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Boston College

William F. Connell School of Nursing

THE INFLUENCE OF AUTHENTIC LEADERSHIP AND STRUCTURAL EMPOWERMENT ON STAFF NURSE DECISIONAL INVOLVEMENT AND PATIENT QUALITY OUTCOMES

a dissertation

by

STACY HUTTON JOHNSON

submitted in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

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2015

The Influence of Authentic Leadership and Structural Empowerment on Staff Nurse Decisional Involvement and Patient Quality Outcomes

Stacy Hutton Johnson

Chair: Barbara Wolfe

Abstract

Patient quality outcomes in the United States (U.S.) healthcare system are largely stagnant or making minimal improvements, resulting in unnecessary morbidity, mortality, and costs (AHRQ, 2012 National Healthcare Quality Report). As the US implements the 2010 Patient Protection and Affordability Act, there is fiscal pressure to attain and sustain significant improvements to patient quality outcomes. This necessitates an understanding of how the processes and structures of care influence patient quality outcomes (Donabedian, 1966) in a complex care environment. To begin addressing this gap, this investigation examined the influence of unit-level authentic leadership (AL) and structural empowerment (SE) on staff nurse decisional involvement (DI) and patient quality outcomes on general care units in the acute-care hospital setting. This study used a cross-sectional survey design. Participants were staff nurses working on 105 general care units across eleven US hospitals. The surveys measured staff nurse perceptions of AL, SE, and DI at the care unit level. The patient quality outcomes of interest were falls with injury, hospital acquired pressure ulcers and patient satisfaction. Care unit level AL and SE had a significant influence on actual staff nurse DI (p = .002 and < .001, respectively) and the degree of dissonance between actual and preferred DI (p < .001). AL and SE had a significant inverse relationship with patient falls with injury (p = .017 and .028, respectively), yet a positive relationship with HAPU rates (p = .051 and .026, respectively).

While AL did not have a significant relationship with any of the three patient satisfaction metrics, a significant positive relationship with SE was found (p = .002, .001, and .002, respectively). There was no support for a relationship between actual staff nurse DI and any of the patient quality outcomes. This study extends previous research in this area in that it is the first to examine actual patient quality outcomes at the care unit level. These findings provide support for the unique contributions to patient quality outcomes at the care unit level, indicating the need to develop AL among front-line nurse managers and SE in nurse work environments.

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The Influence of Authentic Leadership and Structural Empowerment on Staff Nurse Decisional Involvement and Patient Quality Outcomes

CHAPTER ONE: INTRODUCTION

Statement of the Problem

Patient quality outcomes in the United States (U.S.) healthcare system are largely stagnant or making minimal improvements, which results in unnecessary morbidity, mortality, and costs (Agency for Healthcare Research and Quality, 2012). As the US undertakes the implementation of the Patient Protection and Affordability Act (2010), there is a pressing need to attain and sustain more significant improvements to patient quality outcomes for the benefit of both patients and society. This work necessitates an understanding of how the processes and structures of care have an effect on patient quality outcomes (Donabedian, 1966) in the context of a complex care environment. Staff nurse decisional involvement, facilitated by authentic leadership and structural empowerment at the care unit level, is a potential mechanism by which optimal patient quality outcomes are attained.

The relationship between the nurse work environment and patient quality outcomes has been demonstrated by numerous studies, with factors such as adequate staffing, educational preparation of nurses, managerial support, effective support services, and an autonomous nursing practice model, all demonstrating significant positive relationships with patient quality outcomes (Aiken, Clarke, Sloan, Lake, & Cheney, 2008; Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; Bacon & Mark, 2009; Boev, 2012; Duffield et al., 2011; Flynn, Liang, Dickson, Xie, & Suh, 2012; Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2002; Stone et al., 2007; Trinkoff et al., 2011). While the evidence of

structural components linking nurse work environments to patient quality outcomes are seen as necessary, they do not fully explicate the mechanisms by which desired patient outcomes are achieved. There is a gap in knowledge related to the mechanisms (Wong & Giallonardo, 2013) by which nurse work environments affect patient outcomes. Two promising components warranting further investigation are unit-based authentic leadership and structural empowerment (Laschinger, Wong, & Grau, 2013) and their effect on staff nurse decisional involvement (Havens & Vasey, 2005) as potential mechanisms by which optimal patient quality outcomes are attained (Wong, Cummings, & Ducharme, 2013). A more sophisticated understanding of the mechanisms whereby the nurse work environment has an effect on patient quality outcomes will serve to guide the design of intervention strategies tailored for specific nurse work environments and patient populations.

Background and Significance

Patient quality outcome improvement has significant ramifications to individual patients as well as financial implications for curbing costs in the U.S. healthcare sector. The patient quality outcomes of interest in this study are delineated into two categories: hospital acquired conditions (specifically falls with injury and pressure ulcers) and patient satisfaction. These patient quality outcome metrics have all been found to be nurse-sensitive indicators by the National Database of Nursing Quality Indicators (NDNQI), meaning they are significantly amenable to nursing intervention (Dunton, 2008).

Patient Ramifications

Hospital acquired conditions. The hospital-acquired conditions of falls with injury and pressure ulcer development are both significant problems facing the healthcare sector

with negative consequences for the patients served. The ramifications of not improving patient quality outcomes are critical, with an estimated 1 million falls occurring in U.S. hospitals annually (Shorr et al., 2008) and approximately 60% of these resulting in injury (Barker, Kamar, Morton, & Berlowitz, 2009). Lyder and colleagues (2012) found that 4.5% of Medicare patients developed a pressure ulcer during hospitalization, with significantly increased risk of death, length of stay, and readmission rates. Fuller and colleagues (2009) calculated the estimated cost to treat a hospital-acquired pressure ulcer between $17,496 to $28,272. The total estimated cost for treating hospital-acquired pressure ulcers (HAPUs) was $9.1-$11.6 billion in 2004 (Zulkowski, Langemo, & Posthauer, 2005).

A recent report by the Agency for Healthcare Research and Quality (AHRQ), *Making Health Care Safer II: An Updated Critical Analysis of the Evidence for Patient Safety Practices,* (2013) reviewed the strength of evidence for various patient safety practices targeted at specific issues. In their review of the evidence for multi-component interventions, also referred to as bundles, to prevent patient falls the strength of evidence was found to be strong. However, there was also moderate evidence of unintended consequences, namely increased physical and chemical restraint utilization. For hospital acquired pressure ulcers the strength of the evidence was deemed moderate, with negligible unintended consequences. Intervention bundles targeted at both fall and pressure ulcer reductions were found to be moderately difficult to implement. Additionally, the report highlighted the need for future empirical work "to measure context and how an intervention was implemented…[and] more effective and less burdensome methods of improvement so that clinicians, researchers, and administrators can work on reducing all potential patient harms, rather than a select few" (AHRQ, 2013, p. 13). This study begins to address the

AHRQ call for additional understanding of the context of the care environment and how interventions are implemented by further explicating the influence of front-line nurse leaders and a structurally empowering environment on staff nurse decisional involvement and patient quality outcomes. An understanding of both what the intervention is and how it is to be implemented is needed to yield the desired improvements in outcomes. These recommendations resonate with the challenges faced in practice settings of adding in one more bundle of interventions, resulting in fragmented thinking and patient care. Additionally, the AHRQ (2013) report indicates the need for significantly more patient quality outcome metrics, thereby, challenging the sustainability of bundled interventions for each patient quality metric.

Patient satisfaction. Patient satisfaction with hospital care is a complex phenomenon, and the boundary conditions of the construct have not been clearly defined. According to the Centers for Medicare and Medicaid Services (CMS), patient satisfaction is a measure whereby the perspective of the patient is assessed, including his/her communication with nurses throughout hospitalization (Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Fact Sheet, 2013). There remains some debate regarding the value that should be attached to patient satisfaction. Several recent studies have reported a lack of a relationship between patient quality outcomes and patient satisfaction scores suggesting that patient satisfaction is not a robust measure of quality (Isaac, Zaslavsky, Cleary, & Landon, 2010; Llanwarne et al., 2013; Lyu, Wick, Housman, Freischlag, & Makary, 2013). However, according to Donabedian, “the effectiveness of care… in achieving or producing health and satisfaction, as defined for its individual

members by a particular society or subculture, is the ultimate validator of the quality of care" (1966, p. 711).

The most recent public reporting of patient satisfaction data by the Centers for Medicare and Medicaid Services (CMS), on the Hospital Compare website reports, on patients who were discharged from hospital settings April 2012 through March 2013 (HCAHPS Survey Results, 2014). This data collection period includes more than three million completed surveys by patients discharged from 3,912 hospitals throughout the US. Nationally 78% of patients indicate that they were always satisfied with communication with their nurses, with 70% of patients rating their overall satisfaction with the hospital as a nine or ten on a 1-10 scale, with ten representing the best hospital possible. When asked about the likelihood of recommending the hospital, 71% stated they would definitely recommend it (HCAHPS Survey Results, 2014). While these findings indicate patients were relatively satisfied, the remaining 30% of patients were somewhat to very dissatisfied with their overall hospital experience, with only 67% of patients reporting they were always satisfied with the responsiveness of hospital staff. The report indicates that communication with nurses is the most strongly correlated factor to other survey elements including, pain management ($r = .57$, $p < .001$), overall hospital rating ($r = .65$, $p < .001$), and likelihood to recommend the hospital ($r = .58$, $p < .001$; HCAHPS Survey Results, 2014). This indicates that patients' experience of communication with nurses is a key metric warranting further study.

Financial Implications

The 2010 Patient Protection and Affordability Act aims to improve access to care, the affordability of care, and the quality of care provided in the U.S. healthcare system. For

hospital administrators, there are significant financial ramifications within the Act that specifically address patient quality outcomes. Starting in October 2012, CMS implemented a Hospital Value-Based Purchasing (HVBP) program, which has an impact on reimbursement rates to hospitals based upon patient quality outcomes. In fiscal year 2014, up to 1.25% in reimbursement to U.S. hospitals could be withheld by CMS based on hospital performance on identified patient quality outcomes, with 30% of that amount related to patient satisfaction (Centers for Medicare and Medicaid Services, 2014). Additionally, CMS has identified that selected hospital acquired conditions (including falls with injury and pressure ulcers) are preventable and will no longer be reimbursing hospitals for the cost of this care. The intent of HVBP programs is to provide standardized data, and to put financial pressure on hospitals to improve patient quality outcomes (Medicare, 2013). Since patients' falls with injury, hospital-acquired pressure ulcers, and satisfaction are all nurse sensitive indicators of quality (Medicare, 2013), a clearer understanding of the unit-based work environment, including authentic leadership, structural empowerment, and staff nurse decisional involvement, may illuminate mechanisms of influence across quality metrics.

Purpose of the Study

The purpose of this cross-sectional, web-based, survey was to examine the influence of unit-level authentic leadership and structural empowerment on staff nurse decisional involvement and patient quality outcomes on general care units in the acute-care hospital setting.

Definitions of Terms

Variables of Interest

Authentic leadership. First, a definition of leadership is needed prior to defining authentic leadership. Spillane (2006) states that "leadership refers to activities tied to the core work of the organization that are designed by organizational members to influence the motivation, knowledge, affect, or practices of other organizational members or that are understood by organizational members as intended to influence their motivation, knowledge, affect, or practices" (p. 11-12). For this study, the definition of authentic leadership, according to Avolio, Walumbwa, and Weber (2009) was utilized. Authentic leadership "is a pattern of transparent and ethical leader behavior that encourages openness in sharing information needed to make decisions while accepting input from those who follow" (Avolio, Walumbwa & Weber, 2009, p. 424). Authentic leaders build healthier work environments and trust with followers through four key components: balanced processing, relational transparency, internal moral perspective, and self-awareness (Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008).

Structural empowerment. This study utilized the definition of structural empowerment put forth by Kanter. She defines structural empowerment as including access to information, support, resources needed to do the job, and opportunities to learn and grow (1977, 1993). This theory accounts for both formal and informal mechanisms of structural empowerment and depicts the manager as key to facilitating both structures. Additionally, the structural factors within a work environment are viewed as having a greater effect on employees' work behavior and performance than traits inherent to the individual employees, such as personality predispositions (Kanter, 1977).

Staff nurses are defined as nurses working on the care unit providing direct patient care, but who are not in a formal leadership role, such as nurse managers, clinical nurse

specialists, or nurse educators. For the purposes of this study full-time charge nurses or resource nurses were included in the operational definition of staff nurse. The patient quality outcomes of interest in this study included the hospital acquired conditions (falls with injury and pressure ulcers) and patient satisfaction with care. These variables were defined as follows:

Decisional involvement. Decisional involvement was defined as "the pattern of distribution of authority for decisions and activities that govern nursing practice policy and the practice environment" (Havens & Vasey, 2005, p. 377). This definition moves beyond nursing work autonomy to include nurse decision-making related to policies driving practice and the operationalization of nursing practice on the care unit.

Falls with injury. The National Database of Nursing Quality Indicators (NDNQI) standardized the definition of a fall to include "an unplanned descent to the floor (or extension of the floor, e.g., trash can or other equipment) with or without injury. All types of falls are included, whether they result from physiological reasons or environmental reasons" (American Nurses Association, 2005 p. 26). The fall-related injury categories are defined as:

(1) None indicates that the patient did not sustain an injury secondary to the fall

(2) Minor indicates those injuries requiring a simple intervention

(3) Moderate indicates injuries requiring sutures or splints

(4) Major injuries are those that require surgery, casting, further examination (e.g., for a neurological injury)

(5) Deaths refers to those that result from injuries sustained from the fall (Joint Commission, 2009, pp. 31).

Hospital acquired pressure ulcer. The National Pressure Ulcer Advisory Panel (NPUAP) defines a pressure ulcer as a "localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear" (NPUAP, 2009). The severity of the injury is determined by the tissue layer affected, and by utilizing the NPUAP standardized classification system, which has been adopted by NDNQI for standardization of data collection. Hospital acquired pressure ulcers (HAPUs), that progress to stage III and IV, have been identified by the National Quality Forum (NQF) as "largely preventable, grave errors" (NQF, 2008, p. 1). The hospital acquired pressure ulcer rate is defined by NDNQI as "the number of patients who acquire a pressure ulcer after admission to the hospital divided by the total number of patients in the population studied times 100" (Gray-Siracusa & Schrier, 2011, p. 216).

Patient satisfaction. Hinshaw and Atwood defined patient satisfaction with nursing care as "the patient's opinion of the care received from nursing staff " (1981, p. 170). More broadly, Donabedian defined patient satisfaction as, "an expression of a patient's judgement [SIC] on the quality of care in all its aspects, but particularly as concerns the interpersonal process" (1988, p. 1746). The Donabedian definition of patient satisfaction was utilized in this study. CMS adopted the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey tool as the national standard for measuring hospitalized patients' satisfaction with care, which specifically assesses care received from nurses. While no tool can assess patient satisfaction in all its aspects, the HCAHPS tool does operationalize patient satisfaction in alignment with the Donabedian definition in that it

encompasses the interpersonal aspects of care including communication and respect. Patient satisfaction with care is the primary metric whereby consumers of healthcare services are afforded a voice in assessing the quality of care provided.

