practice
    a. Teamwork and supporting each other
    b. Workplace history and workplace issues influence practice behavior
    c. Influences of new nurses in the practice setting

Bedside nurses seek guidance and direction from experienced peers. This was the most prevalent theme in the narrative responses and reflected the idea that bedside nurses sought guidance and direction from peers who were perceived to have experience. Responses containing the explicit mention of the word experience, length of time working in a specialty area, or specialized or advanced knowledge about a skill, procedure, or patient care situation generated these themes. Experience was referenced 61 times by nurses describing why they thought peers sought clinical guidance and direction from them and 62 times by nurses describing how they chose a peer from whom to seek guidance or direction about a clinical or patient care issue.

This means bedside nurses expected experienced nurses to be informal clinical leaders by providing in-the-moment guidance on clinical issues.

The most common qualifier of experience, reported by 29 respondents to questions one or two, was possessing specific skills or knowledge about a patient care device or procedure. The following are examples where experience was directly associated with a specific skill or specialized knowledge. "I have established myself as a clinical expert for [mechanical circulatory support] devices [on] my unit and have oriented existing [registered nurses], [graduate nurses], and students" (24 years old, 3 years as an RN, BSN). "Nurses seek my help frequently for guidance. One nurse in particular sought my help with hanging [tissue plasminogen activator] … I think that she sought my help because she was unfamiliar with [tissue plasminogen activator] protocol, I have more experience" (26 years old, 4 years as an RN, BSN). The average age among the 16 nurses who reported that peers sought their guidance for specific skills or knowledge was 33.56 years and their average years as a registered nurse was 10.63.

The second most frequent qualifier of experience among 23 respondents to questions 1 and 2 was having worked "many years" as a nurse. One example of those responses "I have been at this institution for 30+ years doing bedside nursing. I know how to do tasks and the reason for the order, most of the time. When I don't, I make suggestions to find out the reason" (59 years old, 36 years as an RN, BSN). The average years as an RN among the 12 respondents to question 1 who classified themselves as

having many years of experience was 20.92 years as an RN, and the range was 5 to 43 years.

Another qualification of experience was having knowledge or previous experience with a specific patient, population, or patient situation. “Unlike most of my peers, I have [emergency room] experience, which my peers in the [gastrointestinal] lab find useful at times -- I can offer knowledge they don't have” (33 years old, 11 years as an RN, BSN). “Once when I floated to the rehab floor I asked the other nurses about the patient's bowel program as the patient was a paraplegic and I had not cared for that particular patient before” (57 years old, 32 years as an RN, BSN). A total of 14 respondents to question 1 and question 2 described experience in this manner.

The final qualification of experience as a reason to seek guidance from another nurse was variety of experience. Eight nurses who responded to question 1 stated the reason they believed peers sought guidance from them was because of the breadth or variety of experience they have. “I bring ideas/new concepts from my other experience” (35 years old, 12 years as an RN, BSN). “I have experience in all 3 [intensive care units], so the question may be [asked] because of my background experience” (41 years old, 16 years of RN experience, BSN).he concept of experience among respondents was somewhat subjective and context-based. This is supported by the following response:

> Being here two years doesn't seem like a lot but in our unit turn over is very high and 2 years puts me fairly high up in seniority. I have many nurses come to me for guidance because I am often looked at as a more “experienced” nurse. Our unit is also very fluid so we often heavily rely on each other for help/support (24 years old, 3 years as an RN, BSN).

Experience was the most frequently mentioned individual nurse attribute related to clinical practice. Four other clinical practice related attributes were also mentioned or alluded to in responses to all three of the questions: clinical competence (in 12 responses), being current in practice and policy (in 17 responses), patient-centered (in 22 responses) and “professional integrity” (in 25 responses). Professional integrity was mentioned directly in one response; however, other responses included under the professional integrity code included “hard working and dedicated nurses” (48 years old, 23 years as RN, BSN) or references to trust (in 12 responses), respect (in eight responses), ethics (four responses), honesty (in two responses), or dependability (one response) specifically in the clinical setting or working with patients. Seven nurses believed nurses sought guidance from them because they were “resourceful.” One example of resourcefulness is described in the following:

> I don't try to wing out the question if I don't know the answer. In this case I use it as a way to show that it is OK not to know something, and consult with other available resources (39 years old, 12 years as an RN, BSN).

A variation on experience was described by 17 respondents who sought clinical guidance from specific nurses because those nurses had specific formal roles. In three responses, nurses continued to seek help from previous preceptors and formal mentors because of a positive history with that person. In two responses, a new charge nurse and a new preceptor sought guidance from others in those roles. Five nurses were identified as sources for guidance because they were in a formalized resource role, such as a skin care champion or a pain expert.

The role of charge nurse was mentioned several times for varying reasons. A 41-year old nurse with five years of experience reported turning to the charge nurse for validation when she questioned the guidance she received from another nurse. A 27-year old nurse with five years of experience reported "typically I will reach out to the charge nurse as they have more experience and are equipped to help problem-solve." A 33-year old nurse with seven years of experience reported seeking out the charge nurse if peers are not available to provide guidance.

"Attitude is everything." The second most frequent theme among the narratives was best categorized by the in vivo phrase "attitude is everything" (27 years old, 4 years as an RN, BSN). This theme reflected the influence of the manner and demeanor in which nurses responded to their peers on whether or not peers would seek or follow their guidance. Using various specific adjectives, nurses described turning to peers who would receive their inquiries with a positive attitude. Conversely, nurses described withdrawing from peers who project a negative attitude. This is an important consideration because an integral part of the characterization of informal clinical leaders is they enable peers to provide high quality, safe, efficient, competent, and evidence-based care. Nurses with perceived negative attitudes might not be positive, enabling influences on their peers.

Specific references about attitude are exemplified by the following responses:

> It helps when nurses are able to give constructive criticism to one another, rather than tear each other down. A positive and encouraging attitude goes a long way. (31 years old, 4 years as an RN, ADN)

> Poor attitude by any nurse at the bedside is [a] recipe for disaster. [It is] not professional and can cause a plethora of issues which could put a patient at risk. (35 years old, 9 years as an RN, BSN)

> I avoid nurses with bad attitudes, avoid nurses who are lazy or [ineffective] (48 years old, 23 years as an RN, BSN)

> It is very discouraging when I go to a nurse for help and she meets me with resistance to my questions. I understand if they're occupied, but I try not to bother them if they appear busy. Some nurses are not as interested in helping younger nurses, and get frustrated with the things we may not know already. I wish their attitude was different (26 years old, 1 year as an RN, BSN).

The most frequent response included under the "attitude is everything" code was nurses seeks other nurses who are "approachable," which was mentioned directly in 14 responses and alluded to in 16 responses such as:

> I keep a running dialogue with my team for any given shift. I want them to feel they can come to me with questions at any point and I [won't] hesitate to bring my own questions up related to patient care. I feel this is best practice. (35 years old, 9 years as an RN, BSN)

Similar to approachable, "willing to help" or "offering to help" was cited in 29 responses as reasons for selecting a particular nurse for guidance. The following two responses are representative comments about a willingness to help:

> I always am open, willing, and available as [an] experienced nurse to share my expertise. I try to put myself in their shoes [and] realize that we have all been at a point that you need to collaborate to achieve adequate results, as well as safe [patient] care. (55 years old, ADN)

> This particular nurse [has] been in critical care for the last 28 years and leads the unit with great talent. I see her work and I believe in it. She is very helpful and shows willingness to help out by any means (45 years old, 23 years as an RN, BSN)

Another frequently occurring term “nonjudgmental,” which was mentioned directly in 12 responses and alluded to in the following two responses: “…because I trusted her expertise and she wouldn't make me feel stupid” (31 years old, 2 years as RN, MSN – CNS), and “I think nurses mentor well with nurses they respect and feel comfortable with the fact of making a mistake they will be corrected but not be made to feel belittled” (75 years old, 53 years as RN, BSN). The other terms explicitly stated in responses are “nice” (in seven responses), “listens” (in five responses), “calm” and “patient” (each in three responses), and “supportive” and “treat others with respect” (each in one response).

The majority of responses contributing to the “attitude is everything” code addressed the personal characteristics and demeanor of the individual nurses. However, several respondents did comment on nurses’ attitudes about their work. Those respondents were more inclined to seek guidance from a nurse who was perceived to have a positive attitude about work and potentially avoided nurses who were perceived as having negative attitudes about work. This subtheme is described in more detail in the Workplace History and Workplace Issues Influence Practice Behavior section in this chapter.

Bedside nurses are interconnected in practice. The third theme that emerged from the narrative responses was bedside nurses positively and negatively influenced each other through one-to-one interactions and collectively through the work environment on the unit. This theme reflected the idea from complexity leadership

theory that the interactions among system members at the point of service affect the overall behavior of the unit (Uhl-Bien et al., 2007). This theme means nurses have the opportunity to provide informal clinical leadership to each other with respect to influencing each other in practice through peer interactions. Three subthemes emerged from interconnectedness: teamwork and supporting each other, workplace history and workplace issues influence practice behavior, and influences of new nurses in the practice setting.

Teamwork and supporting each other. Teamwork and supporting each other was the most common thread within the interconnectedness responses. It reflected the idea that nurses relied on each other in patient care practice for clinical guidance, for knowledge and emotional support, and for sharing the burden of work. This theme means informal clinical leaders have the opportunity to emerge by enabling team members to provide high quality, safe, effective patient care through clinical competence and evidence-based practice. Teamwork on the units and nurses supporting each other was mentioned in 25 responses. The following statements describe the influence of teamwork among bedside nurses:

> The bedside can feel like a war zone at times. If you know you work with a team that has your back, the best in you comes out and the workplace becomes a good place to be, in the worst times (45 years old, 23 years as an RN, BSN).

> Working as a team is encouraging for all of our attitudes. We know when we are in compromising situations we are not alone. It not only makes the work environment more pleasurable but also safer for our patients (29 years old, 6 years as an RN, BSN).

> It is VERY important to be willing to help a coworker when they need it. No one knows everything and sharing of knowledge and experiences in a positive way leads to safe patient care and a "safe" feeling for the nurse in work place (53 years old, 23 years as an RN, BSN).

More than nurses supporting each other in general, 22 nurses wrote about obtaining validation, looking for reassurance, or double-checking when they sought guidance from a peer. These responses provide examples of both the positive and negative perspectives on nurses seeking validation or reassurance from each other.

> I ask those whose opinion I trust to evaluate a situation with me to validate what I see and my next course of action (63 years old, 43 years as an RN, diploma).

> If I'm unsure about something I definitely go to other preceptors to ask and double check with them about what they think. Their responses influence me in a positive way because it comes to show that they might have had the same question (24 years old, 3 years as an RN, BSN).

> Most nurses where we work are very open to asking for help and to providing support to other nurses. Sometimes nurses don't ask nurses they don't know or aren't familiar with and don't trust their judgment as much even when the nurse has more experience with the patient/policy they need help with. They will ask a 2nd RN after being given the answer from the first one. Sometimes they believe the answer from the familiar person even if it is not correct/doesn't follow the actual policy and when the experienced RN brings up that it's not the policy, they are sometimes ignored (57 years old, 32 years as an RN, BSN).

> There is a large population of young nurses. They often ask each other for help instead of more senior nurses for fear of looking unprepared, poorly trained, or inadequate in some other way (31 years old, 2 years as an RN, MSN).

A variation on nurses seeking validation and reassurance from other nurses was nurses being empowered and inspired by other nurses. Five nurses specified they turn to nurses who are "good teachers" when they need guidance. From the complementary perspective, eight nurses described how they intentionally responded to nurses asking them for guidance in a way that not only provided an answer but helped nurses learn and develop. An example of such a response is:

> I have been on the unit for 12 years and have a wealth of knowledge related to our area of work. I love when my colleagues ask me questions. I love to work through the process and ensure that they understand the rationale behind my answer (34 years old, 12 years as an RN, BSN).

A positive effect reported as the results of nurses taking the approach of empowering other nurses who seek guidance is that the recipients of the guidance reported wanted to "pay it forward" and support other nurses the way in which they were supported. The concept of role modeling was explicitly or implicitly included in the narratives. Responses that supported this thread included:

> I choose nurses I trust, and who have experience to offer, or who I know are on a shared governance council and up-to-date with policy. With their help in the situation, I can offer the same assistance to another in the future (34 years, 11 years as an RN, MSN).