Assumptions

1. Staff nurses' perceptions of authentic leadership (AL), structural empowerment (SE), and decisional involvement (DI) are adequate proxies to actual levels of AL, SE, and DI.
2. Authentic leadership and structural empowerment are nested phenomena with reciprocal effects occurring in complex clinical environments. While AL of front-line nurse managers may have an effect on unit level SE, the degree of SE enabled by the hospital will have a boundary effect on that nurse manager's ability to provide SE at the care unit level. While this study was conducted at the care unit level of analysis, the effects of AL and SE at multiple levels of organizations is assumed.
3. Factors extrinsic to staff nurses (i.e., authentic leadership and structural empowerment) are more amenable to interventional strategies than intrinsic factors (i.e., personality attributes). This assumption will be further explored in the literature review of structural empowerment as it relates to psychological empowerment. As depicted in Figure 1, psychological empowerment is outside the scope of this study.
4. Staff nurses are autonomous professionals with high expectations of their leaders, their work environments, and their level of involvement in decision-making.
5. Rates of falls with injury and hospital acquired pressure ulcers, and degree of patient satisfaction are a representative bundle of patient quality outcomes.

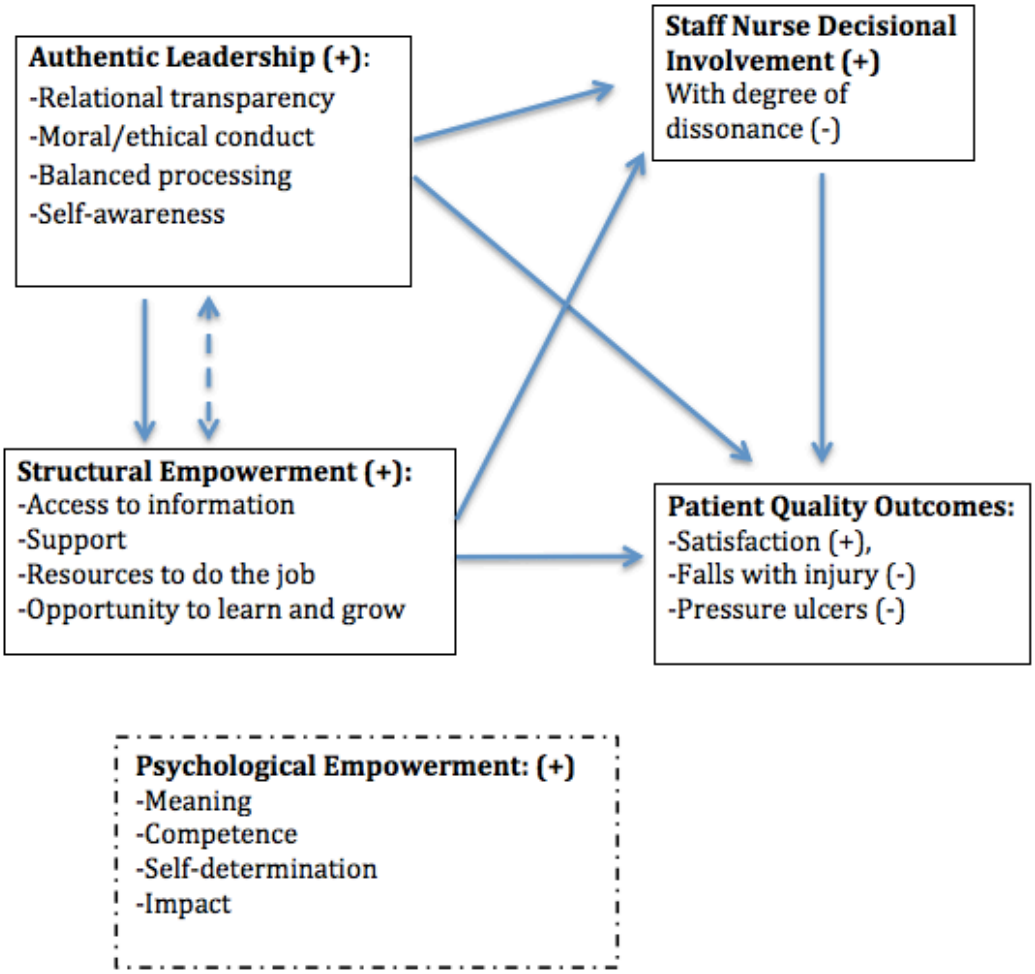

Figure 1. Conceptual model. The dashed lines represent phenomena outside the scope of this study, yet pertinent. The solid lines represented relationships that were tested in the current study.

Research Questions and Hypotheses

This study addressed the following research questions and corresponding hypotheses:

1. What are the unique and combined effects of authentic leadership and structural empowerment on staff nurse decisional involvement?

   H1a: As authentic leadership scores increase, staff nurse decisional involvement scores will increase.

H1b: As structural empowerment scores increase, staff nurse decisional involvement scores will increase.

H1c: The combined effects of increased authentic leadership and structural empowerment will result in the highest scores of staff nurse decisional involvement.

2. What influence does authentic leadership and structural empowerment have on the degree of dissonance between staff preferred and actual decisional involvement?

   H2: As authentic leadership and structural empowerment increase, the degree of dissonance between staff nurse preferred and actual decisional involvement will decrease.

3. What are the unique and combined effects authentic leadership and structural empowerment on patient quality outcomes (i.e., falls with injury, pressure ulcers, and patient satisfaction with care)?

   H3a: As authentic leadership scores increase patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

   H3b: As structural empowerment scores increase patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

   H3c: The combined effects of increased authentic leadership and structural empowerment will result in the highest scores patient satisfaction and the lowest rates of falls with injury and pressure ulcers.

4. What is the relationship between actual staff nurse decisional involvement and patient quality outcomes?

H4: As actual staff nurse decisional involvement scores increase, patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

CHAPTER TWO: LITERATURE REVIEW

To afford context for this study, a review of the literature related to authentic leadership, structural empowerment, staff nurse decisional involvement, and patient quality outcomes is provided. This review will serve to explicate the current knowledge base related to these variables, how they connect to staff nurse outcomes, how they connect with patient quality outcomes, and gaps identified in the literature. Recent research has mostly focused on aspects of the nurse work environment at the hospital level, with little attention paid to the mechanisms connecting the nurse work environment to patient quality outcomes within the context of the care unit. It was the intent of this study to focus on a deepened understanding of the mechanisms within the nurse work environment; specifically authentic leadership, structural empowerment and staff nurse decisional involvement, and their influence on patient quality outcomes at the care unit level.

Theoretical Framework

The overarching theoretical perspective that guided this study was the Donabedian theory of quality healthcare and its three mechanisms for assessing quality, namely structure, process, and outcome (1966). According to Donabedian, the assessment of quality can only take place once one has an understanding of how structures and processes of care interact to yield desired patient outcomes. He defines the structures as the "attributes of material resources (such as facilities, equipment, and money), of human resources (such as number and qualifications of personnel), and of organizational structure (such as medical staff organization, methods of peer review, and methods of reimbursement)" (Donabedian, 1988, p. 1745). The processes include "what is actually

done in the giving and receiving of care. It includes the patient's activities in seeking care and carrying it out as well as the practitioner's activities in making a diagnosis and recommending or implementing treatment" (Donabedian, 1988, p. 1745). For purposes of this study, authentic leadership and staff nurse decisional involvement were viewed as process, and structural empowerment as a structure. More specifically, the data in this study were collected and analyzed integrating the theories of authentic leadership (Avolio, Gardner, Walumbwa, Luthans, & May, 2004) and structural empowerment (Kanter, 1977, 1993). The development and testing of these theories to date as well as the connections between the two bodies of literature are discussed below.

Nurse Work Environment

The literature review that follows situates this study within the broader nurse work environment knowledge base while focusing on specific aspects of the nurse work environment within the local context of the care unit. A healthy work environment is "a work setting in which policies, procedures, and systems are designed so that employees are able to meet organizational objectives and achieve personal satisfaction in their work" (Disch, 2002, p. 3). The concept was originally articulated and popularized in nursing by the work of the American Nurses' Association (ANA) in studies of Magnet® hospitals in the 1980s. This work showed how particular nurse work environment characteristics, in the broad categories of administration, professional practice, and professional development, yielded high rates of nurse recruitment and retention (McClure, Poulin, Sovie, & Wandelt, 1983). Within this literature, the crucial point of care delivery that occurs on patient care units between patient and nurse was articulated, highlighting the importance of nurse autonomy and effective leadership:

> The front line, the area where the consumer of healthcare directly interacts with the provider, was mentioned repeatedly in the Magnet® hospital literature as being the crucial point of contact; because the front line was where decision-making was most effectively carried out, where it had the greatest impact, and where rapid change could be dealt with quickly. Granting staff nurses, as providers of care, the authority and autonomy to act at the bedside was the hallmark of good leadership (Manojlovich, 2005, pp. 367).

Heath, Johanson, and Blake (2004) reviewed the healthy work environment literature and articulated four common characteristics: employees are treated respectfully, there is a strong foundation of trust between managers and employees which enables empowerment, the organizational culture promotes communication and collaboration, and a caring tone exists in which employees feel safe. Healthy nurse work environments have been linked to improved patient outcomes (Aiken et al., 2008; Friese, Lake, Aiken, Silber, & Sochalski, 2008; Stone et al., 2007). "In addition to adequate staffing levels, education and experience of nurses, effective frontline leaders have been identified as central to creating safe patient care environments" (Wong & Giallonardo, 2013, p. 741). The Institute of Medicine (IOM) has highlighted the role of leadership as integral to transforming the work environment of nurses and keeping patients safe (2004). "At the department and unit levels, frontline leaders engage nurses in decision-making about patient flow and staffing, quality improvement activities, and continuous learning opportunities to improve overall care delivery" (Wong, Cummings, & Ducharme, 2013, p. 710). Theories of leadership have evolved over time, with more contemporary views of leadership that emphasize the

coaching rather than the controlling role of leaders. Inherent in this has been a shift from task-oriented to relationship-oriented leadership (Avolio et al., 2009). Certainly the necessity still exists to proficiently complete tasks in leadership roles, yet this is no longer viewed as the most value-added work of leaders.

For the purposes of this study, nurse work environment was defined as the primary unit in which nurses provide care to a patient population. Staff nurse outcomes related to each key variable are discussed below to provide justification for a link to staff nurse decisional involvement. Staff nurse outcomes include metrics such as job satisfaction, engagement, turnover, etc. The research questions aimed to specifically address the influence of authentic leadership and structural empowerment on staff nurse decisional involvement and patient quality outcomes at the care unit level.

Authentic Leadership

The concept of 'authenticity' can be traced back to early Greek philosophers, including Socrates with his focus on authentic functioning and assertion that the unexamined life is not worth living (Plato, 2002). The term authenticity is derived from the Greek word, *authento,* meaning, "to have full power" specifically over oneself (Gardner, Cogliser, Davis, & Dickens, 2011). The notion of authentic leadership first emerged in the literature in the 1960s and was focused on organizational authenticity. Rome and Rome state,

> A hierarchical organization…is 'authentic' to the extent that, throughout its leadership, it accepts finitude, uncertainty, and contingency; realizes its capacity for responsibility and choice; acknowledges guilt and errors; fulfills its creative managerial

> potential for flexible planning, growth, and character or policy formation; and responsibly participates in the wider community (1967, pp. 185).

Bhindi and Duignan (1997) put forth four key components of authentic leadership to include authenticity, intentionality, spirituality, and sensibility, with authenticity defined as, "the discovery of the authentic self through meaningful relationships with organizational structures and processes that support core, significant values" (p. 119). Their focus was on the individual leader in the context of the organization. In 2003 Luthans and Avolio expanded upon this definition to clarify the boundary conditions of authentic leadership and how it differs from similar concepts in the literature, such as transformational leadership. They state,

> We define authentic leadership in organizations as a process that draws from both positive psychological capacities and a highly developed organizational context, which results in both greater self-awareness and self-regulated positive behaviors on the part of leaders and associates, fostering positive self-development. The authentic leader is confident, hopeful, optimistic, resilient, transparent, moral/ethical, future-oriented, and gives priority to developing associates into leaders themselves. The authentic leader does not try to coerce or even rationally persuade associates, but rather the leader's authentic values, beliefs, and behaviors serve to model the development of associates (pp. 243).

Shirey (2006) further articulates the differentiation of authentic leadership from other theories of leadership, such as transformational and servant leadership. "It is the authenticity component inclusive of character, knowing oneself, and demonstrating relational transparency that differentiates authentic leadership from other forms of leadership…Authentic leaders…are anchored by their own deep sense of self and know where they stand on important issues, values and beliefs" (p. 261). The research of Walumbwa et al. (2008) more fully articulates the definition of authentic leadership to include the four key components of balanced processing, an internalized moral perspective, relational transparency, and self-awareness. Avolio et al. (2009) provide definitions for these components:

> Balanced processing refers to objectively analyzing relevant data before making a decision. Internalized moral perspective refers to being guided by internal moral standards, which are used to self-regulate one's behavior. Relational transparency refers to presenting one's authentic self through openly sharing information and feelings as appropriate for situations (i.e., avoiding inappropriate displays of emotions). Self-awareness refers to the demonstrated understanding of one's strengths, weaknesses, and the way one makes sense of the world (pp. 424).

Authentic leadership theory includes followers and the context of leadership practice, thereby detailing potential mechanisms by which leaders influence employees and organizational performance (Peterson, Walumbwa, Avolio, & Hannah, 2012). As

Laschinger, Wong, and Grau (2012) state, "authentic leaders demonstrate a sense of genuine caring for employees and for open and honest dialog about what is and what is not working well in their work relationships based on ethical and moral standards" (p. 1268).

A synthesis of the literature conducted by Gardner et al. (2011) demonstrates that most of the theoretical development of authentic leadership took place from 2005-2008 by one team of scholars, with most of the literature from 2009-present focusing on empirical testing of authentic leadership theory and its implications to various practice settings. While the vast majority of the earlier work emerged in the business and management sectors, recently there has been significant empirical work from other disciplines, including healthcare and nursing specifically.

Nursing leadership and patient quality outcomes. Given the relatively limited number of studies examining authentic leadership and patient quality outcomes, an overview of the nursing leadership literature is discussed below before analyzing the research most pertinent to this study. In 2002 Vance and Larson published a review of the leadership literature in healthcare and business related to outcomes for individuals, groups, and organizations. In the years from 1970-1999 they found only two scholarly works in healthcare measuring the link between leadership and patient outcomes. "A great need exists for research focused on how leadership makes a difference in outcomes, such as quality patient care and improvements in organizational quality and productivity" (Vance & Larson, 2002, p. 170). Their report on the dearth of findings connecting leadership to outcomes resulted in increased interest and several programs of research (Wong & Cummings, 2007). Three of the most frequently examined leadership theories within nursing are resonant leadership theory (Cummings, Midodzi, Wong & Estabrooks, 2010),

leader-member exchange theory (Laschinger, Finegan & Wilk, 2009; Laschinger, Finegan & Wilk, 2011), and transformational leadership theory (Patrick, Laschinger, Wong & Finegan, 2011).

Five years following the initial review of Vance and Larson (2002), Wong and Cummings (2007) conducted an integrative review of the literature linking nursing leadership to patient outcomes, which was updated in 2013 (Wong, Cummings, & Ducharme). The 2007 review found "significant associations between positive leadership behaviours, styles or practices and increased patient satisfaction and reduced adverse events" (p. 508). However, the review was based on only seven studies, which utilized a variety of leadership theories and measurement tools.