> I looked to an experienced nurse for guidance because she has been a mentor and role model to me. She taught me to hold myself to a higher standard and I have [developed] many of her practices. Her [response] helped me navigate the situation and has allowed me to do the same for others (24 years old, 3 years as an RN, BSN).

Workplace history and workplace issues influence practice behavior. The second subtheme demonstrated how nurses were interconnected in practice through the situational contexts in which they interact with each other and is referred to as workplace history and workplace issues, both of which influence practice behaviors. This theme reflected that the influence nurses have on each other can be longer lasting than in-the-moment interactions. Workplace history referred to the connections between individuals based on previous interactions. Workplace issues referred to the issues in the work setting or unit that affect the interactions among nurses. Both influenced respondents' decisions on seeking guidance from peers.

Workplace history was described as a positive influence by 16 respondents. Examples of a positive workplace history included:

> I reached out to a more senior staff member on the unit, who I felt to not just give me the answer, but the reasoning behind it. I have a wonderful relationship with my more senior counterparts and learn so much from them (34 years old, 12 years as an RN, BSN).

> Usually the nurses I go to have offered advice to me in the past and have not been judgmental when I have asked for advice (22 years old, 2 years as an RN, BSN).

Two respondents described negative workplace history that influenced decisions about from whom to seek guidance:

> I have quickly figured out what nurses love their job and care for patients and their safety. I find that [there] are few nurses that are not helpful when information is being sought out (36 years old, 14 years as an RN, BSN).

> I had a situation where a new nurse was not able to appropriately care for an ICU patient. I intervened and took over care for the patient and attempted to redirect the nurse. I chose to reach out to this nurse due to patient safety. The nurse did not respond well to my direction (26 years old, 4 years as an RN, BSN).

Eleven nurses reported workplace issues that adversely affected nurses' behavior and therefore ability to seek and obtain guidance from each other. The issues included incivility, heavy workloads, horizontal violence, and bullying. Examples of the narratives describing the workplace issues included:

> Holding each other accountable is very important, but when others react to you by not speaking or not supporting you on the unit when you try to hold them accountable is a negative outcome (54 years old, 33 as an RN, BSN).

> Nurses are becoming more and more burned out due to the strenuous nature of our jobs. The "higher ups" put so much pressure on us to be perfect and meet the budget. We are also under staffed putting our patients at risk. This creates a bad morale literally everywhere you go (hospital wise). It is sad to see where nursing is headed if a change is not made (23 years old, 1 year as RN, BSN).

> It is different in each area of nursing. I have worked in ICU, ED, Floor, many different areas. In critical care, there is definitely a lot of lateral workplace violence and bullying going on between cliques and groups within a department. There is real fear for some nurses to ask for help or clarification for fear of being seen as weak or ineffective, and further damage their relationship with nurses who they are already being bullied by (48 years old, 23 years as an RN, BSN).

> Horizontal violence can be a huge obstacle for new nurses. Having started in an ICU right after graduation with my BSN, I had to have thick skin to overcome many obstacles. If there is not a process in place to help new nurses (either [newly graduated nurses] or new RNs to an organization) navigate the unit climate, they are often set up for failure (24 years old, 3 years as an RN, BSN).

> Cultural differences can cause work place bullying (44 years old, 20 years as an RN, BSN).

Influences of new nurses in the practice setting. The third subtheme representative of interconnectedness was the effect of new nurses in the practice area. This theme emerged from the frequent mention of new nurses or newly graduated nurses throughout responses discussing the rationale behind providing or seeking guidance. It reflected new nurses are perceived differently from experienced nurses on the unit in terms of the support they need from informal clinical leaders and in terms of the type of informal clinical leadership they are asked to provide regardless of their newness.

In their descriptions of either seeking or providing guidance, 22 respondents explicitly mentioned new nurses, either new to nursing or new to a work area. The context was most frequently how or why a nurse provided guidance to a new nurse, for example:

> As far as new nurses I feel that they need the most nurturing and should always be made to feel comfortable in their decision making by utilizing other staff as their support. We all started out in that same place and I can remember it was not a very comfortable place to be. We as nurses need to remember to support one another... I think we tend to forget that (55 years old, ADN/ASN).

> I always make myself available to my coworkers and peers, I work on a floor where we frequently receive new graduates and new hires that have never worked in a critical care setting. I am happy when peers ask for my help or come to me with questions because it means I am approachable (28 years old, 5 years as an RN, BSN).

However, multiple new nurses described how their “newness” was associated with personal and professional attributes other nurses valued when seeking guidance,

such as being approachable, nonjudgmental, and up-to-date on policy and practice after having been in school or a residency program more recently. Several responses supporting this pattern are:

> I reach out to nurses that have more experience than I do, but I tend to go to younger experienced nurses because they are less judgmental (31 years old, 1 year as an RN, BSN).
>
> They sought my help because I am a [new nurse] and we are provided with extra education opportunities and they believed I was more up to date on a new policy change (34 years old, 1 year as an RN, BSN).
>
> I believe others have come to me because I am a new graduate nurse and sometimes other new nurses feel more comfortable approaching me. Or more experienced nurses might come to me because I am fresh out of school and can more easily recall certain information (23 years old, 1 year as an RN, BSN).

This section described the nurses' narrative responses and the themes generated from the codes. The implications of these responses and themes will be discussed in Chapter 5.

Converged Data Analysis

The purpose of the parallel convergent mixed methods design is to produce the most complete picture of predictors of clinical leadership behavior. The mixed methods research question was *To what extent do the qualitative data generated from bedside nurses' descriptions of influences on informal clinical leadership relate to or expand upon the quantitative results about relationships among personal attributes, situational context, and clinical leadership behavior?*

In mixed methods research, the data from the two strands are converged and analyzed for consistencies, discrepancies, and clarifications (Creswell & Plano Clark,

2011). The quantitative data collection instruments in this study collected descriptive information about the nurse personal attributes and situational contexts thought to be predictive of clinical leadership behavior and measured nurse self-reported clinical leadership behavior with the CLB-Q (Fealy et al., 2012). The qualitative data collection questions asked nurses why they felt their peers sought clinical guidance or direction from them over any other nurse on the unit, or why they sought clinical guidance or direction from a particular nurse peer.

The dominant theme emerging from the qualitative data was nurses seek guidance from peers who are perceived as experienced. However, there were different qualifications of experience in the narratives including years of experience, specific skills and knowledge, specific experiences with patients and situations, clinical competence, and formal roles (preceptor, resource nurse, charge nurse, member of shared governance council, and nurse educator). The 10-predictor multiple linear regression model included variables which represented different types of experience: years as an RN, nursing specialty certification, and frequency of participation in unit leadership activities (temporarily filling in as a charge nurse, serving as a preceptor, participating in nurse-sensitive quality improvement projects, and participating in shared governance activities). The quantitative data from this study did not support any of the experience-related predictors as uniquely making statistically significant contributions to the variance in the CLB-Q scores. With regard to the effect of professional experience on clinical leadership, the data from the two strands appear to contradict each other.

The second strongest theme emerging from the qualitative data was when seeking guidance from peers "attitude is everything." Nurses believed clinical guidance was sought from them or they sought clinical guidance from a peer because of welcoming, nonjudgmental, positive attitudes and demeanor. This theme associating positive attitude with the opportunity to provide informal leadership was reflected in the quantitative strand. Psychological capital (hope, efficacy, resilience, and optimism) was the only statistically significant predictor of clinical leadership behavior. The overall PCQ mean scores from nurses who reported peers frequently sought clinical guidance from them ($\bar{X}$ = 4.95, SD = .55) were significantly higher than overall PCQ mean scores from nurses who did not report peers frequently sought clinical guidance from them ($\bar{X}$ = 4.54, SD = .56), $t(117) = -3.99$, $p < .001$, two-tailed. The converged quantitative and qualitative data both supported positivism as influences on perceived clinical leadership behavior. However, psychological capital reflects attitude about work and the workplace rather than an individual's attitude in peer interactions in the workplace. The differences and associations between positive attitudes in peer interactions and positive psychological capital are discussed in Chapter 5.

The total CLB-Q scores from nurses who reported peers frequently sought clinical guidance from them ($\bar{X}$ = 194.12, *SD* = 14.72) were significantly higher than the total CLB-Q scores from nurses who reported infrequently or never being asked to provide clinical guidance by a peer ($\bar{X}$ = 182.47, *SD* = 19.64), $t(81) = -3.142$, $p < .01$, two-tailed. The self-awareness subscale and the advocacy and empowerment subscale had the two

highest CLB-Q subscale mean scores. The self-awareness subscale items included awareness of one's own emotional responses and sensitivity to others' emotions and responses. The advocacy and empowerment subscale items included advocating to meet the needs of colleagues and patients and creating an encouraging and empowering environment. These data further support congruence among the quantitative and qualitative data with respect to the "attitude is everything" theme.

The third theme emerging from the qualitative data was bedside nurses are interconnected in their practice with subthemes about seeking reassurance and validation, teamwork and supporting each, and workplace history and issues influencing behavior and interactions. This theme of interconnectedness was directly supported in the quantitative strand in which all of the participants reported seeking clinical guidance and support from nurse peers. No participants reported *never* asking a peer for clinical guidance or direction.

The qualitative and quantitative data generally supported each other with respect to nurses are receptive to clinical leadership from peers who have positive attitudes in the workplace. Even though seeking guidance from experienced nurses was the dominant theme in the narrative responses, there were qualifications to those responses asserting when given a choice, nurses would avoid seeking guidance from a nurse with a negative attitude even if that nurse was the most experienced in a particular context.

Summary

The descriptive characteristics of the sample, psychometric properties of the PCQ and CLB-Q instruments, and the decision criteria for addressing missing data and refining the analytic data set were presented in this chapter. The quantitative data were analyzed via multiple linear regression, and the findings were summarized in this chapter. The qualitative data were analyzed via content analysis, and the findings were summarized in this chapter. When the quantitative and qualitative data were converged, there were both complementary and contradictory findings. The implications of these findings will be discussed in Chapter 5.

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

Bedside nurses are positioned at the point of care as informal clinical leaders to coordinate complex care, promote patient safety, reduce errors, and ensure safe patient transition throughout healthcare systems (IOM, 2010). However, nursing leadership research continues to be more heavily focused on the roles of formal nurse leaders and managers and not the informal nurse leaders providing direct care to patients and families (Downey et al., 2011; Grossman & Valiga, 2017). To contribute to closing this knowledge gap, this study was developed to explore the influences on the emergence of informal clinical leadership among bedside nurses in the acute care hospital setting. The study used a convergent parallel mixed methods design with an exploratory correlational quantitative strand and a descriptive qualitative strand. The convergent parallel mixed methods design was selected to formulate a more inclusive understanding of the phenomenon (Creswell & Plano Clark, 2011). The findings and limitations of this study as well as the implications for nursing practice and for future research are discussed in this chapter.

Discussion of Findings

The worldview guiding this investigation of informal clinical leadership was healthcare organizations and operational subunits function as complex adaptive

systems. A complex adaptive system's overall behavior and outcomes result from its members' dynamic interactions and adaptations to internal and external factors (Marion, 2008). In the modern acute care setting, bedside clinicians work as independent professional agents who must make decisions at the point of care based on input from a myriad of nested complex systems often in uncertain circumstances (Bohmer, 2013). Complexity leadership theory described adaptive leadership emerging when interdependent members of a complex adaptive system, such as an in-patient care unit, interact in response to uncertainty or tension and influence the behavior of other members in the system and the overall system (Uhl-Bien et al., 2007).

In this study, the informal clinical leadership bedside nurses provided to each other at the point of care was considered part of the adaptive leadership continuum – members of complex adaptive systems influencing each others' behavior in practice (Weberg, 2012). The novel aspects of this study were exploring the predictors of informal clinical leadership behavior among nurses in the acute care hospital setting; including psychological capital as a predictor of informal clinical leadership; and using an instrument specifically designed to measure informal clinical leadership behaviors among direct care nurses. Predictors were framed in terms of the nurse personal attributes that attracted peers to specific informal clinical leaders for guidance and in terms of situational contexts influencing to whom nurses would turn for clinical guidance or direction with respect to patient care issues.

Nurse Personal Attributes

As part of the exploration of influences on the emergence of informal clinical leadership among bedside nurses in the acute care hospital setting, nurse personal attributes were examined to determine which were predictive of informal clinical leadership behavior. The nurse personal attributes in the conceptual framework for the current study included nurses' demographic characteristics, professional experience, and psychological capital. In the multiple linear regression analysis, psychological capital was the only statistically significant predictor.

Psychological capital. Frequently studied in industrial-organizational psychology, psychological capital is a composite state of individual development consisting of hope, optimism, resilience, and efficacy and is thought to influence a worker's behavior, responses, and productivity (Luthans, Youssef, & Avolio, 2007). In the current study, nurses with greater levels of hope, optimism, resilience, and efficacy with respect to work demonstrated more informal clinical leadership behaviors. Because this current study is the first to examine psychological capital as a predictor of informal clinical leadership behavior among nurses, psychological capital cannot be directly corroborated in the literature as a predictor of informal clinical leadership. However, other nursing research studies suggested psychological capital is associated with positive nurse workplace behaviors which are congruent with informal clinical leadership behavior.

Several empirical studies have found psychological capital to be positively associated with nurses' job satisfaction, work engagement, commitment to an

employing hospital's mission, and intention to remain at the employing hospital (Boamah & Laschinger, 2014; Bonner, 2016; Laschinger & Fida, 2014; Luthans & Jensen, 2005; Sun, Zhoa, Yang, & Fan, 2012). Although these studies do not directly address informal clinical leadership, it is reasonable to believe nurses with greater levels of job satisfaction, greater levels of work engagement, and stronger commitment to an employing hospital and its mission would be better able to provide high quality, safe, and effective patient care. Lawson (2016) reported higher levels of job satisfaction among nurses identified by peers as strong informal clinical leaders in the acute care hospital setting, which is suggestive of a potential transitive connection between informal clinical leadership and psychological capital. Eastman (2013) found nurses with higher levels of psychological capital were less likely to be the targets of workplace bullying behavior. Nurses participating in this study wrote about how incivility and workplace bullying negatively impacted practice behavior. The decrease in bullying of nurses with high levels of psychological capital would increase the likelihood of those nurses emerging as informal clinical leaders.

The strong positive correlation between psychological capital and informal clinical leadership in the current study is a very important finding. Psychological capital is a malleable state that can be developed among workers across industries and professions with minimal expenses and resources (Luthans et al., 2014). Programs and interventions for increasing psychological capital among workers have been developed in various formats and supported as being effective including classroom-based

education, independent learning printed materials, and web-based interventions (Dello Russo & Stoykova, 2015; Luthans, Avey, & Patera, 2008; Zhang, Li, Ma, Hu, & Jiang, 2014). Psychological capital development interventions can be tailored to meet organization- or unit-specific needs (Luthans et al., 2014).

Although it is developable, psychological capital is the internal state of the person. Luthans, Avolio, and Avey (2014, p. 7) describe it as "who you are" in the workplace. This does not necessarily address interpersonal skills in the workplace. Psychological capital has been strongly supported as a predictor of workplace performance and job satisfaction (Avey, Reichard, Luthans, & Mharte, 2011), which is compatible with nurses demonstrating the first dimension of informal clinical leadership of providing high quality, safe, effective, evidence-based, and competent patient care. However, the link between psychological capital and the second informal clinical leadership dimension of empowering others is more indirect.

The link between psychological capital and empowering others may be found in another industrial-organizational psychology construct – organizational citizenship behavior. Organizational citizenship behavior is work behavior that is not part of core professional or technical work but positively contributes to the social and psychological environment of an organization through altruism at work, providing assistance to others, following rules, sportsmanship, and civic virtue (Organ, 1997). Altruism and providing assistance to others in the workplace coincides with the empowering others component of informal clinical leadership. Psychological capital is a well-supported predictor of

organizational citizenship behavior (Luthans et al., 2014; Norman, Avey, Nimnicht, & Pigeon, 2010; Pradhan, Jena, & Bhattacharya, 2016). This connection in the literature suggests the need to further investigate the potential for connections between psychological capital, organizational citizenship behavior, and informal clinical leadership.

One of the strongest themes generated from nurses' narrative responses in this study was best summarized by the words of one participant, "attitude is everything." Participants repeatedly wrote about preferring to seek clinical guidance and direction from peers who were "approachable," "willing to help," "nonjudgmental," "nice," and "treat others with respect." In several cases, participants reported seeking guidance from a welcoming, encouraging peer with adequate knowledge or expertise rather than a clinical expert who was unwelcoming or discouraging.

In an early grounded theory study about clinical leadership among nurses, Stanley (2006, p. 27) reported "is approachable" was the characteristic most associated with clinical leadership and "is clinically competent" was the second most frequent characteristic. Stanley (2014, p. 123) repeated the study with paramedics and discovered the same results with "is approachable" was most associated with clinical leadership and "is clinically competent" was second. Stanley's findings were congruent with the narratives provided by the participants in the current study.

The definition of informal clinical leadership in the current study has two main dimensions. First, informal clinical leaders provide high quality, safe, effective patient

care through clinical competence and evidence-based practice. Second, informal clinical leaders use interpersonal skills to empower peers to provide high quality, safe, and effective care through clinical competence and evidence-based practice. The participants' responses were strongly indicative of the need for informal clinical leaders to have welcoming, positive attitudes for the potential followers to approach them. This is concordant with the descriptions from the literature in which informal clinical leaders were described as employing interpersonal skills to empower peers to provide high quality, safe, and effective care (Abraham, 2011; Fealy et al., 2012; Johansson et al., 2010; Martin et al., 2012; Miskelly & Duncan, 2014; Patrick et al., 2011; Stanley 2006). This desire for informal clinical leaders to have a positive attitude is conceptually congruent with the organizational citizenship behaviors of altruism, assisting others, sportsmanship, and civic virtue, which are established correlates of psychological capital (Luthans et al., 2014; Norman et al., 2010; Organ, 1997; Pradhan et al., 2016).

Professional experience. The other dominant theme in the participant narratives was nurses sought *experienced* peers for clinical guidance. However, experience had different meanings among the participants: years of working as a nurse, specialized knowledge or skills, or familiarity with a particular patient or patient care situation. The analytic quantitative data set included four predictors related to professional experience: years of experience as a nurse, participation in a nurse residency program, nursing specialty certification, and unit leadership activity index. The latter was a summated score of the frequencies with which participants engaged in micro-level unit

leadership activities such as filling in as temporary charge nurse, serving as a preceptor, volunteering for nurse-sensitive quality improvement projects, and participating in shared governance activities. The unit leadership activity index was created for use in the multiple linear regression analysis in the current study and may warrant further evaluation as a construct used to measure level of engagement in unit leadership activities.

Although there was a small bivariate correlation between the unit leadership activity index and informal clinical leadership behavior ($r = .23$, $n = 134$, $p < .01$), none of the professional experience predictors in the multiple linear regression analysis made significant unique contributions to the variance in clinical leadership behavior. This finding suggests the most experienced nurses in the current study, regardless of the definition of experience, did not self-report frequent demonstration of informal clinical leadership behaviors. This quantitative finding appears to contrast with the participants' narratives describing experience as a criterion for selecting a peer from whom to seek guidance.

One possible explanation is the nurses with more experience in this study were not the nurses to whom the other nurses in this study were referring when they wrote about why they sought clinical guidance from a particular nurse. However, the finding remains that the nurses who scored higher on the CLB-Q in this study did not have greater levels of experience in terms of years of experience, specialty certification, participation in a nurse residency program, or participation in unit-level leadership

activities. Two nursing studies in the literature review reported negative correlation between length of time in position and effective leadership potentially related to job burnout (Cummings et al., 2008; Fardellone et al., 2014). To understand the lack of significance between the professional experience predictors and informal clinical leadership in this study, additional research is needed in which clinical leadership behaviors are measured among nurses who are identified by peers as informal clinical leaders.

Demographic characteristics. Age and education were the only demographic characteristics supported by the literature as predictors of clinical leadership behavior. Age and years of professional experience were co-linear and could not both be included in the analytic data set. Years of professional experience was identified as the more proximal influence on leadership behavior rather than age in isolation (Barbuto et al., 2007; Caldwell et al., 2009; Fardellone et al., 2014). Age of the nurse was not included in the analytic data set and years of experience was discussed in the Professional Experience section of this chapter. Education was included in the analysis but was not supported as predictive of informal clinical leadership behavior. The majority of participants (88%) reported having a BSN or higher which may have affected the findings about the influence of education level on informal clinical leadership. A sample of nurses with a more even distribution of educational preparation is needed to make any determination of the influence of education on informal clinical leadership behavior.

Situational Context

The second half of exploring the influences on the emergence of informal clinical leadership among bedside nurses in the acute care hospital investigated workplace environment and peer interactions as influences on informal clinical leadership. When initially proposed, this study aimed to compare influences on informal clinical leadership between Magnet® recognized and non-Magnet®-recognized hospitals and among different types of hospitals (academic medical centers, independent urban community hospitals, and rural hospitals). However, more than 90% of the participants worked in Magnet®-designated, academic medical centers, which prevented inclusion of hospital type and Magnet® designation in the multiple linear regression analysis.

None of the remaining situational context variables were supported as predictive of informal clinical leadership behavior. However, there was a medium strength statistically significant bivariate correlation between the frequency with which nurses reported peers seeking clinical guidance from them and their informal clinical leadership behavior scores ($r = .31$, $n = 134$, $p < .001$). This suggests nurses may seek guidance from peers with higher CLB-Q scores, but the variable measuring the frequency with which peers seek guidance from a nurse was not a significant contributor to the variation among CLB-Q scores in the regression analysis in this study. Additional explanatory investigation is needed to determine if nurses seek clinical guidance from peers with higher CLB-Q scores.

Participant responses generated a subtheme that newly graduated nurses have specific effects on the practice setting. When participants wrote about why they believed peers sought clinical guidance from them, they frequently mentioned helping new nurses. Often this was coupled with other reasons why peers sought their clinical guidance such as professional experience or approachability. Within this thread of responses, the rationale for providing clinical guidance specifically to new nurses spanned from remembering how overwhelming it was to be a new nurse to feeling a need to protect the new nurses from bullying or horizontal violence. In the current study, there was a medium negative bivariate correlation ($r_s = -.42$, $n = 126$, $p < .01$) between the age of the participants and the frequency with which the participants sought clinical guidance from peers. This suggests younger nurses in this study were more likely to seek clinical guidance from peers. In the literature, members of the millennial generation were described as more inclined than members of other generations to seek frequent feedback and advice from peers and others (Cogin, 2012). Granted not all new nurses are members of the millennial generation, but the propensity of members of the millennial generation to seek clinical guidance from peers may explain why study participants specifically mentioned new nurses when discussing their experience providing clinical guidance.

Additionally, nearly half of the nurses who wrote about newness were actually new nurses (less than two years' experience) to whom others were turning for clinical guidance. There were three reasons cited in participant responses for this. On units

with high turnover, sometimes the nurse with two years of experience was one of the most experienced nurses on the unit. Several newer nurses reported more experienced nurses turned to them for guidance because they are believed to be more current in practice related to being in nursing school more recently, participating in nurse residency programs, or having more familiarity with technology and ability to look up policies, protocol, procedures, and other evidence quickly. Both newer and more experienced nurses reported they found the newer nurses more approachable and less judgmental and would seek clinical guidance from a newer nurse who might be able to provide direction over an experienced nurse with a perceived negative attitude.

Nurse residency programs were designed to help new graduates develop clinical leadership skills as they transition into their first nursing position practice (CCNE, 2008; Goode et al., 2009; Kowalski & Cross, 2010). In the current study, 52.6% of the participants participated in a nurse residency program; however, participation in a nurse residency program was not supported as predictive of clinical leadership behavior. There was a medium to strong negative bivariate correlation between years of experience as an RN and participation in a nurse residency program (r_s = -.51, n = 129, p < .01). The participation in a nurse residency program variable was a binary variable and did not reflect how recently the study participant was engaged in the nurse residency program. However, the negative correlation supports nurses who participated in residency programs had fewer years' experience than nurses who did not participate in nurse residency programs.

There are standardized nurse residency programs that specify engaging in evidence-based practice and leadership at the point of care as program goals (CCNE, 2008; Goode et al., 2009; Kowalski & Cross, 2010). For these programs, it would not have been incongruous to expect nurses who have completed residency programs to demonstrate informal clinical leadership behaviors. However, informal clinical leadership also contains the dimension of empowering others. Future research might be warranted to determine if there are particular components of that composite definition of informal clinical leadership which can be bolstered in nurse residency programs.