The updated review (Wong et al., 2013) included an additional thirteen studies for a total of 20, once again with differing leadership theories and measurement modalities. No studies of authentic leadership were included in this review. The synthesis of this literature indicated significant "relationships between positive relational leadership styles and higher patient satisfaction and lower patient mortality, medication errors, restraint use and hospital-acquired infections" (p. 709). The findings related to the patient quality outcomes of falls and pressure ulcers were mixed, with some studies finding a significant inverse relationship with nursing leadership (Capuano, Bokovoy, Hitchings, & Houser, 2005; Castle & Decker, 2011; Houser, 2003) and others finding no significant relationship (Boyle, 2004; Flynn, Liang, Dickson, & Aiken, 2010; Taylor, Dominici, Agnew, Gerwin, Morlock, & Miller, 2012). Seven of the studies measured leadership within the confines of a broader measure of the nurse work environment (Wong et al., 2013), yielding less depth and breadth of leadership practice than is afforded by a tool explicitly designed for the measurement of

leadership, which may help account for the inconsistency of these findings. Based on this review, Wong et al. (2013) call for further empirical testing that includes explicit leadership models with articulated mechanisms by which nursing leadership has an effect on a variety of patient outcomes. The authors make particular mention of authentic leadership theory as a relational leadership approach that includes possible mechanisms of influence on patient outcomes.

Authentic leadership and patient quality outcomes. Although there is a call for more testing of authentic leadership theory within the realm of nursing leadership, there have been two studies linking authentic leadership to patient quality outcomes. Wong, Laschinger, and Cummings (2010) report a statistically significant, positive, indirect relationship between authentic leadership and perceived care quality ($\beta = 0.12$, $p < .001$) as reported by nurses. This sample of nurses reported perceptions of nurse leaders' authentic leadership at a moderate level ($M = 2.35$, $SD = 0.99$), with the highest scores for internal moral perspective and the lowest scores for self-awareness (Wong et al., 2010). Wong and Giallonardo (2013) surveyed 600 nurses, with a 48% response rate, practicing in Ontario, Canada and found that "authentic leadership was significantly associated with decreased adverse patient outcomes through trust in the manager and areas of work life" (p. 740). The adverse patient outcomes were nurses' reported perceptions of frequency of medication errors, nosocomial infections, complaints from the patient and/or family, and patient falls with injury. The reporting was on a scale of one (never) to four (frequently) (Wong & Giallonardo, 2013). While the authors indicate support in the literature for the utilization of the nurse assessed patient outcome data scale (Aiken et al., 2001; Sochalski,

2004), there is also the acknowledgment that "adverse patient outcome data are ideally collected using objectively driven measures" (Wong & Giallonardo, 2013, p. 741).

Authentic leadership and staff nurse outcomes. The American Association of Critical-Care Nurses put forth the *AACN Standards for Establishing and Sustaining Health Work Environments,* which articulated six standards: skilled communication, true collaboration, effective decision making, appropriate staffing, meaningful recognition, and authentic leadership (Shirey, 2009). In 2005 the authentic leadership literature was in its nascent stages, and the definition of authentic leadership was still being articulated, with minimal evidence connecting it to any outcome measures. However, as the evidence has accumulated, several of the standards put forth by AACN meet the criteria for being components of authentic leadership.

Scholars across a variety of disciplines have found evidence of significant relationships between authentic leadership and follower engagement, empowerment, and well-being (Gardner, Fischer, & Hunt, 2009; Giallonardo, Wong, & Iwasiw, 2010; Macik-Frey, Quick, & Cooper, 2009; Walumbwa, Wang, Wang, Schaubroeck, & Avolio, 2010; Wong & Cummings, 2009). Walumbwa et al. (2010) present findings that authentic leadership resulted in significantly elevated levels of work engagement (β = 0.26) by employees in telecommunications settings, and "that these relationships were mediated by feelings of empowerment and identification with the supervisor" (Gardner et al., 2011, p. 1131). Similarly, Bamford, Wong, and Laschinger (2013) indicate that nurses working for managers with higher levels of authentic leadership report greater overall person-job match and work engagement. Authentic leadership at the care unit level significantly, positively effects staff nurses' trust (β = 0.43) in their leader and work engagement (β =

0.22), which then predicts staff nurses' willingness to speak up (β = 0.22; Wong et al., 2010).

Laschinger, Wong, and Grau (2013) indicate that authentic leadership had a significantly inverse effect on staff nurse emotional exhaustion and cynicism through structural empowerment for both new graduate and experienced nurses. Additionally, authentic leadership of the nurse manager was shown to have a significant, direct, negative effect (β = -0.34) on bullying in the nurse work environment and a positive direct effect (β = 0.46) on emotional exhaustion among new graduate nurses (Laschinger et al., 2012).

Authentic leadership has a significantly positive effect on staff nurses' job satisfaction and self-reported job performance through structural empowerment (Wong & Laschinger, 2012). The authors report a significant, positive, direct relationship (β = 0.46, p < .01) between authentic leadership and structural empowerment. Additionally, "authentic leadership was also highly related to formal power (r = .43) suggesting that the more authentic the leader is perceived to be, the more formal power nurses experience in their own roles" (Wong & Laschinger, 2012, p. 954).

Structural Empowerment

Kanter's structural empowerment (SE) theory developed out of her experience in corporate workplaces, but has been used extensively in healthcare and nursing specifically. The theory contends that an individual's attitude and behavior in the work setting are more greatly influenced by organizational structures than by his/her personal attributes. Power is a central concept of the theory, and is seen as the "ability to mobilize resources to get things done" (Kanter, 1977, p. 210). Power is enhanced when the employee has access to information, support, resources, and opportunities to learn and grow.

> Access to information means having knowledge of organizational decisions, policies, and goals, as well as having the technical knowledge and expertise required to be effective within the broader context of the organization. Information provides a sense of purpose and meaning for employees and enhances their ability to make decisions that contribute to organizational goals. Access to support includes feedback and guidance received from superiors, peers, and subordinates, as well as the emotional support, helpful advice, or hands-on assistance that others can provide. Access to resources refers to the ability of the individual to access the materials, money, supplies, time, and equipment required to accomplish organizational goals. Access to opportunity for mobility and growth entails access to challenges, rewards, and professional development opportunities to increase knowledge and skills (Laschinger, Finegan, & Wilk, 2011, pp. 125).

Power is derived from formal and/or informal mechanisms. Formal power is generated from work that allows discretion, provides recognition, and is relevant to key organizational goals. Informal power is cultivated from relationships with people in the organization, such as managers, peers, and other colleagues (Kanter, 1977, 1993).

A closely related perspective in the literature is Spreitzer's (1995) psychological empowerment theory, which is "the psychological state that employees must experience for empowerment interventions to be successful" (Laschinger, Finegan, Shamian & Wilk, 2001b, p. 261). According to Spreitzer the four components of psychological empowerment are meaning, competence, self-determination, and impact (1995).

> Meaning entails congruence between job requirements and an employee's beliefs, values, and behaviors. Competence refers to confidence in one's job performance abilities. Self-determination refers to feelings of control over one's work. Impact is a sense of being able to influence important outcomes within the organization (Laschinger et al., 2001b, pp. 262).

Evidence suggests that psychological empowerment is an intervening variable between structural empowerment and staff nurse outcomes (Laschinger et al., 2001b). Seibert and colleagues (2004) contend that structural empowerment is a macro-level variable in that it reflects a workgroup experience, such as nurses working on a care unit; whereas, psychological empowerment is a micro-level variable of an individual's reaction to structural empowerment. Manojlovich and Laschinger (2002) report that structural empowerment had a greater effect on nurse job satisfaction than psychological empowerment, thus providing support to Kanter's theory. Additionally, a systematic review of the literature demonstrates a consistent, statistically significant positive relationship between structural empowerment and psychological empowerment, with greater explanatory power related to the variable of structural empowerment across a variety of outcome measures (Wagner, Cummings, Smith, Olson, Anderson, & Warren, 2010). Due to feasibility and statistical power implications for this study, the psychological empowerment variable was not included. However, this study was guided by this established relationship and acknowledges the underlying psychological empowerment variable at the individual staff nurse level.

Structural empowerment and patient quality outcomes. Similar to the literature review linking authentic leadership to patient quality outcomes, the evidence related to structural empowerment is largely based on staff nurses' perceptions of quality care. An exploratory investigation by Armstrong and Laschinger (2006) was followed up by a larger study in 2009 indicating that higher levels of structural empowerment were significantly, positively ($r = .60$; $p < .01$) associated with patient safety culture (Armstong, Laschinger, & Wong, 2009). Patient safety culture was seen as giving "direction to employees with regard to how patient safety and employee errors are viewed and what attitudes and behaviors related to patient safety are expected" (Armellino, Griffin, & Fitzpatrick, 2010, p. 797). The following significantly positive relationships were reported between the patient safety subscales and the structural empowerment subscales: organizational learning and improvement correlated with opportunity ($r = .21$, $p < .05$), information ($r = .23$, $p < .05$), and support ($r = .29$, $p < .01$); teamwork within units correlated to opportunity ($r = .26$, $p < .01$), support ($r = .31$, $p < .01$), and resources ($r = .33$, $p < .01$); and feedback and communication about errors correlated with information ($r = .39$, $p < .01$), support ($r = .39$, $p < .01$), and resources ($r = .22$, $p < .05$; Armellino et al., 2010). This study utilized the Hospital Survey on Patient Safety Culture (HSOPSC) tool, with Cronbach's alphas ranging from 0.63 to 0.84 for the subscales. The tool measures perceptions of a patient safety culture with items such as, frequency of events reported and a non-punitive response to error (Armellino et al., 2010). The patient safety culture of an organization has been shown to have an effect on patient quality outcomes (Pronovost et al., 2006; Yates, Hochman, Sayles, & Stockmeier, 2004). Similarly, Laschinger and colleagues (2001b, 2008) report a

significant direct relationship between structural empowerment and nurses' assessed quality of care of their units ($\beta = 0.22$).

To date only three studies have examined the effect of structural empowerment on objective patient quality outcomes. One investigation reported a significant relationship between structural empowerment and patient satisfaction ($r = .17$; $p < .05$; Donahue, Piazza, Griffin, Dykes, & Fitzpatrick, 2008). In this study patient satisfaction was assessed by the Press Ganey survey tool (Press Ganey Associates, 2002), which was widely used at that time. However, the findings have not been updated since the adoption of HCAHPS by CMS as the standard measure for patient satisfaction. The second study reported a statistically significant inverse effect of structural empowerment on care costs and patient length of stay following cardiac catheterization (Halter, 2006). The final study reported a statistically significant inverse relationship ($\beta = -0.12$; $p < .05$) between care unit level structural empowerment and rates of patient falls (Purdy, Laschinger, Finegan, Kerr, & Olivera, 2010). While these are encouraging findings, a gap in this knowledge remains, namely the link between structural empowerment and objective, patient quality outcome data, which this study begins to address.

Structural empowerment and staff nurse outcomes. Laschinger and colleagues have undertaken a significant program of research spanning more than two decades and over sixty studies explicating the importance of structural empowerment on the nurse work environment and staff nurse outcomes. Structural empowerment has shown a significant positive effect on the nurse work environment through the Magnet® characteristics of enhanced autonomy, control over practice, and nurse-physician relationships (Laschinger, Almost, Tuer-Hodes, 2003a; Upenieks, 2003). Additionally,

evidence supports the relationship between structural empowerment and several staff nurse outcomes including, increased nurse job satisfaction (Laschinger & Finegan, 2005; Laschinger, Finegan, & Shamian, 2001a; Lautizi, Laschinger, & Ravazzolo, 2009; Ning, Zhong, Libo, & Qiujie, 2009), perceptions of respect (Faulkner & Laschinger, 2008; Laschinger, 2004; Laschinger & Finegan, 2005), trust in management (Laschinger & Finegan, 2005), affective commitment (DeCicco, Laschinger, & Kerr, 2006; Smith, Andrusyszyn, & Laschinger, 2010), innovative behavior (Knol & van Linge, 2009), organizational commitment (Laschinger, Finegan, & Wilk, 2009; Yang, Liu, Huang, & Zhu, 2013), organizational citizenship behaviors (Gilbert, Laschinger, & Leiter, 2010); and decreased burnout (Laschinger, Finegan, Shamian, & Wilk, 2003b), emotional exhaustion (Gilbert et al., 2010; Laschinger et al., 2011), anticipated turnover (Hauck, Griffin, & Fitzpatrick, 2011), and effort-reward imbalance (Kluska, Laschinger, & Kerr, 2004). These findings are reported from geographically diverse acute-care settings including various regions in the US, China, Canada, and the Netherlands. Study participants included staff nurses representing all acute-care clinical specialties, with varying levels of experience, education, and certification.

Patrick and colleagues (2011) report that the relationship between nurse manager leadership and staff nurse clinical leadership was fully mediated by the degree of structural empowerment in the work environment. In this study clinical leadership by staff nurses was defined as "behaviours that provide direction and support to clients and the health care team in the delivery of patient care. A clinical leader is a registered nurse (RN) who influences and coordinates patients, families and health care team colleagues for the purpose of integrating the care they provide to achieve positive patient outcomes" (Patrick

et al., 2011, p. 450). The study included a randomized sample of 480 staff nurses from Ontario, Canada working in acute care hospital environments. This is a compelling staff nurse outcome that begins to elucidate the theoretical connection between leadership and structural empowerment.

Structural empowerment and authentic leadership. Several studies have examined the relationship between various leadership theories and structural empowerment. Greco, Laschinger, and Wong (2006) found that nurse leaders utilizing empowering behaviors significantly increased staff nurses' perceptions of structural empowerment, decreased job strain, and improved work effectiveness. Manojlovich (2005) reported a statistically significant positive relationship between nurses' perceptions of their leader as strong and structural empowerment ($r = .64$, $p < .01$), which yielded more professional practice behaviors among the staff nurses. The key role of nurse leaders was further supported with evidence of significant correlations between leader-member exchange, which emphasizes the quality of the leader-follower relationship, and structural empowerment ($r = .50$, $p < .01$; Davies, Wong, & Laschinger, 2011). Laschinger and colleagues (2009, 2011) highlight the significant contribution nurse leaders make at the unit level by fostering a positive relationship with staff nurses and facilitating access to structurally empowering work environments, garnering a more committed, satisfied nursing workforce with less emotional exhaustion. Finally, nurse manager span of control has been shown to be a significant moderator of the effect of emotionally intelligent leadership practices and staff nurses' perception of structural empowerment in their work environment (Lucas, Laschinger, & Wong, 2008). While this body of literature provides

compelling links between nursing leadership and structural empowerment, this literature did not specifically examine authentic leadership.

While the studies discussed above focused on the influence leadership has on structural empowerment, Manojlovich and Laschinger (2007) explored the idea that structural empowerment must be in place before nurse leaders can access it and in turn empower staff nurses. They contend that, "structural empowerment must be in place before it can be accessed by nurse leaders and channeled further to their staff (Manojlovich & Laschinger, 2007, p. 258). While the nested nature of both leadership and structural empowerment must be acknowledged in the hospital setting, the unit of analysis for this study was the care unit. Therefore, the influence nurse leaders have on structural empowerment at the care unit level was analyzed in this study.

Two recent studies specifically explicated the relationship between authentic leadership and structural empowerment. Laschinger, Wong, and Grau (2013) report that authentic leadership had a significantly inverse relationship with staff nurse emotional exhaustion (β = -0.31 experienced nurses; β = -0.16 new graduate nurses) and cynicism (β = -0.16 experienced nurses; β = -0.21 new graduate nurses) through structural empowerment (β = 0.40). Overall structural empowerment was significantly related to all subscales of authentic leadership, but most strongly to balanced processing (r = .41, p < .05) and self-awareness (r = .40, p < .05). Additionally, overall authentic leadership was significantly related to all subscales of structural empowerment, with support (r = .43, p < .05) being the strongest relationship (Laschinger et al., 2013). In another study, Wong and Laschinger (2012) report a significantly positive direct relationship (β = 0.46, p < .01) between authentic leadership and staff nurses' perceptions of structural empowerment,

which resulted in increased job satisfaction and self-reported job performance. Authentic leadership was strongly related to the structural empowerment subscale of formal power ($r = .43$, $p < .01$), and the self-awareness subscale of authentic leadership was highly related ($r = 0.45$, $p < 0.01$) to structural empowerment. These findings provide compelling evidence of the value of examining authentic leadership and structural empowerment as they relate to staff nurse and patient quality outcomes.