In the current study, no definition of nurse residency program was provided on the data collection instrument. It is possible the concept of nurse residency program has nuanced differences across practice areas and healthcare settings. Since the majority of study participants reported working at Magnet®-designated hospitals, it is likely there is a similar structure to the nurse residency programs at those hospitals, but this cannot be established with the current data set. Future investigations with a more precise definition of nurse residency programs and intentional sampling at hospitals with nurse residency programs that match the definition will assist with expounding on the relationship between nurse residency programs and informal clinical leadership.

Informal Clinical Leadership

Informal clinical leadership is a valuable resource for helping direct care nurses adapt to the ever-changing and sometimes uncertain environment of modern healthcare (Downey et al., 2011; Fardellone et al., 2014; Larsson & Sahlsten, 2016). There were two

nurse roles in the informal clinical leadership equation among the participants in this study: nurses who had the opportunity to provide informal clinical leadership (directly or indirectly) to peers and nurses who sought and were influenced by the leadership of their peers in the clinical setting. In the current study, 86% of participants reported nurse peers sought clinical guidance or direction from them about patient care issues.

When asked how often the participants sought guidance from a nurse peer, 77% reported frequently or always, and 20% reported sometimes. Only 3% reported infrequently asking peers for guidance, and no respondents reported *never* asking peers for guidance. Every participant in the current study has sought clinical guidance from peers in some context. Supporting these quantitative findings, participant narrative responses generated a strong theme of interconnectedness with recurrent references to the merits of teamwork and the need to turn to each other for validation or reassurance in clinical decision making. In such an interconnected environment, each of these interactions was an in-the-moment opportunity for each of those nurses to provide positive informal clinical leadership to their peers.

Interpersonal skills with which nurses empower other clinicians to provide high quality, safe, effective, and evidence-based care is the second dimension of informal clinical leadership in this study. As discussed in the Nurse Personal Attributes section of this chapter, nurses described preferring to seek clinical guidance and direction from peers who had a positive attitude about work, working with others, and assisting others. The CLB-Q included items about being sensitive to the emotions of others, encouraging

good practice behaviors, advocating for others, celebrating achievements, recognizing when others needed help, and so forth (Fealey et al., 2012). These items represent the interpersonal skills dimension of informal clinical leadership. Considering the positive tenor of such items, it is reasonable that nurses would seek guidance from peers with higher CLB-Q scores reflecting these interpersonal skills. However, additional confirmatory research is needed to determine if the interpersonal skills items on the CLB-Q match those described by the study participants and if employing those skills results in peers following informal clinical leaders.

Applying the adaptive leadership lens from complexity leadership theory to clinical practice (Uhl-Bien, 2012), when nurses turn to peers for guidance, they are providing each other with the opportunity to influence local behavior regarding clinical care through in-the-moment informal clinical leadership at the point of care. Ideally, these emergent instances of informal clinical leadership adhere to the framework measured in the CLB-Q where the leadership behavior contributes to clinical practice that is high quality, safe, efficient, and evidence-based. However, the qualitative data in this study generated another intermittent but clearly present pattern where lack of informal clinical leadership behavior may have resulted in lesser quality, potentially unsafe, and not entirely evidence-based care. In these case, participants wrote about the negative influences of incivility, bullying, horizontal violence, or fear of being viewed by peers as incapable or incompetent. Participants described these influences as

preventing them or others from seeking guidance or direction from knowledgeable or qualified peers about clinical issues.

A slight variation was some nurses described peers who sought clinical guidance from social peers rather than nurse peers who were the most qualified or most accurate sources of clinical information. The observers in these cases believed the nurses seeking guidance may have made patient care decisions on less than the highest quality information. The findings about the negative influences nurses can have on each other's practice are not unique to this study. The literature described situations in which well-designed, evidence-based practice changes at a variety of practice sites should have been successful but failed to be consistently implemented or sustained because of nurses' negative influence on each other (Hannes et al., 2007; Janssen et al., 2012; Johnson et al., 2009; Marchionni & Ritchie, 2008; Melnyk et al., 2012; Tinkler et al., 2014).

Positive workplace behaviors, such as self-awareness, awareness of others' behaviors and needs, and the willingness to take ethical actions on behalf of others are some of the characteristics attributed to informal clinical leaders (Fealy et al., 2012; Stanley, 2014). Findings and expert opinion in the literature suggested these positive workplace behaviors prevent or help mitigate workplace issues such as incivility, bullying, and horizontal violence (Báez-León, Moreno-Jímenez, Aguirre-Camacho, & Olmos, 2016; Castronovo, Pullizzi, & Evans, 2016; Clark, 2014; Hutchinson & Hurley, 2013; Mikaelian & Stanley, 2016). This highlights an opportunity where increased

informal clinical leadership among nurse peers could potentially increase the exchange of higher quality, more evidence-based patient care information and increase the capacity for teamworking and collaboration at the point of care.

Another pattern potentially related to the influences on informal clinical leadership behavior emerged from the data measured by the CLB-Q and warrants further investigation. The lowest observed CLB-Q subscale mean scores were clinical excellence ($\bar{X}$ = 3.64, *SD* = 0.66, *n* = 119) and communication ($\bar{X}$ = 4.00, *SD* = 0.51, *n* = 132). The range for the items is 1 (never) to 5 (always). As might be expected, these subscales with the lowest subscale mean scores contained two of the lowest scored item-level means in the current study. The clinical excellence subscale contained the item "I challenge practices that are not consistent with standards of clinical excellence" (Fealey et al., 2012, p. 249). The communication subscale contained the item "I intervene when necessary to manage conflict in the work setting" (Fealey et al., 2012, p. 248). These two items are noteworthy because they can be interpreted as more assertive or confrontational behaviors, even if for a positive end, when compared with other items on the CLB-Q using terminology such as *encouraging* or *supporting* a behavior in peers. Conversely, the highest scored item across all CLB-Q subscales in the current study was "I act according to what I believe is right" (Fealey et al., 2012, p. 248). The anonymous online survey design of this study provided minimal opportunity for further exploration of these item-level data. However, they are reported here for consideration in future studies using the CLB-Q or developing interventions to promote

informal clinical leadership behavior. If this pattern is reproducible and further supported, interventions to promote informal clinical leadership behavior may need to include interventions to develop appropriate assertiveness skills and skills for providing high stakes constructive feedback to peers and formal leaders in the clinical setting.

Recommendations for Nursing Practice and Education

Findings from this study need to be confirmed before significant practice changes can be recommended. However, at a minimum, formal nursing leaders, nurse educators both in academia and in clinical staff development, and bedside nurses themselves should be aware of the critical role of informal clinical leaders. Rather than ignore or impede the emergence of informal clinical leadership among bedside nurses, formal and informal nursing leaders should investigate opportunities to support and encourage bedside nurses to provide high quality, safe, and effective patient care and to be positive influences on peers so they deliver the same level of care. Nurse professional development initiatives should afford opportunities for those with strong knowledge and experience bases to develop interpersonal skills to empower peers, and those with naturally strong interpersonal skills to develop clinical knowledge and experience both to provide exemplary care to patients and to support and empower peers to provide that level of care.

A key tenet of informal leadership theory is under the right set of circumstances every nurse has the potential to emerge from the collective as a leader who influences peers in practice (Uhl-Bien et al., 2007). However, if there are certain nurses who do not

have formal authority but are expected to be the *go to* nurses on the unit, it is critical they possess the interpersonal skills to be positive influences on peers. Examples of these nurses include shared governance participants, unit practice council members, preceptors, or individuals with specialized clinical knowledge or skills.

The initiative to develop interpersonal skills in the context of informal leadership among bedside nurses may be part of a formal nursing staff development program or student curriculum or may be as basic as informal feedback or encouragement among nurse peers. Regardless of the professional development setting, nurses or student nurses first should be encouraged to develop a reflective practice examining how they interact with peers and if their practice behavior has a positive or negative effect on peers. Exploring positive interactions with peers could also include how to provide constructive and encouraging feedback and how to effectively manage conflict.

The findings in this study support the CLB-Q (Fealey et al., 2012) as a psychometrically sound instrument used to assess the frequencies of informal clinical leadership behavior exhibited by nurses. This behavior includes self-awareness and other interpersonal skills such as communication, advocacy, and team working as well as the delivery of person-centered, high-quality, evidence-based patient care. These data can inform individual or unit-based staff reflections and development plans to promote increased levels of informal clinical leadership behavior, which in turn promotes the delivery of high-quality, safe, effective, and evidence-based patient care.

Psychological capital was the only nurse personal attribute in this study found to be a significant predictor of informal clinical leader behavior and has been associated with various positive and desirable outcomes for nurses such as job satisfaction, work engagement, commitment to an employing hospital's mission, intention to remain at the employing hospital, and organizational citizenship behavior (Boamah & Laschinger, 2014; Bonner, 2016; Laschinger & Fida, 2014; Luthans et al., 2014; Luthans & Jensen, 2005; Pradhan et al., 2016; Sun et al., 2012). Programs and interventions have been tested for developing psychological capital among workers (Dello Russo & Stoykova, 2015; Luthans et al., 2008; Luthans et al., 2014; Zhang et al., 2014). Architects of the clinical practice environments, regardless if they are formal or informal leaders, can promote and support the emergence of informal clinical leadership behaviors by incorporating interventions for increasing psychological capital in nurse staff development. Developing psychological capital among bedside nurses may not only promote an increase in clinical leadership behaviors but may result in these other positive workplace outcomes.

There are proprietary programs for increasing psychological capital among workers; however, the general approach would be to introduce and reinforce small interventions to increase positive organizational behavior with respect to hope, efficacy, resilience, and optimism (Luthans, Avey, Avolio, & Peterson, 2010). Development activities may include exercises in self-awareness, goal setting and visualization, engaging with a positive social network for role modeling and feedback, problem-solving approaches to obstacles and external factors, and reducing negative and self-limiting

attitudes about self and work (Luthans, Youssef, & Avolio, 2007). These initiatives have historically been delivered through two- to four-hour workshops or online sessions (Dello Russo & Stoykova, 2015; Luthans et al., 2008). Additionally, these psychological capital interventions could be incorporated into pre-licensure baccalaureate nursing student clinical learning exercises where students set and measure clinical learning goals for themselves, or in pre-licensure professionalism or leadership courses. Similarly, these interventions could be incorporated into nurse residency programs or other staff development programs in the hospitals.

Recommendations for Future Research

While general scholarly opinion described the potential value of informal clinical leadership among bedside nurses (Chávez & Yoder, 2014; Downey et al., 2011; Mannix et al., 2013), many of the empirical studies about informal clinical leadership are micro- to meso-level program evaluations (Fardellone et al., 2014; Fealey et al., 2012; Miskelly & Duncan, 2014) or qualitative examinations of the attributes and behaviors of informal clinical leaders (Larsson & Sahlsten, 2016; Stanley, 2014). There is a lack of generalizable data about informal clinical leadership among bedside nurses.

In this exploratory study, psychological capital was supported as a significant predictor of informal clinical leadership behavior among bedside nurses. However, the exact nature of the relationship between psychological capital and informal clinical leadership behavior is unclear. The qualitative data from this study supported nurses responding positively to informal clinical leaders with positive and supportive

interpersonal skills. Given the strong association between psychological capital and organizational citizenship behavior (Luthans et al., 2014; Norman et al., 2010; Pradhan et al., 2016; Simmons & Buitendach, 2013), organizational citizenship behavior should be investigated as the connection between informal clinical leadership and the interpersonal skills valued by nurses seeking direction from peers. Future quantitative research is needed to confirm and clarify the nature of the association between psychological capital, organizational citizenship behavior, and informal clinical leadership behavior. The current study should be repeated with a larger sample size with which structural equation modeling can be used to analyze complex dependencies among the variables and determine the presence of any mediating variables which might explain the complex relationships (Tabachnick & Fidell, 2013). This might explain why variables such as years of experience, level of education, and level of engagement in unit-level leadership activities such as preceptorship or participation in quality improvement projects or shared governance were described in the literature as predictive of informal clinical leadership behavior but not supported in the data from the current study.

Depending on the results of the structural equational modeling analysis, a pretest-posttest longitudinal experimental study could be implemented to test the effects of psychological capital on informal clinical leadership. Baseline CLB-Q and PCQ scores could be collected from a sample of acute care bedside nurses. A randomized group of nurses from the sample would participate in interventions found to increase psychological capital and the control group would receive another intervention

unrelated to psychological capital. CLB-Q and PCQ scores would be collected after the interventions, after six months, and again after one year to empirically determine if increased psychological capital produces increased informal clinical leadership behavior among bedside nurses.