Staff Nurse Decisional Involvement

Decisional involvement has several closely related phenomena in the healthcare literature, such as clinical decision-making and control over practice. While these terms are at times used interchangeably, there are distinct differences among them. "Decisional involvement is defined as the pattern of distribution of authority for decisions and activities that govern nursing practice policy and the practice environment" (Havens & Vasey, 2003, p. 332). This definition denotes power as well as a scope beyond clinical care, inclusive of administrative decisions in the organization that affect the provision of nursing care to patients. Decision-making in the literature generally relates to clinical decision-making of nurses that takes place at the point of patient care (Noone, 2002). Infused in both of these concepts is the notion of autonomy – with clinical autonomy relating to decision-making and professional autonomy related to the unit and organization level decisional involvement, sometimes referred to as control over practice (Kowalik & Yoder, 2010).

Control over practice "requires some kind of empowered, formal organizational structure, extends beyond clinical decision making at the patient care interface, and is the same as or highly similar to what the literature describes as professional autonomy" (Kramer & Schmalenberg, 2003, p. 434). Control over practice is often operationalized by

shared or collaborative governance committee structures, which can serve as a frame for the process of staff nurse decisional involvement (Kowalik & Yoder, 2010).

As discussed during the introduction to this chapter, American Nurses Credentialing Center (ANCC) Magnet® certification requires that the hospital is able to provide evidence of formal structures and processes to enhance staff nurse decisional involvement (ANCC, 2008). However, "structure alone does not always result in a change in the distribution of authority nor guarantee nurse control over practice or shared decision making" (Scherb, Specht, Loes, & Reed, 2011, p. 163). Additionally, decisional involvement can also occur outside these formal structures (Houser, ErkenBrack, Handberry, Ricker, & Stroup, 2012), which is an important distinction from the definition of control over practice provided above. Examples of more informal care unit level staff nurse decisional involvement could include discussions at staff meetings, opportunities to initiate improvement projects on the unit, staffing allocation decisions in the charge nurse role, and clinical decisions made at the point of care in collaboration with patients. One could argue that both formal and informal decisional involvement can have an influence on patient quality outcomes and that a sole focus on formal mechanisms is misguided.

Given the ambiguous use of the terms decisional involvement, autonomy, and control over nursing practice outlined above, Kramer and Schmalenberg (2003) conducted interviews with twenty staff nurses from Magnet® hospitals to determine what control over nursing practice meant to them. They found that staff nurses thought of autonomy as independent judgment during a patient care encounter. Control over nursing practice was seen as beyond this, with a broader sphere of influence at the unit and organizational level. As one staff nurse stated, "autonomy is individual decision making for a patient. Control

over practice is group decision making about general nursing practice and policy issues that affects groups of patients…You can have individual autonomy for your patients on the unit, but not have control over nursing practice" (Kramer & Schmalenberg, 2003, p. 443).

In their concept analysis of decisional involvement, Kowalik and Yoder (2010) explicate the defining attributes to include distribution of authority (centralized or decentralized), autonomy, empowerment, collaboration, responsibility, and accountability. The antecedents of decisional involvement are participative management or a shared governance structure, the nurse making the choice to be involved, and nurse control over practice. The consequences of which are thought to be positive patient outcomes, enhanced nurse satisfaction, decreased absenteeism, increased recruitment, and decreased turnover (Kowalik & Yoder, 2010). While some of these relationships have been tested, and are synthesized in the following review of the literature, others have minimal empirical support, representing a gap in knowledge that this study begins to address.

Staff nurse decisional involvement and patient quality outcomes. In the 2004 Institute of Medicine report, *Keeping patients safe: Transforming the nursing work environment,* increased nurse decisional involvement was identified as a key factor to improving patient safety. The report identified nurses as the largest segment of the healthcare provider population and as the most likely clinicians to have frequent, sustained interactions with patients, making nurses integral to decision making to improve patient outcomes. Recommendations 4-1 and 4-3 highlight the important role nursing leadership plays in enabling staff nurse decisional involvement in the following ways:

- Facilitate input of direct-care nursing staff into operational decision making and the design of work processes and work flow

- Be provided with organizational resources to support the acquisition, management, and dissemination to nursing staff of the knowledge needed to support their clinical decision making and actions
- Engage workers in nonhierarchical decision making and in the design of work processes and work flow (Institute of Medicine, 2004, pp. 8-9)

Since this report, however, there have been few studies directly linking staff nurse decisional involvement with patient quality outcomes. As reviewed below, the majority of work to date has focused on the indirect influence on patients through staff nurse outcomes. However, some recent work has been undertaken. Houser et al. (2012) indicate that higher levels of staff nurse decisional involvement at the unit level resulted in fewer catheter-associated blood infections ($F = 3.94$, $p = .025$) and fewer pressure ulcers ($F = 3.87$, $p = .027$). Additionally, they found that units that had higher staff nurse involvement in staff planning had higher patient satisfaction results (Houser et al., 2012). One limitation of this work is that each individual nurse manager entered the patient quality outcomes for their care unit, which could lead to increased error in data entry or biased reporting of the data.

Staff nurse decisional involvement and staff nurse outcomes. Utriainen and Kyngas (2009) reviewed the literature related to nurse job satisfaction and found that the three key themes across studies were: relationships between nurses (including open discussion of unit issues), the opportunity to provide quality patient care, and the organization of nursing work. Mrayyan (2004) found that staff nurses were often

dissatisfied with their level of involvement in decision-making and that autonomy was integral to staff nurse satisfaction in their role. The three most significant factors increasing nurse autonomy were supportive management, education, and experience, with autocratic leadership styles decreasing autonomy (Mrayyan, 2004).

A 2006 study demonstrated that staff nurses' preferred decisional involvement is significantly higher ($p < .001$) than their actual levels of decisional involvement (Mangold, Pearson, Schmitz, Scherb, Specht, & Loes, 2006). The only significant determinant of the preferred level of decisional involvement was working in a medical center ($p = .029$) compared to other facilities in the network. Educational preparation of nurses or years of experience were not found to be significant factors in this sample (Mangold et al., 2006). Houston and colleagues (2012) indicate that staff nurses at Magnet® facilities had higher actual decisional involvement scores ($p = .01$) than nurses working at either Magnet®-aspiring or non- Magnet® facilities.

Houser and her colleagues (2012) surveyed nurses on 54 patient care units at nine hospitals, and their findings indicate that nurses who perceived higher levels of involvement on their unit had significantly lower levels of turnover intention ($F = 4.79$, $p = .012$). Nurses in this sample reported greater involvement in clinical decision-making than unit-based or organizational decision-making (Houser et al., 2012). Staff nurse decisional involvement was measured in this study utilizing a tool developed by the authors, the Houser/Graham-Dickerson measure of involvement. This tool was developed based on focus group themes and is a Likert-type scale with 11 questions. Reliability tests were conducted on 30 acute care units, with a Cronbach $\alpha = .895$. The psychometric properties of the tool were not reported (Houser et al., 2012). Examples of unit level or organizational

level staff nurse decisional involvement includes self-scheduling, involvement in selecting a nurse manager, clinical ladder programs, involvement in recruiting and interviewing nursing and support staff, empowered to resolve patient or family complaints, and work on interdisciplinary task forces and/or shared governance committees (Scherb et al., 2011).

Statistically significant differences have been found between staff nurses' preferred and actual decisional involvement, and between staff nurses' preferred involvement and nurse managers' preferences for staff nurse decisional involvement. Staff nurses want to be more involved than they are in practice, and their preferred levels of involvement exceed what nurse managers prefer for staff nurse decisional involvement (Scherb et al., 2011). The dissonance found between nurse managers and staff nurses has been supported previously (Fusilero, Lini, Prohaska, Szweda, Carney, & Mion, 2008; Hess, 2004; Mrayyan, 2004).

Staff nurse decisional involvement link to leadership and structural empowerment. According to a review by Wong et al. (2013), there is some indication that leadership may facilitate higher levels of staff participation in care decision-making (Boyle, 2004; Castle & Decker, 2011; Cummings et al., 2010; Kroposki & Alexander, 2006; Mrayyan, 2004), but this can only occur in practice if the leadership approach is aligned with structures for staff nurse empowerment. Tregunno and colleagues (2009) highlight the importance of front-line nurse managers in facilitating staff nurse decisional involvement. Additionally, work unit decisional involvement is statistically significantly related to structural empowerment ($r^2 = .80$, $p < .05$; Laschinger, Sabiston, & Kutszcher, 1997). As stated previously, nurse decisional involvement is often operationalized in hospitals as collaborative governance, also referred to as practice councils. These mechanisms for staff

nurse decisional involvement have revealed inconsistent findings in the literature related to structural empowerment, with one research group reporting no significant relationship (McDonald, Tullai-McGuiness, Madigan, & Shively, 2010) and another finding a statistically significant positive relationship (Erickson, Hamilton, Jones, & Ditomassi, 2003). Laschinger and Havens (1996) report that informal power, formal power, and overall structural empowerment accounted for 48.5% of staff nurses' control over practice ($F = 38.3$, $p < .001$). The formal power component was not statistically significantly predictive when overall structural empowerment and informal power were already in the model (Laschinger & Havens, 1996). These findings may reflect underlying assumptions about the actual nurse decisional involvement experienced within the structures of committees or councils. Measuring nurses' decisional involvement more directly, as this study did, serves to better explicate the relationship between leadership, structural empowerment, and staff nurse decisional involvement.

Patient Quality Outcomes

The literature linking nursing leadership and the nurse work environment to patient quality outcomes at the care unit level is limited with mixed findings. Even more rare is work specifically examining the effect of authentic leadership and structural empowerment within the nurse work environment on patient quality outcomes. As discussed previously, much of the science to date has relied on nurse-assessed measures of patient quality outcomes. Most of the evidence reviewed below relates to the broader concepts of nursing leadership and the nurse work environment as they connect to patient quality outcomes, with key exceptions noted. The findings of an integrative review indicate that the nature of the relationship between the nurse work environment and patient

outcomes is inconclusive (Bae, 2011). This finding will be further explicated along with each variable of interest in the sections that follow, but serves here as an understanding of the overall theme to be presented below. As discussed in chapter one, for the purposes of this study, patient quality outcomes was the broad umbrella term inclusive of the hospital acquired conditions (falls with injury and pressure ulcers) and patient satisfaction.

Hospital acquired conditions. The two hospital acquired conditions that were analyzed in this study are rates of patients' falls with injury and pressure ulcers. These metrics both have well-established definitions, measurement, and reporting standards and are sensitive to nursing care interventions (Montalvo, 2007). As discussed in chapter one, these metrics both have significant cost and quality ramifications. While there are certainly other pertinent patient quality outcome metrics, in an effort to assure adequate statistical power for this analysis the number of outcome variables needed to be limited.

***Falls with injury*.** The literature explicitly related to falls with injury is limited given the relatively new acknowledgement of the distinction between falls rates and falls with injury. One reason for this emerging distinction is the concern that fall prevention programs can result in the unintended consequence of increasing physical restraint utilization (Agency for Healthcare Research and Quality, 2013; Coussement, De Paepe, Schwendimann, Denhaerynck, Dejaiger, & Milisen, 2008). An analysis of 2006-2008 NDNQI falls data found an overall fall rate of 3.56 falls/1,000 patient days, with 26.1% of those falls resulting in injury (0.93/1,000 patient days). Of the falls with injury, 85.6% were classified as minor, 9.8% as moderate, 4.3% as major, and 0.2% resulted in patient death (Bouldin et al., 2013). Hitcho and colleagues (2004) indicate that 50% of falls were related to patients'

bowel or urinary elimination needs and that these falls were associated with a significant increased risk of injury.

A recent NDNQI (2012) report indicates that the national, hospital acquired falls with injury rate has been steadily declining from 1.12 in 2007 to 0.93 in 2011. Similar findings are reported elsewhere with fall rates declining by 0.4% per quarter and falls with injury rates declining 1% per quarter (Bouldin et al., 2013). However, as these authors point out, while these are statistically significant results from the extremely large NDNQI database, these findings may not be clinically meaningful reductions.

Falls with injury and the nurse work environment. Several studies have reported a significant difference in fall rates across different types of units, with medical-surgical units consistently having higher fall rates than intensive care units (He, Dunton, & Staggs, 2012; Lake & Cheung, 2006; Warshawsky, Rayens, Stefaniak, & Rahman, 2013). Fall rates are statistically significantly higher on medical units (4.03/1000 patient days) with a corresponding injury rate of 1.08, compared to surgical units with rates of 2.76 and 0.67, respectively (Bouldin et al., 2013). This pattern of outcomes across unit types are mostly attributed to differences in risk for falls and risk for injury among the patient populations served on these units, such as a larger geriatric population on medical units compared to surgical units (Bouldin et al., 2013).

No statistically significant relationship was found between fall or fall with injury rates related to nurse staffing levels; however, significant hospital characteristics included region in the US, metropolitan status, Magnet® status, and academic medical center status (Bouldin et al., 2013). Similar results are reported by Lake and colleagues (2010) who found that RN education level, certification, and staffing levels on general care units, were

not significantly associated with patient fall rates. However, Magnet® status was a significant inverse predictor of fall rates across all unit types (Lake, Shang, Klaus, & Dunton, 2010).

Nurse dose is a concept consisting of the, active ingredients (i.e., education, experience, skill mix) and intensity (i.e., full time equivalents, nurse to patient ratio, RN hours per patient day; Manojlovich, Sidani, Covell, & Antonakos, 2011). Results indicate a significant relationship between the concept of nurse dose and reduction of patient falls, with the active ingredients of education, experience, and skill mix, appearing to make a more significant contribution than the intensity components (Manojlovich et al., 2011). These findings allude to the importance of the context of who makes up the nurse work environment above the numbers of people or nursing hours worked within the setting.

Falls with injury and nursing leadership. While there are no studies testing authentic leadership and patient falls with injury, Houser (2003) presented evidence of transformational leadership, another relational leadership approach, having a statistically significant positive effect on staff nurse expertise which contributed significantly to a decreased rate of patient falls. These results were later validated with a larger sample size (Capuano et al., 2005) pointing to the need to test models articulating the mechanisms by which nursing leadership has an effect on patient quality outcomes, including fall rates. However, no significant relationship was found between nursing leadership and patient falls in a 2004 study by Boyle. In this study nurse leadership was measured as a subscale component of the NWI-R tool, which as discussed previously, does not provide depth of understanding regarding leadership. Additionally, this study undertook direct testing of

leadership to patient quality outcomes, without measuring the indirect mechanisms of leadership influence, as this current study did.

While interventions aimed specifically at improving falls with injury is beyond the scope of this dissertation, a brief discussion is warranted given the relationship between nurse leadership, the work environment, and efficacy of the interventions. There is some evidence of successful intervention bundles directed at reducing falls and falls with injury. This approach to quality improvement is referred to as bundling when the effect on the outcome of interest is realized by a variety of evidence-based interventions, generally three to five, working together (Institute for Healthcare Improvement, 2011).

A fall prevention bundle is implemented by a multidisciplinary team and includes components such as assessment of fall risk, communication among team members, patient education about fall risk, medication review, environmental review, and ambulation plan. While fall prevention bundles have shown some success, in recent reviews the pooled analysis is not always statistically significant. Coussement et al. (2008) report non-significant findings in their meta-analysis (including eight studies) of fall prevention bundles to reduce fall rates. However, the majority of the studies in this analysis were conducted on long-stay and rehabilitation units rather than acute-care hospital units and only four of the included studies examined a multifactorial intervention bundle, with the remaining studies examining a single intervention.