To reduce social desirability bias among participants and increase veracity of the responses, the study was designed so that responses could not be traced back to an individual or to a specific institution. Participants were assured of this anonymity. This design prevented analysis of the CLB-Q scores of nurses who were thought to exhibit informal clinical leadership behavior by their peers. To test the hypothesis that nurses in the acute care setting seek clinical guidance and direction from peers who are informal clinical leaders, a study could be designed in which nurses identify peers who they consider to be informal clinical leaders or from whom they seek clinical guidance. The nurses could be asked to complete the CLB-Q about the peers they identified as informal clinical leaders, and the identified informal clinical leaders can be asked to complete the CLB-Q with their self-reported behaviors. The results could be compared to determine if nurses do seek guidance from peers with higher CLB-Q scores and to compare how the followers perceive the informal clinical leaders' behaviors with how the informal clinical leaders see or portray themselves. While the CLB-Q was supported as psychometrically sound in this study, this type of self-report and observer comparison could inform the knowledge about the validity of the CLB-Q.

Limitations

Due to the lack of a generally accepted model of informal clinical leadership among bedside nurses in the acute care setting, the quantitative strand in the current study had an exploratory, cross-sectional design. As such, causality could not be inferred through this study. However, the data from the current study can be used to plan future research about the effects of psychological capital on clinical leadership behavior and to design and test the effects of interventions promoting psychological capital on clinical leadership behavior.

Due to the design of this study, informal clinical leadership in the qualitative strand was studied specifically in the context of how nurses influence each other's patient care practice when nurses seek clinical direction or guidance about a patient care issue from peers. While the core definition of leadership is the influence people have on each other with respect of attitudes, beliefs, behaviors, or outcomes (Stentz et al., 2012; Yukl, 2010), this was a very specific application of leadership in this study, which may limit the generalizability of the findings. Alternative study designs, which may study a broader application of leadership, are described in the Recommendations for Future Research section of this chapter.

The mean age of the participants in this study was 35.62 years of age, 84.8% of respondents had a BSN, 93.9% worked in academic medical centers, and 93.3% worked in Magnet®-designated hospitals. These sample characteristics may limit the

generalizability of the findings. Detailed sample demographics are presented in Chapter 4 for consideration when assessing for generalizability.

Data collection occurred via a web-based survey distributed to bedside nurses working in the participating hospitals and units. The survey design may have introduced a self-selection bias if only nurses with particular known or unknown characteristics chose to respond to the surveys. The low mean age of the sample (35.62 years) is suggestive of a lack older nurses working at the bedside completing online survey. Aerny-Perreten, Domínguez-Berjón, Esteban-Vasallo, and García-Riolobos, C. (2015) found lower response rates to online surveys in clinicians who are over 60 years of age. However, Rübsamen, Akmatov, Castell, Karch, and Mikojlaczyk (2017) found equal response rates to online surveys across age groups and asserted older responders participated in online surveys regardless of their comfort level with the technology because of their interest in making a positive contribution to the study. The reason for the lower response rate among the older participants in this study is unclear but should be a consideration among those determining the generalizability of the findings.

Conclusion

This study explored the predictors of informal clinical leadership emerging among bedside nurses in the acute care setting along with bedside nurses' perceptions about the influences on clinical leadership behavior in the acute care setting. The findings resoundingly supported nurses are interconnected in practice, and informal clinical leaders can emerge from this network. These findings contribute to the body of

knowledge about the meso- and micro-level interactions among bedside nurses that have clinical practice implications by providing a description of the nurses to whom peers turn for clinical guidance at the point of care, the circumstances under which they do so, and the effects of the responses.

Further, the findings supported psychological capital as a significant predictor of informal clinical leadership behavior. Psychological capital had not been previously studied in association with informal clinical leadership among bedside nurses. Developing psychological capital among bedside nurses might be one more strategy for promoting informal clinical leadership behavior; however, further confirmatory research is needed in this area specifically and about informal clinical leadership in general.

Ultimately, understanding how informal clinical leadership emerges among bedside nurses will inform the architects of acute care clinical practice environments about how to leverage the power of informal clinical leadership to promote consistently high quality, safe, and effective patient care. In the complexity leadership model, the architects of acute care clinical practice work in various practice dimensions from hierarchical formal leaders who try to manage and control the complexities of modern healthcare to the adaptive point of care agents whose daily interactions and behavior contribute to the complexity and produce the collective behavior of the clinical care unit (Uhl-Bien, 2012). This study focused on exploring the influences on informal clinical leadership among bedside nurses to expand that nursing knowledge area.

However, in complex adaptive systems such as hospitals, leadership is not restricted to one hierarchical level. Nurses working at all hierarchical levels stand to benefit from understanding informal clinical leadership to improve peer interactions, practice care environments, and ultimately patient care. While formal leaders may have the hierarchical power and resources to support staff development, individual nurses and informal leaders can reflect on their own potential to engage in informal clinical leadership and increase their own psychological capital and organizational citizenship behavior. If nurses are expected to continue to lead change at the point of care when faced with the complexities of the modern healthcare environment, evidence-based strategies are needed to best prepare them to rise to this challenge.

REFERENCES

Abraham, P. J. (2011). Developing nurse leaders a program enhancing staff nurse leadership skills and professionalism. *Nursing Administration Quarterly*, *35*, 306-312. doi: 10.1097/NAQ.0b013e31822ecc6e

Aerny-Perreten, N., Domínguez-Berjón, M. F., Esteban-Vasallo, M. D., & García-Riolobos, C. (2015). Participation and factors associated with late or non-response to an online survey in primary care. *Journal of Evaluation in Clinical Practice*, *21*(4), 688-693. doi:10.1111/jep.12367

American Association of Colleges of Nursing (AACN). (2008). *The essentials of baccalaureate education for professional nursing practice*. Retrieved from http://www.aacn.nche.edu/education-resources/BaccEssentials08.pdf

Avey, J. B., Reichard, R. J., Luthans, F., & Mharte, F. (2011). Meta-analysis of the impact of positive psychological capital on employee attitudes, behaviors, and performance. *Human Resource Development Quarterly*, *22*(2), 127-152.

Báez-León, C., Moreno-Jímenez, B., Aguirre-Camacho, A., & Olmos, R. (2016). Factors influencing intention to help and helping behavior in witnesses of bullying in nursing settings. *Nursing Inquiry*, *23*(4), 358-367. doi: 10.1111/nin.12149.

Barbuto, J. E., Fritz, S. M., Matkin, G. S., & Marx, D. B. (2007). Effects of gender, education, & age upon leaders' use of influence tactics and full range leadership behaviors. *Sex Roles*, *56*, 71–83. doi: 10.1007/s11199-006-9152-6

Bass, B. M. (2008). *The Bass handbook of leadership: Theory, research, & managerial applications* (4th ed.). New York, NY: Free Press.

Boamah, S., & Laschinger, H. (2014). Engaging new nurses: The role of psychological capital and workplace empowerment. *Journal of Research in Nursing*, *20*(4), 265-277. doi: 10.1177/1744987114527302

Bohmer, R. M. (2013). Leading clinicians and clinicians leading. *New England Journal of Medicine*, *368*, 1468-1470. doi: 10.1056/NEJMp1301814

Bolíbar, M. (2016). Macro, meso, micro: Broadening the 'social' of social network analysis with a mixed methods approach. *Quality & Quantity*, *50*, 2217-2236. . doi: 10.1007/s11135-015-0259-0

Bonner, L. (2016). A survey of work engagement and psychological capital levels. *British Journal of Nursing*, *25*(15), 865-871.

Booth, B. J., Zwar, N., & Harris, M. F. (2013). Healthcare improvement as planned system change or complex responsive processes? A longitudinal case study in general practice. *BMC Family Practice*, 14. Retrieved from http://www.biomedicalcentral.com/1471-2296/14/51

Bucknall, T. (2003). The clinical landscape of critical care: nurses' decision making. *Journal of Advanced Nursing*, *43*(3), 310-319. doi: 10.1046/j.1365-2648.2003.02714.x

Caldwell, S. D., Roby-Williams, C., Rush, K., & Ricke-Kiely, T. (2009). Influences of context, process and individual differences on nurses' readiness for change to Magnet status. *Journal of Advanced Nursing*, *65*, 1412-1422. doi:10.1111/j.1365-2648.2009.05012.x

Casey, M., McNamara, M., Fealy, G., & Geraghty, R. (2011). Nurses' and midwives' clinical development needs: A mixed methods study. *Journal of Advanced Nursing*, *67*, 1502-1513. doi: 10.1111/j.1365-2648.2010.05581.x

Castronovo, M., Pullizzi, A., & Evans, S. (2016). Nurse bullying: A review and a proposed solution. *Nursing Outlook*, *64*(3), 208-214. soi: 10.1061/j.outlook.2015.11.008

Chaffee, M. W., & McNeill, M. M. (2007). A model of nursing as a complex adaptive system. *Nursing Outlook*, *55*, 232-241. doi: 10.1016/j.outlook.2007.04.003

Charles, K., McKee, L., & McCann, S. (2011). A quest for patient-safe culture: Contextual influences on patient safety performance. *Journal of Health Services Research & Policy*, *16*, 57-64.

Chávez, E. C., & Yoder, L. H. (2014). Staff nurse clinical leadership: A concept analysis. *Nursing Forum*, *50*(2), 90-100. doi:10.1111/nuf.12100

Clark, C. M. (2014). Seeking civility. *American Nurse Today*, *9*(7). Retrieved from https://www.americannursetoday.com/seeking-civility/

Clarke, S. P. (2013). Foreword. In T. Porter-O'Grady & K. Malloch (Eds.*), Leadership in nursing practice changing the landscape of health car*e (pp. xvii – xviii). Burlington, MA: Jones & Barlett Learning.

Cogin, J. (2012). Are generational differences in work values fact or fiction? Multi-country evidence and implications. *The International Journal of Human Resource Management*, *23*(11), 2268-2294. doi:10.1080/09585192.2011.610967

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Commission on Collegiate Nursing Education (CCNE). (2008). *Standards for accreditation of post-baccalaureate nurse residency programs*. Washington, DC: Author.

Creswell, J. W., & Plano Clark, V. L. (2011*). Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Cross, R., Nohria, N., & Parker, A. (2002). Six myths about informal networks – and how to overcome them. *MIT Sloan Management Review*. Retrieved from http://sloanreview.mit.edu/article/six-myths-about-informal-networks-and-how-to-overcome-them/

Cummings, G., Lee, H., MacGregor, T., Davey, M., Wong, C., Paul, L., & Stafford, E. (2008). Factors contributing to nursing leadership: A systematic review. *Journal of Health Services Research & Policy*, *13*, 240-248. doi: 10.1258/jhsrp.2008.007154

Dawkins, S., Martin, A., Scott, J., & Sanderson, K. (2013). Building on the positives: A psychometric review and critical analysis of the construct of psychological capital. *Journal of Occupational and Organizational Psychology*, *86*, 348-370. doi: 10.1111/joop.12007

Dello Russo, S., & Stoykova, P. (2015). Psychological capital intervention (PCI): A replication and extension. *Human Resource Development Quarterly*, *26*(3), 329-347.doi: 10.1002/hrdq.21212

DeVellis, R. F. (2012). *Scale development: Theory and applications*. Los Angeles, CA: Sage.

Dinh, J. E., Lord, R. G., Gardener, W. L., Meuser, J. D., Liden, R. C., & Hu, J. (2014). Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. *The Leadership Quarterly*, *25*, 36-62. doi: 10.1016/j.leaqua.2013.11.005

Downey, M., Parslow, S., & Smart, M. (2011). The hidden treasure in nursing leadership: informal leaders. *Journal of Nursing Management*, *19*, 517-521.

Eastman, L. (2013). *The relationship between psychological capital and workplace bullying for nurses* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (No. 3575191).