Cameron et al. (2010) indicate in their integrative review that there is some evidence of the effectiveness of bundled strategies to reduce fall rates specifically among the elderly population. Testing of a fall prevention toolkit that is individualized to patient specific risk factors showed significant reductions in fall rates in a randomized control trial

and showed particular effectiveness for patients 65 years and older (Dykes et al., 2010). Lastly, "multifactorial fall prevention intervention programs that included fall-risk assessments, door/bed/patient fall-risk alerts, environmental and equipment modifications, staff and patient safety education, medication management targeted to specific types, and additional assistance with transfer and toileting demonstrate reduction in both falls and fall injuries in hospitalized patients" (Spoelstra, Given, & Given, 2012, p. 92). While these findings are encouraging, a recurring theme in the discussion section of these studies related to the key role of leadership in managing the change process, infrastructure support to ease implementation of the interventions, and the sustainability of the bundled intervention programs. Infrastructure support could include things such as automatically generated fall risk alerts for patients' rooms and more lifting equipment available at the point of care. Therefore, a clearer understanding of the roles of authentic leadership and structural empowerment in facilitating and sustaining improved rates of falls and falls with injury is warranted.

Hospital acquired pressure ulcers. A systematic review of the literature reports the three most frequent predictors of patients developing a pressure ulcer are mobility/activity, perfusion, and skin/pressure ulcer status (Coleman et al., 2013). Additional factors include skin moisture, age, hematological measures, nutrition, and general health status (Coleman et al., 2013). Hospital acquired pressure ulcers (HAPU) are generally avoidable (Baharestani et al., 2009) with the National Quality Forum characterizing HAPUs as "largely preventable, grave errors" (2008, p. 1). As of October 1, 2008, CMS stopped reimbursing hospitals for costs of treating stage III and IV HAPUs (CMS, 2014).

Hospital-acquired pressure ulcers and the nurse work environment. Hospital acquired pressure ulcer rates have been reported as lowest on surgical care units and highest on intensive care units, with an overall significant downward trend from 2004-2011 (He, Staggs, Bergquist-Beringer, & Dunton, 2013). Overall, HAPU rates are higher at large, teaching hospitals, with no significant difference found between Magnet® and non-Magnet® facilities. However, increased RN skill mix was associated with significantly lower rates of HAPU. Additionally, while nursing hours per patient day (HPPD) was not found to be a significant factor on medical or surgical care units, it was inversely associated with HAPU rates on critical care, step-down, and rehabilitation units (He et al., 2013).

A systematic review analyzing the effectiveness of HAPU prevention interventions found that the key components across 26 studies included "simplification and standardization of pressure ulcer-specific interventions and documentation, involvement of multidisciplinary teams and leadership, use of designated skin champions, ongoing staff education, and sustained audit and feedback" (Sullivan & Schoelles, 2013, p. 410). Once again, this approach to quality improvement is referred to as bundling (Institute for Healthcare Improvement, 2011). While the bundle yields improvement in HAPU rates, the authors also raise issues presented in the studies related to sustainability and contextual factors, similar to the fall prevention bundle literature discussed previously.

The sustainability of bundle approaches, which are costly and resource intensive, can be challenging, especially as organizations add additional quality outcomes (Agency for Healthcare Research and Quality, 2013). The evidence presented in the integrative review highlight that while the efficacy of the bundle is supported, there is a gap in knowledge related to the specific value of bundle components. The contextual factors included

sufficient staffing, documentation, nurses taking ownership, and support from leadership all having an effect on the sustainability of the bundle approach (Sullivan & Schoelles, 2013). In order to ensure the expected outcomes from these intervention bundles and achieve synergies across patient quality outcome metrics, a clearer articulation of the influence of nurse leadership and structural empowerment is indicated.

Hospital-acquired pressure ulcers and nursing leadership. While Castle and Decker (2011) report a statistically significant relationship between nursing leadership and decreased pressure ulcer rates, three other studies found no such relationship between these variables (Boyle, 2004; Flynn et al., 2010; Taylor et al., 2012). It is worth noting that Flynn et al. (2010) and Boyle (2004) utilized a subscale of the Nursing Work Index-Revised (NWI-R) to assess manager ability and support, and Taylor et al. (2012) utilized a subscale of the Safety Attitudes Questionnaire (SAQ), rather than a tool specifically validated to test a leadership theory. The significant findings of Castle and Decker (2011) were obtained utilizing the Bonoma-Slevin model of leadership. These differences in leadership measurement highlight the issue of overlooking the indirect mechanisms through which leadership affects patient quality outcomes (Wong et al., 2013), such as staff nurse decisional involvement, as was examined in this study. Additionally, Warshawsky and colleagues (2013) reported a significant relationship between nurse manager turnover and an increased rate of pressure ulcers at the unit level, which indicates a relationship between unit-level leadership and patient quality outcomes. These mixed, inconclusive findings with varying measurement approaches indicate the need for additional empirical work.

Patient satisfaction. Patient satisfaction is the final patient quality outcome variable of interest reviewed for this study. Patient satisfaction is "not a unitary concept but rather a distillation of perceptions and values. Perceptions are patients' beliefs about occurrences...Values are the weights patients apply to those occurrences. They reflect the degree to which patients consider specific occurrences to be desirable, expected, or necessary" (Kravitz, 1998, p. 280). Donabedian (1966) clearly articulated the utility of patient satisfaction as a metric of quality by stating, "the effectiveness of care… in achieving or producing health and satisfaction, as defined for its individual members by a particular society or subculture, is the ultimate validator of the quality of care" (p. 185). Patient satisfaction is typically measured with either a survey tool or interview administered directly to the patient to assess the patient's satisfaction with care. As of October 2006, CMS standardized the measurement of patient satisfaction within the acute-care, hospital setting by adopting the HCAHPS survey tool (HCAHPS Fact Sheet, 2013). It is important to note that satisfaction differs from other closely related concepts, such as the patient's perception of safety or quality of care, which are outside the scope of this proposal. While it can be difficult for patients to accurately assess the safety or quality of the care environment, patients are the source of choice for satisfaction with the care they received.

Patient satisfaction and the nurse work environment. Numerous studies have found a statistically significant, positive relationship between a healthy nurse work environment, as measured by the NWI-R or the PES-NWI, and enhanced patient satisfaction (Aiken et al., 2012; Boev, 2012; Brooks-Carthon, Kutney-Lee, Sloane, Ciminotti, & Aiken, 2011; Kutney-Lee et al., 2009; McHugh, Kutney-Lee, Cimiotti, Sloane, & Aiken, 2011; Vahey, Aiken, Sloane, Clarke, & Vargas, 2004). "The quality of the nurse work environment was

found to be associated with all ten measures of patient satisfaction," (Kutney-Lee et al., 2009, p. w675) as measured by the HCAHPS tool. Brooks-Carthon et al. (2011) frame the significance of their findings by stating "If hospitals were to improve their work environment from poor to good and reduce nurses' workload by an average of one patient per nurse, their patients' satisfaction would shift from the 50th to the 84th percentile of all hospitals" (p. 306).

Other relevant findings report on phenomena related to the nurse work environment and the corresponding influence on patient satisfaction. Bacon and Mark (2009) found two significant relationships – both RN work engagement and level of support services for nurses had a significant association with patient satisfaction. Kee et al. (2005) indicated that patient satisfaction was significantly higher in ICU settings compared to general care settings. Larrabee et al. (2004) showed that patient satisfaction was enhanced by perceived nurse caring and effective RN-MD collaboration. Finally, Mark, Salyer, and Wan (2003) indicated that smaller unit size and increased nurse skill mix both positively influenced patient satisfaction. Taken together these findings provide some initial support for care unit level factors that have an influence on patient satisfaction outcomes.

Patient satisfaction and nursing leadership. Statistically significant positive relationships between nursing leadership and patient satisfaction have been reported (Doran et al., 2004; Havig, Skogstad, Kjekshus, & Romoren, 2011; Kroposki & Alexander, 2006). Other studies have found no significant relationship between nursing leadership and patient satisfaction (Gardner, Thomas-Hawkins, Fogg, & Latham, 2007; Larrabee et al., 2004; Raup, 2008). However, the Raup (2008) study had a small sample size, and the

Gardner et al. (2007) study only examined the hemodialysis work environment, so these findings may not be generalizable to acute-care units within the hospital setting. Once again the variability in the rigor of designs and the contradictory findings in the literature point to the need for further testing of the relationships among the nurse work environment, nursing leadership, and patient satisfaction outcomes.

Summary

The review of this literature presents the state of the science connecting nursing leadership broadly with structural empowerment and their effect on the outcomes of staff nurse decisional involvement and the patient quality outcomes of falls with injury, pressure ulcers, and patient satisfaction. Based on the findings discussed above, there is inconclusive evidence of the relationship between a healthy nurse work environment and patient quality outcomes at the care unit level in the hospital setting. Authentic leadership and structural empowerment are two promising theories to examine components embedded in the nurse work environment and their influence on patient quality outcomes.

Among the recommendations of a systematic review of the literature linking nursing leadership to patient quality outcomes, was the need for testing explicit leadership models and the mechanism by which leaders influence outcomes (Wong et al., 2013). These authors call attention to the theory of authentic leadership stating, "the utility of this theory is that it emphasizes possible mechanisms through which leadership influences performance, and how followers shape leadership within and between various organizational contexts, climates, and cultures" (Wong et al., 2013, p. 719). Several authors have called for objective outcome measures for both staff nurses and patients related to authentic leadership (Bamford et al., 2013; Gardner et al., 2011; Shirey, 2006; Wong et al.,

2010) "Studies examining authentic leadership and links to objective outcome measures reflecting quality of care such as patient satisfaction, adverse events and nurse-sensitive outcomes are recommended" (Wong et al., 2010, p. 898). Additionally, Wagner and colleagues (2010) recommend future structural empowerment work include objective outcome measures, such as rates of falls and pressure ulcers, rather than continued reliance on staff nurses' perception of the quality of patient care. They also call for the integration of nursing leadership into the understanding of structural empowerment and outcomes.

Lastly, the care unit as the unit of analysis for this study makes a significant contribution to knowledge as "few studies have demonstrated specific contextual effects of nurses nested within their work units" (Laschinger et al., 2009, p. 233). Mallidou and colleagues (2011) found that most studies of authentic leadership were conducted at the individual unit of analysis and call for a focus on the group or team level outcomes related to authentic leadership. "More research is needed on nested subcultures within healthcare organizations for better understanding differentiated subspecialty effects on complexity of care and outcomes in hospitals" (Mallidou, Cummings, Estabrooks, & Giovannetti, 2011, p. 81). This study begins to address these significant gaps in knowledge.

CHAPTER THREE: RESEARCH DESIGN AND METHODS

Design

Working from a postpositivist perspective this study was a cross-sectional, web-based survey design combined with an analysis of patient quality outcome data gathered at the care unit level. "The purpose of a survey is to provide statistical estimates of the characteristics of a target population [based on a sample]…One fundamental premise of the survey process is that by describing the sample of people who actually respond, one can describe the target population" (Fowler, 2008, pg. 11). The survey design of this study provided an objective measure of abstract human concepts, namely authentic leadership, structural empowerment, staff nurse decisional involvement, and patient satisfaction. The cross-sectional, web-based survey of nurses measured their perceptions of authentic leadership, structural empowerment, and staff nurse decisional involvement at the care unit level and the influence on patient satisfaction. By measuring staff nurses' perceptions of authentic leadership and structural empowerment the social desirability response bias was reduced compared to having nurse managers' self-assessment of their leadership and work environment (Polit & Beck, 2012; Wong & Cummings, 2007).

Sample and Setting

The participants for this study were a nonprobability sample of staff nurses working on 105 general care units at five healthcare systems, one located on the east coast, one in the Midwestern region, one in the southeast, one in the Rocky Mountain region, and one on the west coast of the United States. Eleven hospitals across these five systems participated in this study, and represented urban, suburban, and rural settings, with academic medical centers and community hospitals represented. The hospitals represented a mix of Magnet®

and non- Magnet® facilities as well as union and non-union environments. This PI recruited the five healthcare systems by contacting each system or hospital's chief nurse officer (CNO). Each nurse leader verbalized an interest and willingness to support the conduct of this study within their healthcare system pending Boston College and healthcare system IRB approval of the study. Additionally this PI had follow-up conversations about the plan of study with nursing research personnel within each system. The patient quality outcome data were collected from each hospital's quality database at the care unit level.

Power Analysis

For the power analysis (G*Power 3.1; Faul, Erdfelder, Buchner, & Lang, 2009) a regression model was assumed with a primary predictor as the presence of three predictors and a variance inflation factor of 1.50. A standard error deviation of one was assumed in this power analysis. In order to detect a significant regression coefficient of size 0.482 (standard deviation units), which represents a moderate effect size, with 85% power, at least 60 care units were needed in the data analysis for this study. The significance level was set at 0.05. In order to attain the minimum care unit sample size of 60, and to afford greater statistical power to detect a smaller effect size for this data analysis, 108 care units were recruited to participate in this study. Of the 108 care units recruited, 105 care units were utilized in the final data analysis.

In this study the unit of analysis was the care unit. General care units were defined as inpatient units that deliver 24-hour care. Patient satisfaction data were only collected from the unit where patients were discharged home; therefore, this led to the decision to exclude intensive care and step-down units. Additional exclusions were the operating and emergency departments, since the patient quality outcome of patient satisfaction is

measured based on the unit from which the patient was discharged. Obstetrical units were also excluded since patients on these units are generally experiencing a time of wellness rather than illness, thus complicating the analysis. Given the importance of the relationship between staff nurses and their unit-based leader, care units were excluded from the analysis if the nurse manager role was vacant.

Procedures

Piloting Instruments and Procedures

The three survey tools and the demographic tool were informally pilot-tested with a small group of staff nurses from outside the sample discussed above. Subjects in the pilot survey were asked to complete a survey through Qualtrics® containing the three tools discussed in greater detail below and the demographic questionnaire. Qualtrics® is a private, web-based survey company founded in 2002, which has been used in every major academic setting in the US (Chapman, 2012; Qualtrics®, 2015). A free text box was available at the end of each section and at the completion of the survey to provide any questions or concerns. Some participants were asked to complete the survey on a mobile device to confirm the layout of the tools was appropriate for completion in this format. Unique links to the survey were sent to each subject in the pilot to also test the embedded data related to unit, hospital, and system of origin. The data from the pilot phase was downloaded into Excel® and then into SPSS® to ensure data collection and management occurred as planned. This afforded insight into some minor challenges with particular questions' formatting and logistics of taking the survey in Qualtrics® as well as assess the time burden for subjects (approximately 15 minutes). Minor revisions were made to the survey formatting based on this pilot testing.

Participant Recruitment

Boston College IRB approval was obtained for this study (Appendix B). Among the five health systems there were varying requirements for IRB approval. Four of the sites required application to their IRB, which then ceded approval to the Boston College IRB. One site required a formal IRB approval by their system, which was obtained. Additionally, one site required presentation to and approval by the site's nursing research council. Once these approvals were in place all staff nurses working on all eligible general care units at the healthcare systems were invited to participate in this study. This PI obtained email addresses directly from organizational IS systems, which enabled direct emailing to a confirmed, work email address. This data collection procedure was not feasible in one of the five systems due to institutional policy. In this instance, this PI created a unique survey for each care unit within Qualtrics®. This unique survey link was then sent to an employee internal to the healthcare system and forwarded along to the appropriate staff nurses. This PI provided communication with unit-based nursing leadership at each study site to discuss the purpose and significance of the work and enlist support for the study. Local leaders were asked to discuss the study with their staff.