Fardellone, C., Musil, C. M., Smith, E., & Click, E. R. (2014). Leadership behaviors of front line staff nurses. *Journal of Continuing Education in Nursing*, *45*(11), 506-513. Doi: 10.3928/00220124.20141023.05

Fealy, G., McNamara, M. S., Casey, M., Geraghty, R., Butler, M., Halligan, P., . . . Johnson, M. (2011). Barriers to clinical leadership: Findings from a national survey. *Journal of Clinical Nursing*, *20*, 2023-2032. doi: 10.1111/j.1364-2702.2010.03599.x

Fealy, G., McNamara, M., Casey, M., Doyle, L., O'Connor, T., Patton, D., & Quinlan, C. (2012). Evaluation of the national clinical leadership development project pilot. Retrieved from Health Service Executive in Ireland website: http://www.hse.ie/eng/services/Publications/corporate/Clinical_Leadership_Pilot_Evaluation_Report,_HSE_West.html

Fealy, G., McNamara, M. S., Casey, M., O'Connor, T., Patton, D., Doyle, L., & Quinlan, C. (2013). Service impact of a national leadership development programme findings from a qualitative study. *Journal of Nursing Management*, *25*, 1-9. doi: 10.1111/jonm.12133

Flodgren, G., Rojas-Reyes, M. X., Cole, N., & Foxcroft, D. R. (2012). Effectiveness of organisational infrastructures to promote evidence-based nursing practice. *Cochrane Database of Systematic Reviews*, Issue 2, Art. No.: CD002212. doi: 10.1002/14651858.CD002212.pub2

Gage, W. (2013). Using service improvement methodology to change practice. *Nursing Standard*, *27*(23), 51-57.

Garson, G. D. (2015). *Missing values analysis & data imputation*. Asheboro, NC: Statistical Associates Publishing.

Gillespie, M., & Peterson, B. L. (2009). Helping novice nurses make effective clinical decisions: The situated clinical decision-making framework. *Nursing Education Perspectives*, *30*(3), 164-170.

Goode, C., Lynn, M., Krsek, K., Bednash, G., & Jannetti, A. (2009). Nurse residency programs: An essential requirement for nursing. *Nursing Economic$, 27*(3), 142-159.

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, *60*(1).

Graham, J. W., & Schafer, J. L. (1999). On the performance of multiple imputation for multivariate data with small sample size. In R. Hoyle (Ed.), *Statistical strategies for small sample research* (pp. 1–29). Thousand Oaks, CA: Sage.

Grossman, S., & Valiga, T. (2017). *The new leadership challenge. Creating the future of nursing* (5th ed.). Philadelphia, PA: F.A. Davis Company.

Hannes, K., Vandersmissen, J., De Blaeser, L., Peeters, G., Goedhuys, J., & Aertgeerts, B. (2007). Barriers to evidence-based nursing: A focus group study. *Journal of Advanced Nursing*, 62, 162-171. doi: 10.1111/j.1365.2648.2007.04389.x

Hanson, W. R., & Ford, R. (2010). Complexity leadership in healthcare: Leader network awareness. *Procedia Social and Behavioral Sciences*, *2*, 6587-6596. Retrieved from http://www.sciencedirect.com/science/journal/18770428/2/4

Hauck, S., Winsett, R. P., & Kuric. J. (2012). Leadership facilitation strategies to establish evidence-based practice in an acute care hospital. *Journal of Advanced Nursing*, *69*, 664-674. doi: 10.1111/j.13-65-2648.2012.06053.x

Hennerby, C., & Joyce, P. (2011). Implementation of a competency assessment tool for agency nurses working in an acute paediatric setting. *Journal of Nursing Management*, *19*(2), 237-245. doi:10.1111/j.1365-2834.2011.01223.x

Hoffman, B. J., Woehr, D. J., Maldagen-Youngjohn, R., & Lyons. B. D. (2011). Great man or great myth? A quantitative review of the relationship between individual differences and leader effectiveness. *Journal of Occupational and Organizational Psychology*, *84*, 347-381. doi: 10.1348/096317909X485207

Howieson, B., & Thiagarajah, T. (2011). What is clinical leadership? A journal-based meta-review. *International Journal of Clinical Leadership*, *17*(1), 7-18.

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*, 1277 - 1288. doi: 10.1077/1049732305276687

Hutchinson, M., & Hurley, J. (2013). Exploring leadership capability and emotional intelligence as moderators of workplace bullying. *Journal of Nursing Management*, *21*(3), 553-562. doi: 10.1111/j.1365-2834.2012.01372.x

IBM. (2016). SPSS for Windows (24.0.0). Armonk, NY: IBM Corporation.

Institute of Medicine. (2010). *The future of nursing: Leading change, advancing health*. Washington, DC: The National Academies Press. Retrieved from http://books.nap.edu/openbook.php?record_id=12956&page=R1

Institute of Medicine. (2013). *Best care at lower cost: The path to continuously learning health care in America*. Washington, DC: The National Academies Press. Retrieved from http://www.nap.edu/download.php?record_id=13444

Janssen, M., van Achterberg, T., Adriaansen, M., Kampshoff, C., Schalk, D., & Mintjes-de Groot, J. (2012). Factors influencing the implementation of the guideline triage in emergency departments: A qualitative study. *Journal of Clinical Nursing*, *21*, 437-447. doi:10.1111/j.1365-2702.2011.03921.x

Johansson, G., Andersson, L., Gustafsson, B., & Sandahl, C. (2010). Between being and doing: The nature of leadership of first-line nurse managers and registered nurses. *Journal of Clinical Nursing*, *19*, 2619 – 2628. doi: 10.1111/j.1365.2702.2010.03211.x

Johnson, S., Ostaszkiewicz, J., & O'Connell, B. (2009). Moving beyond resistance to restraint minimization: A case study of change management in aged care. *Worldviews on Evidence-Based Nursing*, *6*, 210-218.

Kerns, C. D. (2015). Situational context: A core leadership dimension. *Journal of Leadership, Accountability, and Ethics*, *12*(1), 11-24.

Kim, H. Y. (2013). Statistical notes for clinical researchers: Assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics*. doi: 10.5395/rde.2013.38.1.52

Kouzes, J. M., & Posner, B. J. (2012). *The leadership challenge how to make extraordinary things happen in organizations* (5th ed.). San Francisco, CA: Jossey-Bass.

Kowalski, S., & Cross, C. (2010). Preliminary outcomes of a local residency programme for new graduate resident nurses. *Journal of Nursing Management*, *18*(1), 96-104. doi: 1011/j.1365-2834.2009.01056.x

Krackhardt, D., & Hanson, J. R. (1993). Informal networks: The company behind the charts. *Harvard Business Review*, *71*(4), 104-111.

Krippendorff, K. (2013). *Content analysis an introduction to its methodology* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Landrigan, C. P., Parry, G. J., Bones, C. B., Hackbarth, A. D., Goldman, D. A., & Sharek, P. J. (2010). Temporal trends in the rates of patient harm resulting from medical care. *New England Journal of Medicine*, *363*(22), 2124-2134. doi: 10.1056/NEJMsa1004404

Larsson, I. E., & Sahlsten, M. J. M. (2016). The staff nurse clinical leader at the bedside: Swedish registered nurses' perceptions. *Nursing Research and Practice*, *2016*, doi: 10.1155/2016/1797014

Laschinger, H.K.S., & Fida, R. (2014). New nurses burnout and workplace wellbeing: The influence of authentic leadership and psychological capital. *Burnout Research*, *1*, 19-28. doi: 10.1016/j.burn.2014.03.002

Lawson, T. D. (2016). *Informal leadership: A study of the impact of leadership on patient satisfaction in hospitals* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (No. 10154845).

Lean Keng, S., & Alquhah, H. N. I. (2017). Assessment of cognitive bias in decision-making and leadership styles among critical care nurses: A mixed methods study. *Journal of Advanced Nursing*, *73*(2), 465-481. doi: 10.1111/jan13142

Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*(404), 1198-1202.

Long, P. W., Lobley, K., Spurgeon, P. C., Clark, J. C., Balderson, S., & Lonetto, T. M. (2011). The CLCF: Developing leadership capacity and capability in the clinical professions. *The International Journal of Clinical Leadership*, *17*, 111-118.

Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human Resource Development Quarterly*, *21*(1), 41-67. doi:10.1002/hrdq.20034

Luthans, F., Avey, J. B., & Patera, J. (2008). Experimental analysis of a web-based training intervention to develop positive psychological capital. *Academy of Management Learning & Education*, *7*(2), 209-221.

Luthans, F., Avolio, B. J., & Avey, J. B. (2014). *Psychological capital questionnaire (PCQ) manual*. Retrieved from http://www.mindgarden.com/products/pcq.htm

Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, *60*, 541–572.

Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). *Psychological capital*. *Developing the human competitive edge*. New York, NY: Oxford University Press.

Luthans, K. W., & Jenson, S. M. (2005). The linkage between psychological capital and commitment to organizational mission. A study of nurses. *Journal of Nursing Administration*, *35* (6), 304-310.

Mannix, J., Wilkes, L., & Daly, J. (2013). Attributes of clinical leadership in contemporary nursing: An integrative review. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, *45*(1), 10-21. doi: 10.5172/conu.2013.45.1.10

Manojlovich, M. (2005). Predictors of professional nursing practice behaviors in hospital settings. *Nursing Research, 54(1), 41-47.*

Marchionni, C., & Ritchie, J. (2008). Organizational factors that support the implementation of a nursing best practice guideline. *Journal of Nursing Management*, *16*, 266-274. doi: 10.1111/j.1365-2834.2007.00775.x

Marion, R. (2008). Complexity theory for organizations and organizational leadership. In M. Uhl-Bien & R. Marion (Eds.), *Complexity leadership part I: Conceptual foundations*. Charlotte, NC: Information Age Publishing.

Martin, J. S., McCormack, B., Fitzsimons, D., & Spirig, R. (2012). Evaluation of a clinical leadership programme for nurse leaders. *Journal of Nursing Management*, *20*, 72-80.

McDaniel, R. R., Lanham, H. J., & Anderson, R. A. (2009). Implication of complex adaptive systems theory for the design of research on health care organizations. *Health Care Management Review*, *34*, 191-199. doi: 10.1097/HMR.0b013e31819c8b38

McNamara, M. S., Fealy, G. M., Casey, M., Geraghty, R., Johnson, M., Halligan, P., Treacy, P., & Butler, M. (2011). Boundary matters: Clinical leadership and the distinctive disciplinary contribution of nursing to multidisciplinary care. *Journal of Clinical Nursing*, *20*, 3502-3512. doi: 10.1111/j.1365-2702.2011.03719.x

Melnyk, B.M., Fineout-Overholt, E., Gallagher-Ford, L., & Kaplan, L. (2012). The state of evidence-based practice in US nurses: Critical implications for nurse leaders and educators. *Journal of Nursing Administration*, *42*, 410-417. doi: 10.1097/NNA.0b013e3182664e0a

Messmer, P. R., & Turkel, M. (2010). Magnetism and the nursing workforce. *Annual Review of Nursing Research*, *28*, 233-252. doi://10.1891/0739-6686.28.233

Mikaelian, B., & Stanley, C. (2016). Incivility in nursing: From roots to repair. *Journal of Nursing Management*, *24*(7), 962-969, doi:10.1111/jonm.12403

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis a methods source book* (3rd ed.). Thousand Oaks, CA: Sage Publication.

Millward, L. J., & Bryan, K. (2005). Clinical leadership in healthcare: A position statement. *International Journal of Healthcare Quality Assurance*, *18*(2/3), xiii-xxv.

Miskelly, P., & Duncan, L. (2014). 'I'm actually being the grown-up now': Leadership, maturity and professional identify development. *Journal of Nursing Management*, *22*, 38-48. doi: 10.1111/jonm.12030

National Health Service Leadership Academy. (2013). *Healthcare leadership model: The nine dimensions of leadership* (Vers. 1.0). Retrieved from https://www.leadershipacademy.nhs.uk/wp-content/uploads/2013/10/NHSLeadership-LeadershipModel-10-Print.pdf

Norman, S. M., Avey, J. B., Nimnicht, J. L. & Pigeon, N. G. (2010). The interactive effects of psychological capital and organizational identity on employee organizational citizenship and deviance behaviors. *Journal of Leadership & Organizational Studies*, *17*(4), 380-391. doi: 10.1177/1548051809353764

O'Leary, D. F., & Ni Mhaolrunaigh, S. (2012). Information-seeking behavior of nurses: Where is information sought and what processes are followed. *Journal of Advanced Nursing*, *68*(2), 379-390. doi: 10.1111/j.1365-2648.2011.05750.x

Office of Inspector General. (2010). *Adverse events in hospitals: National incidence among Medicare beneficiaries*. (OEI-06-09-00090). Washington, DC: Department of Health and Human Services.

Oh, S. H. (2012). Leadership emergence in autonomous work teams: Who is more willing to lead? *Social Behavior and Personality*, *40*, 1451-1464. doi: 10.2224/sbp.2012.40.9.1451

Organ, D. W. (1997). Organizational citizenship behavior: It's construct clean-up time. *Human Performance*, *10*(2), 85-97.

Paley, J. (2007). Complex adaptive systems and nursing. *Nursing Inquiry*, 14, 233-242.

Pallant, J. (2013). *SPSS Survival Manual. A step by step guide to data analysis using IBM SPSS* (5th ed.). New York, NY: McGraw-Hill Education.

Patrick, A., Laschinger, H. S., Wong, C., & Finegan, J. (2011). Developing and testing a new measure of staff nurse clinical leadership: The clinical leadership survey. *Journal of Nursing Management*, *19*(4), 449-460. doi: 10.1111/j.1365-2834.2011.01238

Patton, D., Fealy, G., McNamara, M., Casey, M., Connor, T. O., Doyle, L., & Quinlan, C. (2013). Individual-led outcomes from a national clinical leadership development programme. *Contemporary Nurse*, *45*, 56-63.

Pielstick, C. D. (2000). Formal vs informal leading: A comparative analysis. The *Journal of Leadership Studies*, *7*, 99–114. doi: 10.1177/107179190000700307

Plsek, P. E., & Greenhalgh, T. (2001). Complexity science: The challenge of complexity in health care. *British Medical Journal*, 323, 625-628.

Polit, D. F., & Beck, C. (2012). *Nursing research generating and assessing evidence for nursing practice*. Philadelphia, PA: Lippincott Williams & Wilkins.

Porter-O'Grady, T., & Malloch, K. (2013). *Leadership in nursing practice: Changing the landscape of health care*. Burlington, MA: Jones & Bartlett Leaning Inc.

Powell, I. (2013). Can you see me? Experiences of nurses working night shift in Australian regional hospitals: A qualitative case study. *Journal of Advanced Nursing*, *69*(10), 2172-2184. doi: 10.1111/jan.12079

Pradhan, R. K., Jena, L. K., & Bhattacharya, P. (2016). Impact of psychological capital on organizational citizenship behavior: Moderating role of emotional intelligence. *Cogent Business & Management*, *3*. doi: 10.1080/23311975.2016.1194174

Rübsamen, N., Akmatov, M. K., Castell, S., Karch, A., Mikojlaczyk, R. T. (2017). Comparison of response patterns: A longitudinal panel with mixed-mode and on-line only design. *Emerging Themes in Epidemiology*, *14*, 1-11. doi: 10.1186/s12982-017-0058-2

Rydenfält, C., Johansson, G., Odenrick, P., Åkerman, K., & Larsson, P. (2015). Distributed leadership in the operating room: A naturalistic observation study. *Cognition, Technology, & Work*, *17*(3), 451-460.

SAS. (2016). JMP Pro (13.1.0) [Software]. Cary, NC: SAS Institute Inc.

Saldaña, J. (2013). *The coding manual for qualitative researchers* (2nd ed.). San Francisco, CA: Sage Publications.

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods 7*(2), 147-177.

Shirey, M. R., & Fisher, M. L. (2008). Leadership agenda for change toward healthy work environments in acute and critical care. *Critical Care Nurse*, *28*(5), 66-79.

Simmons, J. C., & Buitendach, J. H. (2013). Psychological capital, work engagement, and organisational commitment amongst call centre employees in South Africa. *South African Journal of Industrial Psychology*, *39*(2). doi: 10.4102/sajip.v39i2.1071

Stanley, D. (2014). Clinical leadership characteristics confirmed. *Journal of Research in Nursing*, *19*(2), 118-128. doi: 10.1177/1744987112464630

Stanley, D. (2006). In command of care: Clinical nurse leadership is explored. *Journal of Research in Nursing*, *11*(1), 20-39.

Stentz, J. E., Plano Clark, V. L., & Matkin, H. S. (2012). Applying mixed methods to leadership research: A review of current practices. *The Leadership Quarterly*, *23*, 1173-1183. doi: 10.1016/j.leadqua.2012.10.001

Sterne, J. A. C., White, I. R., Carlin, J. B., Spratt, M., Royston, P., Kenward, M. G., Wood, A. M., & Carpenter, J. R. (2009). Multiple imputation for missing data in epidemiological and clinical research: Potential and pitfalls. *BMJ*, *338*, doi: 10.1136/bmj.b2393

Sun, T., Zhoa, X. W., Yang, L. B., & Fan, L. H. (2012). The impact of psychological capital on job embeddedness and job performance among nurses: A structural equation approach. *Journal of Advanced Nursing*, 68, 69-79. doi: 10.1111/j.1365-2648.2011.05715.x

Supamanee, T., Krairiksh, M., Singhakumfu, L., & Turale, S. (2011). Preliminary clinical leadership competency model: A qualitative study in Thailand. *Nursing & Health Sciences*, *13*, 433-439. doi: 10.1111/j.1442-2018.2011.00649.x

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston, MA: Pearson Education.

Thompson, G., & Vecchio, R. P. (2009). Situational leadership theory: A test of three versions. *Leadership Quarterly*, *20*, 837-848. doi: 10.1016/j.leaqua.2009.06.014

Tinkler, M., Hoy, L., & Martin, D. (2014). A framework for challenging deficits in compression bandaging techniques. *British Journal of Community Nursing*, S14-21.

Uhl-Bien, M., Marion, R., & McKelvey, B. (2007). Complexity leadership theory: Shifting leadership from the industrial age to the knowledge era. *The Leadership Quarterly*, *18*, 298-318.

Uhl-Bien, M. (2012, November 7). *Complexity leadership part I* [Recorded webinar]. In Plexus Institute's *Nursing Network Call* series. Retrieved from http://www.plexusinstitute.org/events

U.S. Department of Labor, Bureau of Labor Statistics. (2015, March 7). *Occupational outlook handbook, 2014-1015 edition*: *Registered nurses*. Retrieved from http://www.bls.gov/ooh/healthcare/registered-nurses.htm#tab-1

Van Iddekinge, C. H., Ferris, G. R., & Heffner, T. S. (2009). Test of a multistage model of distal and proximal antecedents of leader performance. *Personnel Psychology*, *62*, 463-495.

Warner, R. M. (2008). *Applied statistics from bivariate to multivariate techniques*. Los Angeles, CA: Sage Publications.

Weberg, D. (2012). Complexity leadership: A healthcare imperative. *Nursing Forum*, *47*, 268-277.

Yukl, G. (2010). *Leadership in organizations* (7th ed.). Upper Saddle Brook, NJ: Pearson Prentice Hall.

Zhang, X., Li, Y., Ma, S., Hu, J., & Jiang, L. (2014). A structured reading material-based intervention program to develop the psychological capital of Chinese employees. *Social Behavior and Personality*, *42*(3), 503-525. doi:10.2224/sbp.2014.42.3.503

APPENDICES

APPENDIX A

ONLINE SURVEY QUESTIONS

The following questions comprise the data collection instrument for this study, which was accessed by participants via an online survey. The first page displayed in the online survey is the Mercer University Office of Research Compliance Informed Consent page for online data collection.

1. Are you a registered nurse (RN) yes / no
2. Do you provide direct patient care at least 75% of your time at work**?** yes / no
3. Do you have staff reporting directly to you? yes / no
4. Do you work as an advanced practice nurse (for example, APRN, FNP, CNS, CNM, CRNA)? yes / no
5. Do you have formal education or training as a manager or administrator other than courses in your pre-licensure nursing education program? yes / no
6. Have you ever worked in the capacity of manager or supervisor either in healthcare or other field? yes / no

If the participant responds "no" to questions 1 or 2 or "yes" to questions 3 through 6, he or she meets the exclusion criteria. As such he or she will be redirected away from the online survey and the following message will display:

Thank you for your willingness to participate in this study. This study has a specific focus on the experiences of *registered nurses* (RNs) who provide direct patient care as their primary job, are *not* advanced practice nurses, are *not* formal supervisors or managers, have *not* been trained as supervisors or managers, and have *not* worked as a supervisor or manager in a previous job. Your responses indicated you have education or experience other than these specific criteria, which makes you ineligible to participate in this particular study. Again thank you for your interest in this study. If you have questions or concerns about this study, you may contact

- investigator Darlene Rogers by phone at [redacted] or email at [redacted],
- dissertation committee chairperson Dr. Lanell Bellury at [redacted] or
- Mercer University Institutional Review Board at ([redacted] or [redacted]

7. Age in years: _____

8. Gender: male / female

9. Race/Ethnicity with which you most closely identify (choose one):

    a. American Indian or Alaska Native
    b. Asian
    c. Black or African American (not Hispanic or Latino)
    d. Hispanic or Latino/Latina
    e. Native Hawaiian or Other Pacific Islander
    f. White (not Hispanic or Latino)
    g. Multiracial

10. Years of experience as a nurse (round up to whole number): _____

11. Highest educational preparation in <u>nursing</u> (choose one): _____

    a. Diploma
    b. ADN/ASN
    c. BSN

d. MSN – CNL (Clinical Nurse Leader)
e. MSN – NP (Nurse Practitioner within any specialty)
f. MSN – CNS (Clinical Nurse Specialist)
g. MSN – CNM (Clinical Nurse Midwife)
h. MSN – CRNA (Certified Registered Nurse Anesthetist)
i. MSN – Nursing Education
j. MSN – Administration/Leadership
k. MSN - Informatics
l. DNP
m. PhD

12. Highest non-nursing educational degree (choose one): _____

a. Not applicable
b. Associate's
c. Bachelor's
d. Master's
e. PhD
f. D Ed

Area of study: _____

13. When you began your nursing career, did you participate in a nurse residency program? yes / no

14. Type of hospital at which you currently work (choose one): _____

a. Academic medical center (hospital or hospital system closely affiliated with a school of medicine)
b. Community hospital (non-academic medical center hospital)
c. Rural hospital (hospital in a rural setting)
d. Unsure

15. Years of experience at this hospital (round up to whole number): _____

16. What best describes the ANCC Magnet® designation of the hospital in which you are employed? _____

a. This hospital currently has ANCC Magnet® designation.
b. This hospital is on the journey to ANCC Magnet® designation.
c. I have not heard any plan for ANCC Magnet® designation for this hospital

d. I do not know.

17. Are you a full-time employee at this hospital? yes / no

18. Primary patient age group with whom you currently work (choose one): _____

    a. Adult/geriatric
    b. Pediatric/adolescent
    c. Neonatal
    d. Mixed age group (consider for L&D, Mother/Baby, ED, or other areas)

19. Primary area in which you currently work (choose one): _____

    a. Critical care services
    b. Labor and delivery
    c. Neonatal ICU/Intensive Care Nursery
    d. Obstetric (Mother/Baby)
    e. Perioperative services
    f. Surgical services (in-patient pre- and post-surgical procedures)
    g. Medical services (telemetry, non-surgical oncology, non-surgical cardiology, non-surgical neurology, nephrology, etc.)
    h. Mixed medical-surgical services
    i. Emergency/trauma services
    j. Mental health services

20. Total number of beds or patients in your work area: _____

21. Years of experience in the nursing practice area in question 17 (round up to whole number): _____

22. I have a professional nursing specialty certification in my practice area (e.g., PCCN, CCRN, medical-surgical nursing, oncology nursing, rehabilitation nursing, etc.) yes / no

23. I plan on applying for a formal nurse leader position in a managerial capacity such as nurse supervisor or nursing unit director within the next two years? yes / no

24. What shift do you usually work? (choose one): _____

a. Day shift
b. Night shift
c. Evening shift
d. Rotating shifts
e. Weekend-only day shift
f. Weekend-only night shift

25. Number of patients typically assigned to you at one time during your shift: _____

Items 30 through 75 are from the CLB-Q (Fealy et al., 2012). Permission has been obtained from the authors for use in this study.

- Please read each statement below.
- Select one of the terms (Never, Infrequently, Sometimes, Frequently, or Always) for each statement to describe how often you actually perform these behaviors in the patient care setting.
- Your responses should reflect your typical behavior and experience in your everyday nursing practice within your current environment rather than how you ideally think you should act.
- Your identity will not be released so your responses are confidential. Please answer as accurately as you can about your real life experience in the patient care setting.

Select one of the frequency terms for each statement below to describe how often you typically perform these behaviors as a nurse in the patient care setting.	Never	Infrequently	Sometimes	Frequently	Always
26. I serve as a temporary charge nurse on my unit for a shift.					