Data Collection

A modified Dillman approach to survey implementation was undertaken to maximize response rate (Dillman, Smyth, & Christian, 2009). While a response rate > 60% would have been ideal (Wong et al., 2013), staff nurse survey response rates vary considerably from 33-66% (Armstrong et al., 2009; Laschinger et al., 2011; Manojlovich & Laschinger, 2007; McDonald et al., 2010; Smith et al., 2010; Wong & Laschinger, 2012). Refer to Figure 2 for the communication timeline for each site's survey data collection

period. One week prior to sending the web-based survey, nurses on each care unit received an email notification about the study and what to expect the following week. A means to contact the PI was provided should any questions or problems arise with the survey. The complete series of email communications to staff nurse participants is in Appendix C. A rolling start design was utilized to enable data collection feasibility and to address any procedural concerns with the first healthcare system before beginning data collection at the next system. The email with the survey had a link and a URL that could be copy and pasted into a web-browser should the link not work directly. When a participant accessed the survey link, the first page was the consent form (Appendix D). Two follow-up email reminders were sent to participants. The first reminder was sent one week after the survey was distributed and the second reminder was sent one week after the initial reminder. These reminder procedures represent a modification to the Dillman (2009) approach to slightly shorten the timeframe of data collection for this study. This resulted in a data collection period of three weeks per healthcare system, and an overall data collection period of four months in July – November of 2014.

Figure 2. Communication Plan for Survey Data Collection

Data Management

Prior to data collection a codebook was created in SPSS® with definitions for each abbreviated item. Each staff nurse was sent a unique link to the Qualtrics® survey with embedded code to allow nesting of data within units, hospitals, and systems. Once the survey was completed Qualtrics® blocked that link from being used again, thus preventing

a subject from completing the survey multiple times. Survey data as well as the demographic information were collected through Qualtrics®. As data collection occurred through Qualtrics®, the system was set up to automatically strip the subject's email address from the data making each submission anonymous, only leaving the embedded coding for healthcare system, hospital, care unit, and a de-identified unique subject identification number. Upon completion of the data collection phase, the data were downloaded into Excel® and then SPSS® for data analysis and stored on a password protected computer, locked in this PI's office for data security.

The unit and hospital characteristics as well as the patient care quality metrics were collected by this PI from each institution, working with internal nurse research and quality and safety colleagues. These individuals at each healthcare setting had ongoing meetings with this PI to discuss feasibility and logistical concerns.

Data Collection Instruments

Table 1 provides an overview of the data collection instruments for each variable of interest in this study. Staff nurses completed the first three validated tools, and this PI collected the HCAHPS results for each care unit from hospital administrative databases. For the purposes of this study staff nurses were instructed to think about the formal manager and the work environment of the care unit where they work the majority of the time.

Table 1

Data Collection Instruments

Tool	Variable	Source	# of Items & Scales	Responses	Cronbach's alpha
Authentic Leadership questionnaire (ALQ)	AL	Avolio, 2007	16 4 subscales	0-4 Likert scale	Range 0.70-0.90
Conditions of work effectiveness questionnaire II (CWEQ-II)	SE	Laschinger et al., 2001b	19 6 subscales	1-5 Likert scale	Range 0.78-0.89
Decisional Involvement Scale (DIS)	Staff Nurse DI	Havens & Vasey, 2003, 2005	21 6 subscales	1-5 Scale Actual vs Preferred scores	Range 0.91-0.95
Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey	Patient Satisfaction	Standardized tool in US (CMS requirement)	3 Items: -Nurse Composite score -Overall satisfaction with care -Likely to recommend hospital	Always-Usually-Sometimes-Never Scale for Nurse Composite; 0-10 scale for overall satisfaction; Definitely no to definitely yes for likely to recommend	0.94

Authentic Leadership Measure (ALQ)

Authentic leadership was measured utilizing the Authentic Leadership Questionnaire (ALQ) developed by Walumbwa and colleagues (2008). This instrument includes 16 items along the four subscales of relational transparency (5 items),

moral/ethical conduct (4 items), balanced processing (3 items), and self-awareness (4 items). The questionnaire was used to assess employees' perceptions of their manager and has previously been utilized with staff nurse populations (Wong & Giallonardo, 2013). Responses are on a 0 –4 Likert scale, from zero (not at all) to four (frequently, if not always), with higher scores representing higher levels of authentic leadership. All items on the scale are averaged to obtain an overall authentic leadership score, and each of the four subscale scores is calculated by averaging the items within that scale (Wong & Giallonardo, 2013). Cronbach's alpha for this tool ranges between 0.70 –0.97 (Walumbwa et al., 2008; Wong et al., 2010), which indicates adequate reliability (Fox, 2008). Multiple confirmatory factor analyses were undertaken by Walumbwa and colleagues (2008) with diverse samples from the US, China, and Kenya. The discriminant validity of the ALQ to existing, established measures of leadership, including transformational and ethical leadership questionnaires was reported as follows: "ALQ and ethical leadership (unconstrained correlation, χ^2 (298) = 629.77; constrained correlation, χ^2 (299) = 685.46; $\Delta\chi^2$ = 55.69, p < .01) and authentic leadership and transformational leadership (unconstrained correlation, χ^2 (458) = 1107.02; constrained correlation, χ^2 (459) = 1131.51; $\Delta\chi^2$ = 24, p < .01"; Walumbwa et al., 2008, p. 110). These findings suggest a relationship among the leadership constructs, and that authentic leadership is significantly different from transformational or ethical leadership.

Structural Empowerment Measure (CWEQ-II)

The structural empowerment variable was measured utilizing the Conditions of Work Effectiveness Questionnaire-II (CWEQ-II), which contains 19 items that assess the six domains of structural empowerment: opportunity, information, support, resources, formal

power, and informal power. Embedded within the CWEQ-II are, 1.) Job Activities Scale II (JAS-II) which consists of three items to measure formal power and 2.) Organizational Relationship Scale (ORS- II), which consists of four items to measure informal power (Laschinger et al., 2001b). A two-item Global Empowerment Subscale (GES) is used for construct validation purposes and is not included in the total empowerment score. Items are rated on a five-point Likert scale with responses ranging from 1 = 'none' to 5 = 'a lot' (Laschinger et al., 2013). Higher scores indicate higher perceptions of structural empowerment, with an overall structural empowerment score ranging between 6 – 30. The mean score for each subscale is calculated with the total score as the sum of the six subscales' mean values (Laschinger et al., 2001b). Total scores in the range of 14 – 22 indicate moderate structural empowerment in the environment, scores of 23 – 30 indicate high levels of structural empowerment, and scores below 14 indicate low levels of structural empowerment (Piazza, Donahue, Dykes, Griffin, & Fitzpatrick, 2006; Wong & Laschinger, 2012). Cronbach's alpha coefficients for the questionnaire range between 0.78 – 0.93 (McDonald et al., 2010), which indicates adequate reliability of the tool (Polit & Beck, 2012). Confirmatory factor analysis revealed a good fit of the hypothesized factor structure (χ^2 = 279, *df* = 129, CFI = .992, IFI = .992, RMSEA = .054), supporting the construct validity of the CWEQ-II (Laschinger et al., 2001b).

Staff Nurse Decisional Involvement Measure (DIS)

Decisional involvement is often measured as a component embedded in a broader assessment of the nurse work environment, such as the Nursing Work Index-Revised (NWI-R; Aiken & Patrician, 2000) and the Practice Environment Scale (PES; Lake, 2002). The Decisional Involvement Scale (DIS) is the only tool specifically designed and validated

to measure staff nurse decisional involvement, with the six subscales of unit staffing, quality of professional practice, professional recruitment, unit governance and leadership, quality of support staff practice, and collaboration/liaison activities (Havens & Vasey, 2005). The confirmatory factor analysis revealed a good fit of the hypothesized factor structure (NFI = .982, RMSEA = .070), with overall Cronbach's alphas for the DIS ranging from 0.91 to 0.95 (Havens & Vasey, 2005; Scherb et al., 2011). Subjects respond to each item indicating who has the primary decision-making authority on their care unit. Response choices are: 1 = administration/management only, 2 = primarily administration/management with some staff nurse input, 3 = equally shared by administration/management and staff nurses, 4 = primarily staff nurses with some administration/management input, and 5 = staff nurses only (Havens & Vasey, 2005). DIS measures staff nurse preferred and perceptions of actual decisional involvement, allowing for analysis of dissonance, with either decisional saturation (more than desired) or decisional deprivation (less than desired; Havens & Vasey, 2003). The decisional dissonance score is calculated by obtaining the absolute difference between the actual and desired scores (Havens & Vasey, 2005). Refer to Appendix E for the letters of permission to use the ALQ, CWEQ-II, and DIS survey instruments.

Patient Quality Outcome Measures

The patient quality outcomes measures of interest include hospital acquired conditions and patient satisfaction with care.

Hospital acquired conditions measure. The hospital acquired conditions of falls with injury and pressure ulcers, which are collected with standardized NDNQI definitions and measurement, were mined from organizational databases. This process provided

standardization of event definition as well as data collection methods across care units and hospitals. Each of these metrics is measured per 1,000 patient days to standardize the rates of falls with injury and HAPUs across care units and hospitals of differing sizes. While evidence suggests that seasonality of HAPUs is decreasing, this is still a factor that must be controlled for, with an annual rate of HAPU more representative of the practice and outcomes on a particular unit (He et al., 2013). Therefore, data points for four quarters over the past year were collected to reduce the known noise in the patient quality outcomes of falls with injury and HAPUs. Additionally, these patient quality outcomes vary in known ways across unit types, reflecting differences in the patient populations served (Bouldin et al., 2013; He et al., 2013). Therefore, as the models were built during data analysis, unit type was entered as a potential covariate to control for these established differences.

Patient satisfaction measure (HCAHPS). HCAHPS is an internationally recognized tool that was adopted by CMS in 2006 as the standard measure of patient satisfaction required of hospitals in the US (HCAHPS Fact Sheet, 2013). The tool is valid with a reported confirmatory factor structure (CFI = .981, SRMR = .116, RMSEA = .027; Hurtado, Angeles, Blahut, & Hays, 2005) and reliable (Cronbach's alpha = 0.94; Goldstein, Farquhar, Crofton, Darby, & Garfinkel, 2005; Jha, Orav, Zheng, & Epstein, 2008) for assessing patient satisfaction and was developed specifically for the acute-care, hospital setting. Goldstein and colleagues (2005) reported the detailed process of the HCAHPS tool development and testing. "It included a public call for measures, multiple *Federal Register* notices soliciting public input, a review of the relevant literature, meetings with hospitals, consumers and survey vendors, cognitive interviews with consumer, a large-scale pilot test in three states

and consumer testing and numerous small-scale field tests" (p. 1977). The seven composite (subscale) scores for the tool include communication with doctors, communication with nurses, responsiveness of hospital staff, cleanliness and noise level of the physical environment, pain control, communication about medications, and discharge information (Goldstein et al., 2005). One of the limitations of the HCAHPS tool is that it only measures patient satisfaction from the care unit where the patient was discharged from the hospital, leaving significant gaps in understanding about satisfaction with hospital emergency departments, operating rooms, and intensive care units. However, this limitation will not affect the current study, since the unit of analysis is the general care units, where the vast majority of patients are discharged from the hospital. As HCAHPS data are already collected as part of typical practice in each of the sample care units, this PI did not directly collect these data. Rather, these data were obtained from hospital quality departments.

Staff Nurse Demographic and Unit/Hospital Characteristics Tool

Appendix A reports the staff nurse demographics and unit and hospital characteristics that were collected in this study. Their selection was based on previous research in this area (Lake et al., 2010; Laschinger et al., 2009; Manojlovich & Laschinger, 2007; Wong et al., 2010). Staff nurses who responded to the survey instruments discussed above self-reported their personal demographic information. The hospital and unit characteristics were obtained from each organization's administrative database, working with internal research and quality improvement personnel.

Data Analysis

Assessment of Data

The survey data from the ALQ, CWEQ-II, and DIS were downloaded from Qualtrics® into Microsoft Excel® and then imported into the Statistical Package for the Social Sciences (SPSS®), where data analysis was undertaken (SPSS® inc., version 21.0, Chicago, IL). The patient quality outcome and the unit/hospital characteristics data were uploaded into SPSS® by this PI from an Excel® file provided by each participating hospital. The data were assessed for extent of missing data. Descriptive statistics (i.e., measures of central tendency and standard deviations) are reported for all major study variables, and reliability estimates were calculated for each survey tool. Additionally, the major study variables were checked for normality. All analyses were two-tailed tests, with a level of significance ($p \leq .05$).

Participant Response Rate

The participant response rate is reported for each care unit. While it was the intent to assess for nonresponse bias utilizing key demographics from each hospital (MacDonald, Newburn-Cook, Schopflocher, & Richter, 2009) and comparing them to known institutional values, this proved to be too great a barrier to study participation. The hospitals either did not have these data collected or retrievable in a manageable form, or there were institutional policies against sharing such information.

Descriptive Characteristics

Staff nurse, unit, and hospital descriptive characteristics as outlined in Appendix A are reported or presented in tables. Staff nurse demographic information was collected in the web-based survey, and this PI collected unit and hospital demographics in conjunction with healthcare system research colleagues.

Testing the Research Hypotheses

Research question 1. What are the unique and combined effects of authentic leadership and structural empowerment on staff nurse decisional involvement?

H1a: As authentic leadership scores increase, staff nurse decisional involvement scores will increase.

H1b: As structural empowerment scores increase, staff nurse decisional involvement scores will increase.

H1c: The combined effects of increased authentic leadership and structural empowerment will result in the highest scores of staff nurse decisional involvement.

Regression models were used to analyze the relationship between authentic leadership (AL), structural empowerment (SE), and staff nurse decisional involvement (DI). Because nurses are nested in care units, which in turn are nested in hospitals, this investigator accounted for clusters of correlated data using linear mixed effect models (Fox, 2008). The outcome variable was the actual scores of staff nurse DIS, and the primary predictor variables were ALQ and CWEQ-II. Since contrasts between care units and hospitals were not the level of analysis for this study, random effects modeling were utilized to account for the nesting of units within hospitals. The justification for the inclusion of random effects was tested using a likelihood ratio test, which compared the general or unrestricted model to the restricted model. Once the random structure, that is the effect of the hospital level, was determined the focus was on the fixed effects. Models were fit that contained each of the primary predictors individually (H1a, H1b) and a model that contained both predictors (H1c). A relationship between the predictors and the response was indicated if the likelihood ratio test for their inclusion was significant at the *p*

≤.05 level. The estimates of the regression coefficients and the standardized regression coefficients provided estimates of magnitude, direction and order of the effects. For likelihood ratio tests of random effects the models were fit using restricted maximum likelihood (REML) and for fixed effects maximum likelihood was utilized. Final model estimates and confidence intervals were based on a model fit using the REML criteria (Fox, 2008).

Control variables and effect modifiers. It was necessary to control for some of the variables given in Appendix A. All demographic variables were entered into the model as main effects. This required some model building, which will be further explicated in chapter four. Terms were included in the model based on likelihood ratio tests. Comparisons between non-nested models were made using Akaike's Information Criteria (AIC; Fox, 2008).

Verifying model assumptions and alternative methods. All model assumptions were verified through examination of residual and Q-Q plots. If it was determined that model assumptions were violated, alternative tactics were employed, such as response variable transformation or the use of generalized linear models (Fox, 2008).

Missing Data. In a cross-sectional design the methods for accounting for missing data are limited. However, frequency metrics were examined to determine the amount of missing data. Sensitivity analyses were performed to determine if the missing data significantly altered the findings, that is, if the data was missing at random, completely at random or in a non-random pattern (Fox, 2008).