27. I serve as a preceptor for nurses new to my unit.					
28. I volunteer for nurse-sensitive initiatives such as skin care champion, infection prevention champion, nursing retention and recruitment committee, and so forth.					
29. I participate in shared governance activities such as unit practice councils.					
30. I reflect on my own effectiveness in my current professional role.					
31. I recognize my own abilities and limitations as a professional.					
32. I recognize my own emotional responses and reactions.					
33. I manage my emotional responses to situations.					
34. I am sensitive to other people's emotions and responses.					
35. I act according to what I believe is right.					
36. I am generally able to recognize when patients or colleagues need my support.					
37. I advocate for others when they are unwilling or unable to act or speak for themselves.					
38. I create an environment in which others are empowered to speak or act in meeting their own needs or the needs of others.					
39. I actively support patients or colleagues when they are acting to meet their own needs or the needs of others.					
40. I actively support colleagues to achieve the highest standards in their work.					
41. I encourage others to act according to best available evidence and best practice standards.					
42. I am willing to make decisions that affect patients or colleagues.					
43. I take responsibility for making decisions that affect others.					
44. I act on decisions I have made which affect others.					

45. I am accountable for the outcomes of the decisions I have made that affect others.					
46. I weigh the options before I respond to any problem or situation.					
47. When I take action I monitor the effects of that action on the problem or situation.					
48. In the context of decision-making, I take calculated risks within the parameters of quality and patient safety.					
49. I actively listen when others are communicating with me.					
50. I give feedback to others when communicating with them.					
51. I use the *language* most appropriate with the individual or group with whom I am communicating.					
52. I use the means of communication (verbal, written, meetings, case conferences, newsletters, public media) most appropriate for the message being conveyed.					
53. I intervene when necessary to manage conflict in the work setting.					
54. I use available networks (colleagues in my own or other organizations) to share information or ideas.					
55. I reduce the risk of harm to patients by ensuring that my practice is of a high standard (i.e. evidence based).					
56. I ensure effective care by monitoring outcomes of care delivered (evaluate outcomes, review audit reports).					
57. I ask patients/service users for feedback on the quality of care that they receive.					
58. I actively monitor my own practice with regard to standards of quality and safety.					
59. I actively monitor the practice of others with regard to standards of quality and safety.					
60. I promote a culture of quality and safety by my own actions (e. g. role modelling high standards in my own work, communicating evidence).					

61. I collaborate with others in the organization to achieve high standards of quality and safety.					
62. I develop good working relationships with the people with whom I work.					
63. I assist in developing common understanding of the objectives of the team.					
64. I contribute to the effective functioning of the team by playing *my* part as a team member/team leader.					
65. I draw on the particular strengths of individuals to ensure team effectiveness.					
66. I create a culture of team working through my actions (e.g. role modelling collaborative working).					
67. I celebrate team achievements (e.g. praising colleagues for their contribution).					
68. I take responsibility for developing clinical practice (e.g. developing clinical practice policies).					
69. I participate in continuing professional development opportunities (participation in journal clubs, in unit-based activities).					
70. I support other colleagues in participating in continuing professional development.					
71. I maximize the use of available resources (e.g. equipment, information technology, literature and library services) to ensure that clinical care is excellent.					
72. I work collaboratively with other professionals (physicians, social workers) to ensure that clinical care is excellent.					
73. I support efforts of others to examine the quality of clinical practice (e.g., clinical audit, clinical research, patient satisfaction surveys).					
74. I monitor the overall standards of clinical care to ensure clinical care is excellent.					
75. I challenge practices that are not consistent with standards of clinical excellence.					
76. My nurse peers look to me for clinical leadership.					

77. I look to nurse peers on my unit for guidance, direction, or inspiration.					

Items 78 - 89 are from the Psychological Capital Questionnaire 12-Item Instrument, which is being used with limited permission from Mind Garden (www.mindgarden.com). Copyright © 2007 Psychological Capital (PsyCap) Questionnaire (PCQ) Fred L. Luthans, Bruce J. Avolio & James B. Avey. All rights reserved in all medium.

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For each statement, select one of the agreement terms to describe how you feel at work in the clinical setting in which you deliver nursing care to patient and families.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
78. I feel confident representing my work area in meetings with management.						
79. I feel confident contributing to discussions about the company (hospital)'s strategy.						
80. Intentionally left blank per Mind Garden permission to use agreement.						
81. *Intentionally left blank per Mind Garden permission to use agreement.*						
82. *Intentionally left blank per Mind Garden permission to use agreement.*						
83. *Intentionally left blank per Mind Garden permission to use agreement.*						
84. *Intentionally left blank per Mind Garden permission to use agreement.*						
85. *Intentionally left blank per Mind Garden permission to use agreement.*						
86. *Intentionally left blank per Mind Garden permission to use agreement.*						
87. *Intentionally left blank per Mind Garden permission to use agreement.*						

88. *Intentionally left blank per Mind Garden permission to use agreement.*						
89. I am optimistic about what will happen to me in the future as it pertains to work.						

Please take a few minutes to briefly share your personal experiences at work to ensure we understand your work environment in three final questions. Your identity will be protected, please respond as accurately as you can.

90. Consider a situation when another bedside nurse sought your guidance or direction with a patient care issue. Why do you believe he or she sought help from you in particular? Describe how you responded.

    <Comment field for free form text>

91. Reflect on a time when you turned to another bedside nurse for guidance or direction in a patient care issue particularly reflecting quality or safety. Why did you choose to reach out to that particular nurse? Describe how the nurse's response influenced you.

    <Comment field for free form text>

92. Please add anything else you would like to share that has not already been covered in your responses about how nurses' behavior and attitudes influence each other's practice either positively or negatively at the point of patient care.

    <Comment field for free form text>

APPENDIX B

PERMISSION TO USE CLB-Q

UCD School of Nursing, Midwifery and Health Systems

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Belfield, Baile Átha Cliath 4, Eire

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NURSING, MIDWIFERY AND HEALTH SYSTEMS RESEARCH UNIT

29 July 2015

Darlene Rogers, BS, BSN, MSN, RN-BC
Doctoral candidate
Georgia Baptist College of Nursing of Mercer University
Atlanta, Georgia
USA

Re: Clinical Leadership Assessment of Need Questionnaire (CLAN-Q)

Dear Darlene,
I hereby grant you permission to use and adapt, as appropriate, the Clinical Leadership Behaviours Questionnaire (CLB-Q) for the purpose of your dissertation research on the emergence of informal clinical leadership among basic practice nurses in the acute care hospital setting in the US. Permission is granted on the basis that you will acknowledge the original authorship of the instrument in your dissertation and will cite authorship, as appropriate, in subsequent publications.

I take this opportunity to wish you every success with your research.

Yours sincerely,

[redacted]

Gerard Fealy
Professor of Nursing/Associate Dean for Research, Innovation and Impact
E-mail: gerard.fealy@ucd.ie
[redacted]

APPENDIX C

PERMISSION TO USE REMOTE PCQ-12

Darlene Rogers

mind garden

To whom it may concern,

This letter is to grant permission for Darlene Rogers to use the following copyright material:

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Authors: ***Fred Luthans, Bruce J. Avolio & James B. Avey.***

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Sincerely,

[redacted]

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APPENDIX D

MERCER IRB APPROVAL LETTERS

MERCER UNIVERSITY

Institutional Review Board
For Research Involving Human Subjects

06-Apr-2016

Ms. Darlene M. Rogers
Mercer University
Georgia Baptist College of Nursing
[redacted]
Atlanta, GA 30341

RE: Emergence of Informal Clinical Leadership Among Bedside Nurses in the Acute Care Setting: A Mixed Methods Study (H1603111)

Dear Ms. Rogers:

Your application entitled: Emergence of Informal Clinical Leadership Among Bedside Nurses in the Acute Care Setting: A Mixed Methods Study (H1603111) was reviewed by this Institutional Review Board for Human Subjects Research in accordance with Federal Regulations 21 CFR 56.110(b) and 45 CFR 46.110(b) (for expedited review) and was approved under Category 7 per 63 FR 60364.

Your application was approved for one year of study on 06-Apr-2016. The protocol expires 05-Apr-2017. If the study continues beyond one year, it must be re-evaluated by the IRB Committee.

Item(s) Approved:
New application for exploratory correlational research design using convergent parallel mixed methods. Use of online survey.

Please complete the survey for the IRB and the Office of Research Compliance. To access the survey, click on the following link: https://www.surveymonkey.com/s/K7CTT8R

"Mercer University has adopted and agrees to conduct its clinical research studies in accordance with the International Conference on Harmonization's (ICF) Guidelines for Good Clinical Practice."

Respectfully,
[redacted]
Ava Chambliss-Richardson, M.ED., CIP, CIM
Member
Intuitional Review Board
Mercer University IRB & Office of Research Compliance
[redacted]

1501 Mercer University Dr. | Macon, Georgia 31207-0001

(478) 301-4101 | FAX (478) 301-2329

MERCER UNIVERSITY

Institutional Review Board
For Research Involving Human Subjects

Wednesday, March 22, 2017

Ms. Darlene M. Rogers
Mercer University
[redacted]
Atlanta, GA 30341

RE: Emergence of Informal Clinical Leadership Among Bedside Nurses in the Acute Care Setting: A Mixed Methods Study (H1603111)

Dear Ms. Rogers:

On behalf of Mercer University's Institutional Review Board for Human Subjects Research, your application submitted on 06-Feb-2017 for the above referenced protocol was reviewed in accordance with Federal Regulations 21 CFR 56.110(b) and 45 CFR 46.110(b) (for expedited review) and was approved for continuation under category(ies) 7 on 22-Mar-2017.

The approval period of your continued protocol is for one year of study and expires on 05-Apr-2018.

Item(s) Approved:
Second-Year continuing review with no changes to the protocol or informed consent.

NOTE: Please report to the committee when the protocol is initiated. Report to the Committee immediately any changes in the protocol or conesnt form and **ALL** accidents, injuries, and serious or unexpected adverse events that occur to your subjects as a result of this study.

We at the IRB and the Office of Research Compliance are dedicated to providing the best service to our research community. As one of our investigators, we value your feedback and ask that you please take a moment to complete our Satisfaction Survey and help us to improve the quality of our service.

It has been a pleasure working with you and we wish you much success with your project! If you need any further assistance, please feel free to contact our office.

Respectfully,
[redacted]
Ava Chambliss-Richardson, Ph.D., CIP, CIM.
Associate Director of Human Research Protection Programs (HRPP)
Member
Institutional Review Board

"Mercer University has adopted and agrees to conduct its clinical research studies in accordance with the International Conference on Harmonization's (ICH) Guidelines for Good Clinical Practice."

Mercer University IRB & Office of Research Compliance
Phone: 478-301-4101 | Email: ORC_Mercer@Mercer.Edu | Fax: 478-301-2329
1501 Mercer University Drive, Macon, Georgia 31207-0001

APPENDIX E

NURSE RECRUITMENT EMAIL TEMPLATE

MERCER UNIVERSITY

Dear <Hospital or Healthcare System Name> Nurse,

My name is Darlene Rogers. I am a graduate student at Georgia Baptist College of Nursing of Mercer University. I am conducting research examining how bedside nurses influence each other in the clinical setting and under what conditions nurses look to their peers for direction or support. The information you and other nurses provide can be pivotal in developing clinical work environments to help nurses adapt to the challenges of modern healthcare. Would you be willing to complete an online survey for this research project?

Your participation is voluntary and involves taking an approximately 15 to 20 minute survey in which you will answer questions about your professional experience as a bedside nurse. Your individual responses will be kept confidential. Data will be published in summary format so your responses and experiences will not be traceable back to you or your hospital.

Mercer University's IRB requires investigators to obtain informed consent from the research participants, which will be the first step in the survey. If you are a registered nurse who spends most of your work time caring for patients and would be interested in taking this survey, please click on this link and provide your consent to take the survey:

(place the SurveyMonkey® Link Here).

If you have any questions about the study, contact the investigator Darlene Rogers, [redacted]. Dr. Lanell Bellury is my committee chairperson and can be reached for questions or concerns at [redacted]

Mercer University's Institutional Review Board (IRB) reviewed study # (H1603111) and approved it on (06-Apr-2016 [22-Mar-2017]).

QUESTIONS ABOUT YOUR RIGHTS AS A RESEARCH PARTICIPANT:

If you have questions about your rights or are dissatisfied at any time with any part of this study, you can contact, anonymously if you wish, the Mercer University Institutional Review Board by phone at [redacted]

Thank you in advance for your time and participation. I sincerely hope you are able to share your valuable experiences as a bedside nurse in this study.

Mercer University IRB
Approval Date: 06/16/2016 (03/22/2017)
Protocol Expiration Date: 04/05/2017 (4/5/2018)