Multicollinearity. Multicollinearity between the two primary predictors was determined through correlation coefficients (Fox, 2008).

Research question 2. What influence does authentic leadership and structural empowerment have on the degree of dissonance between staff preferred and actual decisional involvement?

H2: As authentic leadership and structural empowerment increase, the degree of dissonance between staff nurse preferred and actual decisional involvement will decrease.

The data analysis plan for this question followed the same method outlined in the plan for research question one. However, the outcome variable in this case was the DIS dissonance score.

Research question 3. What are the unique and combined effects authentic leadership and structural empowerment on patient quality outcomes (i.e., falls with injury, pressure ulcers, and patient satisfaction with care)?

H3a: As authentic leadership scores increase patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

H3b: As structural empowerment scores increase patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

H3c: The combined effects of increased authentic leadership and structural empowerment will result in the highest scores patient satisfaction and the lowest rates of falls with injury and pressure ulcers.

The data analysis plan described in research question one was used for this research question as well. Models were fit with fall with injury rates and pressure ulcer rates as the response variable and the primary predictors were the measures of authentic

leadership and structural empowerment. However, there are some important differences that needed to be accounted for.

Multi-level modeling. In this analysis the outcome variable was a unit level variable while the primary predictors were nurse level variables. Thus predictors occurred at a lower level than the response, indicating the need to calculate the unit-wise mean value for the nurse-level predictor variables. These means scores were estimates and contained different levels of precision, that is, measurement error. These scores were weighted so that the more precise mean-scores are not given the same weight as less precise means-scores. This was accomplished by using inverse standard error measures normalized so the sum of the weights is one (Fox, 2008). Note that units were still nested within hospitals, which indicates the use of a linear mixed effect model to account for the hospital level effect on the care units.

Non-normality of response. Rate measures are often not normally distributed, often exhibiting right skewedness. To assess for this plots of the outcome variables, including residual plots, and Q-Q plots were analyzed to determine the degree of non-normality. Non-normality was found upon visual inspection of these plots, so response transformations were undertaken with generalized linear models to account for this (Fox, 2008).

Methods for assessing control variables, effect modifiers, multi-collinearity and missing data are described in and are the same as the methods detailed for research question one. Separate models were fit for each of the patient quality outcome variables.

Research question 4. What is the relationship between actual staff nurse decisional involvement and patient quality outcomes?

H4: As actual staff nurse decisional involvement scores increase, patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

The analysis plans for this question followed the same methods outlined in research question three. The DIS was now treated as a predictor, where it was a response variable in research question one. Note that the primary predictor variable, staff nurse decisional involvement, was measured on the nurse-level while the outcome metrics were on the unit-levels. The same procedure outlined in research question three was utilized to account for this.

Displaying and Discussing Data

Results of the above analyses are presented in tables and a discussion provides interpretation of the results. The tables highlight the statistically significant findings, and the discussion specifically addresses how the results answer each of the research questions. The discussion situates the results in the context of current literature, practice, and policy in this domain. The implications of these findings to theory, practice, and future research are discussed (Creswell, 2009).

Anticipated Ethical Issues

There were ethical considerations to be aware of prior to starting this research. First, subject privacy and confidentiality needed to be maintained. Informed consent was obtained as indicated in the procedures for each participant and included information related to confidentiality and anonymity. Participants were not likely to experience emotional discomfort related to the survey questions and their responses. Subjects were

provided contact information for this PI and the Boston College IRB if they had any questions or concerns related to the study.

An additional concern related to the time burden of subjects. The hospital environment is a chaotic one with clinicians having little time for any outside demands on their time. While it was estimated that the survey would take approximately 15 minutes, this might have nonetheless been a significant time burden for staff nurses. The survey did allow subjects to save responses and return to complete the survey at a later time, partly in recognition of the time burden, but also the nature of clinical practice. The web-based survey did not present a usability challenge to nurses, who conduct much of their clinical work with computerized systems.

Data Analysis Procedures

The staff nurse survey data were downloaded from Qualtrics® to Microsoft® Excel, version 14.0 and were then uploaded to SPSS®. The data were examined for accuracy of care unit coding and the extent of missing data. Staff nurse participants who provided consent, yet did not complete any of the survey items, were eliminated from the dataset.

The care unit level quality patient outcome data (i.e., falls with injury, hospital-acquired pressure ulcers, and patient satisfaction) were sent from each participating hospital's nursing department in an Excel® spreadsheet. This ensured data were calculated and reported in the same way across all hospitals. These data were then uploaded to SPSS®, version 21.0 and the two datasets were merged to facilitate the data analysis procedures discussed previously.

CHAPTER FOUR: RESULTS

Participants

Hospitals

This study included 11 hospitals across five healthcare systems. These systems represented the Northeast, Southern, Midwest, and Western regions of the United States. The hospitals included academic medical centers, acute care hospitals, and community hospitals. These hospitals reflect union and non-union environments, as well as institutions with and without ANCC Magnet® recognition. The facility size ranged from approximately 100 to 1,000 patient care beds. The staff nurse response rate across hospitals ranged from 25% to 51%.

Care Units

The 11 hospitals yielded 108 general care units for this study. One unit was excluded due to a very low staff nurse response rate (6.3%), and two other units were excluded because they did not have patient satisfaction data available for analysis. This resulted in a total of 105 patient care units for the analyses. The care units in this sample were 50.5% medical, 30.5% surgical, and 19% combined medical/surgical. The size of the care units ranged from eight to 42 patient beds with an average staff nurse tenure of just over six years (*SD* ± 7.04, range 0 – 40 years) on the care unit.

The care unit level staff nurse response rate ranged from 15% to 76%. No regional differences in response rate were noted. While the initial threshold for inclusion in the study was a 20% staff nurse response rate, this was an admittedly arbitrary threshold, as no standard for response rate could be gleaned from the literature. Therefore, one unit attained a 15% response rate and was included in the analysis.

Nurse manager. A nurse manager or formal leader with an equivalent title managed each of the care units. In this sample the nurse manager on the care unit was most likely educated at the master's level (72%) followed by the BSN level (26%). Of this sample of nurse managers, 15% had an advanced degree in administration, such as a Masters in Business Administration, Masters in Healthcare Administration, or Masters in Science of Nursing Administration. The average nurse manager tenure on the care unit was just over seven years (*SD* = 7.52, range 0 – 33 years).

Staff Nurse Participants

From the 105 care units, there were 1,669 staff nurse participants, representing an overall response rate of 39%. Staff nurse demographic data is reported in Table 2. The typical respondent was a white, female nurse with a BSN degree, ten years of nursing experience, and employed full-time. However, 7.6% of the sample identified as male, 3.5% indicated a Hispanic origin, and 12.2% indicated a race other than white, with 1.9% of the sample identifying as multiracial. Within this sample, 14% of nurses reported current enrollment in a degree program (32% BSN, 58% Master's level, and 10% DNP/PhD) and 30% reported holding an accredited certification in their specialty. Most nurses reported working day/night rotation (29%), followed by days (26%), nights (24%), and day/evening rotation (14%). Over half of the respondents (61%) worked as a resource, charge, or head nurse on their care unit. Similarly, over half of the nurses (57%) reported experience orienting a new nurse colleague to their unit in the role of a preceptor.

Table 2

Staff Nurse Demographics

Variable	Min	Max	*M*	*SD*
RN Age (years)	20	75	36.7	11.3
Years as RN	0	52	10.3	10.2
Years at Hospital	0	51	7.8	8.6
Years on the Care Unit	0	42	6.4	7.0
Variable		**Percentage**		
Race				
White		72.8%		
Black		5.5%		
Asian		6.7%		
Unreported		15.0%		
Employment Status				
Full-time (≥36 hrs/wk)		77.2%		
Part-time (<36 hrs/wk)		19.5%		
Per Diem		3.3%		
Highest Degree Completed				
Associate's Degree		11.1%		
Bachelor's Degree		77.6%		
Master's Degree		9.3%		
Other		2.0%		

Missing Data Analysis and Survey Tool Reliabilities

A missing value analysis was undertaken for each tool item and survey. Missing item rates ranged from 0.4% up to 18.9%, with progressively increasing rates across the survey items. Listwise deletion resulted in 11% missing data for the ALQ, 14.3% for the CWEQ-II, 25.3% for the DIS (actual), and 31.9% for DIS (preferred). The only missing patient quality outcome data was for one care unit, which was missing one calendar quarter of hospital acquired pressure ulcer (HAPU) data. This care unit was retained in the final data analysis. All analyses presented in this chapter were conducted with non-imputed data. However, given the extent of missing data, the stability of the findings presented below was tested with imputation models at the staff nurse respondent level. A multiple imputation approach was undertaken in SPSS to generate five imputed values datasets. Each of these was run against the non-imputed dataset, with non-significant differences in model findings ($p > .05$).

Internal consistency was evaluated for each survey instrument utilized in this study. The findings of this analysis indicate acceptable to high degrees of internal consistency, for both overall and subscale performance. Cronbach's alphas for each instrument and their corresponding subscales are depicted in Table 3. The ALQ overall score ($\alpha = .97$), with subscale alphas ranging from 0.83 to 0.93, indicates a highly reliable instrument (Polit & Beck, 2012). The CWEQ-II also performed reliably with an overall α of 0.86 and subscales ranging from 0.74 to 0.89. While the overall reliability performance for the DIS tool was strong ($\alpha = .94$ actual; $\alpha = .92$ preferred), some of the subscales performed below the established norm of 0.70 (Fox, 2008). These included the subscales of unit staffing ($\alpha = .63$

actual; α = .61 preferred), recruitment (α = .56 actual), and collaboration (α = .67 preferred). The implications of this finding will be discussed further in chapter five.

Table 3

Staff Nurse Level Descriptive Statistics and Tool Reliability Measures

	N	Min	Max	*M*	*SD*	Cron. α
ALQ	1491	0.00	4.00	2.92	0.93	.97
Relational Transparency	1652	0.00	4.00	2.92	0.93	.93
Moral Perspective	1649	0.00	4.00	3.07	0.93	.93
Balanced Processing	1568	0.00	4.00	2.87	1.00	.86
Self-Awareness	1567	0.00	4.00	2.79	1.11	.91
CWEQ-II	1493	9.34	30.00	22.46	3.66	.86
Opportunity	1596	1.00	5.00	4.36	0.72	.74
Information	1601	1.00	5.00	3.64	0.91	.86
Support	1571	1.00	5.00	3.63	0.95	.89
Resources	1573	1.00	5.00	3.46	0.83	.84
Formal Power	1556	1.00	5.00	3.34	0.90	.84
Informal Power	1552	1.00	5.00	4.02	0.74	.78
DIS (Actual)	1281	21.00	105.00	43.08	14.11	.94
Unit Staffing	1495	1.00	5.00	2.79	0.96	.63
Professional Practice	1455	1.00	5.00	2.36	0.69	.87
Recruitment	1450	1.00	5.00	1.68	0.93	.56
Gov. & Leadership	1375	1.00	5.00	1.70	0.83	.91
Support Staff	1391	1.00	5.00	1.89	0.90	.90
Collaboration	1383	1.00	5.00	2.52	0.85	.71
DIS (Preferred)	1169	27.00	105.00	56.48	10.98	.92
Unit Staffing	1437	1.00	5.00	3.26	0.77	.61
Professional Practice	1388	1.00	5.00	2.85	0.69	.83
Recruitment	1383	1.00	5.00	2.40	0.81	.89
Gov. & Leadership	1318	1.00	5.00	2.45	0.66	.83
Support Staff	1349	1.00	5.00	2.70	0.69	.85
Collaboration	1343	1.00	5.00	2.89	0.64	.67
DIS (Dissonance) (Actual-Preferred)	1126	-84.00	31.00	-13.52	12.09	

Survey Findings

Staff Nurse Level

The minimum, maximum, mean, standard deviation, and Cronbach's alpha for each of the survey tool scales and subscales are depicted in Table 3. This includes the measures for authentic leadership (ALQ), structural empowerment (CWEQ-II), actual staff nurse decisional involvement (DIS; actual and preferred). A dissonance score was calculated by subtracting the preferred from the actual level of DIS, with a negative score indicating preference for a higher degree of decisional involvement than is actually occurring.

The ALQ mean score of 2.92 (*SD* ± 0.93, range 0 – 4) reflects a moderately high (Wong & Giallonardo, 2013) staff nurse perception of authentic leadership by their nurse managers. This sample of nurses reported a moderate amount (Armellino, Griffin & Fitzpatrick, 2010) of structural empowerment on their care unit as indicated by the CWEQ-II mean score of 22.46 (*SD* ± 3.66, range 9.34 – 30). Finally the actual and preferred DIS global scores were both relatively low 43.08 (*SD* ± 14.11, range 21 – 105) and 56.48 (*SD* ± 10.98, range 27 – 105) respectively (Mangold et al, 2006). The mean DIS dissonance score of -13.52 (*SD* ± 12.09, range -84.00 – 13.00) indicates staff nurses prefer more decisional involvement than they are experiencing on their care units.

Care Unit Level

The descriptive statistics for care unit level findings, as well as the associated patient quality outcomes, are shown in Table 4. The aggregated care unit scores exhibit moderately high authentic leadership (2.89 ± 0.54, range 1.40 – 3.97), moderate structural empowerment (22.24 ± 1.60, range 17.69 – 25.08), and moderately low actual decisional involvement (42.53 ± 5.69, range 27.50 – 57.55) based on the normed values cited

previously.

Patient Quality Outcome Findings

The patient quality outcomes include falls with injury rates, hospital acquired pressure ulcer (HAPU) rates, and three HCAHPS metrics (RN communication, overall satisfaction with care, and likelihood to recommend the hospital to friends or family). The patient quality outcome metrics were relatively high performing in this sample.

Table 4

Care Unit Level Descriptive Statistics

Survey Tool Findings	*N*	Min.	Max.	*M*	*SD*
ALQ Unit level	105	1.40	3.97	2.89	0.54
CWEQ-II Unit level	105	17.69	25.08	22.24	1.60
DIS Actual Unit level	105	27.50	57.55	42.53	5.69
DIS Preferred Unit level	105	44.09	68.40	56.72	4.52
DIS Dissonance Unit level	105	-33.00	-1.00	-14.35	5.61
Patient Quality Outcomes					
RN Communication	105	61.10	100	84.14	7.84
Satisfaction with Care	105	51.30	100	81.17	10.05
Recommend Hospital	105	51.40	100	86.10	9.29
Falls with Injury	105	.00	6.67	0.61	0.81
HAPU	104	.00	25.00	1.58	3.58

Relationships Between Care Unit Variables

Correlations provide preliminary insight into the relationships among variables. The correlations between the key study variables at the care unit level are reported in Table 5.

Survey tool correlations. Care unit level authentic leadership (ALQ) is significantly correlated to structural empowerment (CWEQ-II), actual and preferred staff nurse decisional involvement (DIS), and decisional involvement dissonance. Structural empowerment is significantly correlated with actual, preferred and dissonance scores for decisional involvement. The positive relationship between ALQ and CWEQ-II with decisional involvement dissonance reflects a less negative dissonance score, meaning as ALQ and CWEQ-II increased the dissonance score is reduced closer to zero. Both ALQ and CWEQ-II have an inverse relationship with preferred decisional involvement. Actual decisional involvement was correlated with preferred decisional involvement and DIS dissonance. Preferred decisional involvement was significantly inversely associated with DIS dissonance.

Patient quality outcome correlations. Patients' reports of RN communication were strongly correlated with their perceptions of overall satisfaction with care and likelihood to recommend the hospital. Only the CWEQ-II was significantly correlated with the patient quality outcomes of RN communication and overall satisfaction with care.

Table 5

Correlations Between Key Study Variables at the Care Unit Level

	Survey Tool Variables					Patient Quality Outcome Variables				
	ALQ	CWEQ-II	DIS Actual	DIS Pref	DIS Diss	RN Comm	Satisfaction	Recomm Hospital	Falls w/Inj	HAPU
ALQ	1									
CWEQ-II	**.688****	1								
DIS Actual	**.232****	**.487****	1							
DIS Pref	**-.262****	**-.133****	**.396****	1						
DIS Diss	**.371****	**.568****	**.644****	**-.329****	1					
RN Comm	.022	**.138****	.014	-.005	.084	1				
Satisfaction	.003	**.115***	.030	.052	.040	**.717****	1			
Recomm Hospital	-.061	.058	.046	.076	.055	**.684****	**.778****	1		
Falls w/Inj	-.017	.003	.074	.047	.061	.058	.020	.013	1	
HAPU	-.045	.024	-.014	-.044	.055	-.004	.032	-.030	-.014	1

** $p \leq .01$

* $p \leq .05$

Results by Research Question

Research Question 1

What are the unique and combined effects of authentic leadership and structural empowerment on staff nurse decisional involvement?

Question 1 was tested using linear mixed effects regression models at the staff nurse respondent level. This analysis approach accounts for the nested nature of the staff nurse data at the care unit, hospital and systems levels. The staff nurse decisional involvement actual scores were not normally distributed, with a positive or right skew, so this variable was log transformed. The authentic leadership (ALQ) and structural empowerment (CWEQ-II) variables were each entered as main effects, and also as an interaction effect between the two variables. The likelihood ratio test was conducted and the interaction was not statistically significant (p= .569), so it was eliminated from the model, but the main effects of ALQ and CWEQ-II were both statistically significant ($p \leq .05$). To account for potential confounding sources, all staff nurse and unit level demographics were entered into the model with ALQ and CWEQ-II and a likelihood ratio test was conducted. Any variable with a $p \leq .10$ was added to a list of potentially significant covariates for additional testing. These potential covariates were then all entered into the model with ALQ and CWEQ-II, and the variables were eliminated one at a time based on the highest p values until a final, best fitting model was determined. The criteria for best fitting models included significant covariates as well as the Akaike Information Criteria (AIC) with decreasing values during the model build indicating a better fitting model (Fox, 2008). The final model for question one is displayed in Table 6.

Table 6

Staff Nurse Actual Decisional Involvement Model

Type III Tests of Fixed Effects[a]

Source	*F*	*p*
Intercept	1649.64	.000
ALQ	9.31	.002
CWEQ-II	63.08	.000
Education	2.83	.015

a. Dependent Variable: DIS Actual LOG.

Estimates of Fixed Effects[a]

Parameter	Estimate	*SE*	*t*	*p*	95% CI	
					LL	*UL*
Intercept	3.43	.20	17.02	.000	3.03	3.82
ALQ	.03	.01	3.05	.002	.01	.06
CWEQ-II	.02	.00	7.94	.000	.02	.03
Education Level						
Diploma	-.40	.21	-1.96	.051	-.80	.00
Associate	-.23	.20	-1.19	.236	-.62	.15
Bachelor	-.30	.19	-1.52	.129	-.68	.09
Master	-.33	.20	-1.69	.091	-.72	.05
DNP	-.58	.34	-1.72	.085	-1.24	.08
PhD	0[b]	0	.	.	.	.

a. Dependent Variable: DIS Actual LOG
b. This parameter is set to zero because it is redundant.

H1a: As authentic leadership scores increase, staff nurse decisional involvement scores will increase.

Controlling for the significant covariate of staff nurse education level (p = .015), there is significant (p = .002; Table 6) support for hypothesis H1a. For every unit increase in nurses' report of authentic leadership by their manager, there is an exp (0.03) = 1.03 increase in the log of actual staff nurse decisional involvement controlling for nurse education level.

H1b: As structural empowerment scores increase, staff nurse decisional involvement scores will increase.

The model indicates support for H1b with structural empowerment having a significant influence on actual staff nurse decisional involvement (p < .001). For every unit increase in nurses' report of structural empowerment, there is an exp (0.02) = 1.02 increase in actual staff nurse decisional involvement log controlling for nurse education level.

H1c: The combined effects of increased authentic leadership and structural empowerment will result in the highest scores of staff nurse decisional involvement.

While there was not a significant interaction effect (p = .57) between authentic leadership and structural empowerment, the combined effect of these two variables does result in the highest scores of staff nurse actual decisional involvement. The additive effect of authentic leadership and structural empowerment on actual staff nurse decisional involvement is supported by the significant findings of H1a and H1b (both main effects were significant). Therefore, the model provides support for H1c.

Research Question 2

What influence does authentic leadership and structural empowerment have on the degree of dissonance between staff preferred and actual decisional involvement?

Question 2 was tested using linear mixed effects regression models at the staff nurse respondent level. This analysis approach accounts for the nested nature of the staff nurse data at the care unit, hospital and systems levels. The authentic leadership and structural empowerment variables were each entered as main effects, and also as an interaction effect between the two variables. The likelihood ratio test was conducted and the interaction was statistically significant ($p \leq .05$), so it was retained in the model. The main effects of ALQ and CWEQ-II were both statistically significant ($p \leq .05$). To account for potential confounding sources, all staff nurse and unit level demographics were entered into the model with ALQ and CWEQ-II. Any variable with a $p \leq .10$ was added to a list of potentially significant covariates for additional testing. These potential covariates were then all entered in the model with ALQ and CWEQ-II and their interaction effect. The variables were then eliminated one at a time based on the highest *p* values until a final, best fitting model was determined. The criteria for best fitting models included significant covariates as well as the Akaike Information Criteria (AIC) with decreasing values during the model build indicating a better fitting model (Fox, 2008). The final model for question two is displayed in Table 7.

Table 7

Staff Nurse Decisional Involvement Dissonance Model

Type III Tests of Fixed Effects[a]		
Source	*F*	*p*
Intercept	93.40	.000
ALQ	13.53	.000
CWEQ-II	26.37	.000
ALQ * CWEQ-II	5.28	.022
Shift	2.66	.015

a. Dependent Variable: DIS Dissonance

Estimates of Fixed Effects[a]						
Parameter	Estimate	*SE*	*t*	*p*	95% CI	
					LL	*UL*
Intercept	-53.65	5.77	-9.31	.000	-64.96	-42.34
ALQ	6.87	1.87	3.68	.000	3.21	10.54
CWEQ-II	1.42	.28	5.14	.000	.88	1.97
ALQ* CWEQ-II	-.20	.09	-2.30	.022	-.37	-.03
Shift						
Days	.80	2.16	.37	.711	-3.43	5.03
Evenings	2.62	2.92	.90	.370	-3.11	8.34
Nights	3.04	2.17	1.40	.161	-1.22	7.31
Day/Eve	.59	2.25	.26	.795	-3.84	5.01
Day/Night	3.34	2.14	1.56	.119	-.86	7.54
Eve/Night	-2.42	3.25	-.74	.457	-8.81	3.96

a. Dependent Variable: DIS Dissonance

b. This parameter is set to zero because it is redundant

H2: As authentic leadership and structural empowerment increase, the degree of dissonance between staff nurse preferred and actual decisional involvement will decrease.

Controlling for the significant covariate of shift worked (p = .015), authentic leadership and structural empowerment both had a significant (p < .001) positive influence on staff nurse decisional involvement dissonance scores. The decisional involvement dissonance score, calculated by subtracting the preferred score from the actual score, resulted in a negative mean score. Therefore, for every unit increase in reported authentic leadership the DIS dissonance score decreased by 6.87. For every unit increase in reported structural empowerment, the DIS dissonance score decreased by 1.42. There was a significant inverse interaction effect (p = .022) between ALQ and CWEQ-II on dissonance scores. This indicates that there is some relationship between authentic leadership and structural empowerment that contributes to additional dissonance for staff nurse decisional involvement. The interaction effect is much smaller than the main effects of either variable. The findings for question two provide support for H2.

Research Question 3

What are the unique and combined effects of authentic leadership and structural empowerment on patient quality outcomes (i.e., falls with injury, hospital acquired pressure ulcers, and patient satisfaction with care)?

Questions 3 was tested at the care unit level with generalized linear mixed effect regression gamma models for non-normally distributed outcome variables (falls with injury and HAPU), and with linear mixed effect regression models for normally distributed

outcome variables (patient satisfaction metrics). The patient quality outcomes of falls with injury and hospital acquired pressure ulcers (HAPU) are not normally distributed, with a severe right-sided skew and many values of zero. Initially a natural log transformation of these variables was undertaken in an attempt to correct this issue, but the assumption of normality was still violated necessitating a different data analysis plan than the previously utilized linear mixed models tests.

Falls with injury and HAPU. A generalized linear mixed modeling approach, with a gamma distribution and log link, was conducted with the falls with injury and HAPU patient quality outcome variables. To account for potential confounding sources, all staff nurse and unit level demographics were entered into the models with ALQ and CWEQ-II. Any variable with a $p \leq .10$ was added to a list of potentially significant covariates for additional testing. These potential covariates were then all entered in the models with ALQ and CWEQ-II and their interaction effect. The variables were then eliminated one at a time based on the highest p values until a final, best fitting model was determined. The findings from these two models are depicted in Tables 8 and 9 below.

Table 8

Falls with Injury Model

Fixed Effects[a]		
Source	*F*	*p*
Corrected Model	3.49	.004
ALQ	5.74	.017
CWEQ-II	4.87	.028
ALQ * CWEQ-II	5.67	.018
Unit Response Rate	5.36	.021
Resource/Charge RN	4.60	.033

a. Dependent Variable: Falls with Injury

Source	Coefficient	*SE*	*p*
Intercept	3.79	1.56	0.004
ALQ	-1.34	0.56	0.017
CWEQ-II	-0.16	0.07	0.028
ALQ * CWEQ-II	0.06	0.03	0.018
Unit Response Rate	-0.56	0.24	0.021
Resource/Charge RN	0.31	0.15	0.033

Probability Distribution: Gamma
Link Function: LOG

Care unit level authentic leadership and structural empowerment were both found to have a significant (p = .017 and p = .028, respectively) positive influence on falls with injury rates. With one unit increase in authentic leadership the falls with injury rate decreased by a factor of exp (-1.34) = 0.26. With one unit increase in structural

empowerment the falls with injury rate decreased by a factor of exp (-0.16) = 0.85. This model accounts for the significant covariates of unit response rate (p = .021) and RN resource/charge nurse experience (p = .033).

Table 9

HAPU Model

Fixed Effects[a]		
Source	*F*	*p*
Corrected Model	2.31	.076
ALQ	3.83	.051
CWEQ-II	4.98	.026
ALQ * CWEQ-II	4.55	.033

a. Dependent Variable: HAPU

Source	Coefficient	*SE*	*p*
Intercept	-6.99	3.75	0.076
ALQ	2.62	1.34	0.051
CWEQ-II	0.39	0.18	0.026
ALQ * CWEQ-II	-0.13	0.06	0.033

Probability Distribution: Gamma
Link Function: LOG

Care unit level authentic leadership was retained in this model despite a p value of 0.051, since the interaction effect between ALQ and CWEQ-II is significant (p = .033). Structural empowerment did have a significant main effect (p = .026). This indicates that for every unit increase in authentic leadership HAPU rates increased by a factor of exp

(2.62) = 13.73. Additionally, for every unit increase in structural empowerment, HAPU rates increased by a factor of exp (0.39) = 1.48. The significant interaction effect (p = .033) indicates a moderating effect between ALQ and CWEQ-II, which mitigates some of the influence of the main effects these variables have on HAPU rates. The interaction effect results in a decreased HAPU rate by a factor of exp (-0.13) = 0.87. However, the net influence of authentic leadership and structural empowerment at the care unit level was an increase in HAPU rates.

Patient satisfaction. The three metrics related to patient satisfaction are RN communication, overall satisfaction with care, and likelihood to recommend the hospital. The patient satisfaction metrics were normally distributed, so a linear mixed effect regression modeling approach was used. Across the patient satisfaction metrics authentic leadership did not have a significant influence (p = .354, .09, and .058 respectively), so this variable was eliminated from the models. Structural empowerment did have a significant positive influence ($p \leq .05$). To account for potential confounding sources, all staff nurse and unit level demographics were entered into the models with CWEQ-II. Any variable with a $p \leq .10$ was added to a list of potentially significant covariates for additional testing. These potential covariates were then all entered in the models with CWEQ-II. The variables were then eliminated one at a time based on the highest p values until a final, best fitting model was determined. The models for the patient satisfaction metrics are presented in Tables 10 – 12 below.

Table 10

RN Communication Model

Type III Tests of Fixed Effects[a]		
Source	*F*	*p*
Intercept	108.95	.000
CWEQ-II	9.42	.002
Unit type	5.66	.004
Unit Response Rate	6.92	.009
Nurse Manager Tenure	17.37	.000

a. Dependent Variable: RN Communication

Estimates of Fixed Effects[a]						
Parameter	Estimate	*SE*	*t*	*p*	95% CI	
					LL	*UL*
Intercept	58.33	5.70	10.23	.000	47.11	69.54
CWEQ-II	.81	.26	3.07	.002	.29	1.32
Unit type						
Medical	3.44	1.03	3.34	.001	1.41	5.47
Surgical	2.89	1.22	2.37	.018	.49	5.28
Med/Surg	0[b]	0	.	.	.	.
Unit RR[c]	10.56	4.01	2.63	.009	2.66	18.45
NM Tenure[c]	.25	.06	4.17	.000	.13	.37

a. Dependent Variable: RN Communication
b. This parameter is set to zero because it is redundant.
c. RR = response rate; NM = nurse manager

With each unit increase in the care unit level structural empowerment, the patient experience of RN communication increased 0.81 (p = .002). This model accounts for the significant covariates of unit type (F = 5.66, p = .004), unit response rate (F = 6.92, p = .009), and nurse manager tenure on the care unit (F = 17.37, $p \leq .0001$).

Table 11

Overall Satisfaction with Care Model

Type III Tests of Fixed Effects[a]		
Source	*F*	*p*
Intercept	1.86	.174
CWEQ-II	11.08	.001
Unit Response Rate	13.01	.000
RN Certification	6.02	.015
Resource/Charge RN	14.71	.000
RN Years on Unit	23.53	.000

a. Dependent Variable: Overall Satisfaction.

Estimates of Fixed Effects[a]						
Parameter	Estimate	*SE*	*t*	*p*	95% CI	
					LL	*UL*
Intercept	14.84	10.90	1.36	.174	-6.58	36.26
CWEQ-II	1.13	.34	3.33	.001	.46	1.79
Unit Response Rate	18.54	5.14	3.61	.000	8.43	28.66
RN Certification	7.11	2.90	2.45	.015	1.41	12.80
Resource/Charge RN	12.38	3.23	3.84	.000	6.03	18.73
RN Years On Unit	.84	.17	4.85	.000	.50	1.17

a. Dependent Variable: Overall Satisfaction.

With each unit increase in the care unit level structural empowerment, the patient overall satisfaction with care increased 1.13 (p = .001). This model accounts for the significant covariates of unit response rate (F = 13.01, $p \leq .0001$), RN certification (F = 6.02, p = .015), RN resource/charge nurse experience (F = 14.71, $p \leq .0001$), and RN years working on the care unit (F = 23.53, $p \leq .0001$).

Table 12

Patient Likelihood to Recommend the Hospital Model

Type III Tests of Fixed Effects[a]		
Source	*F*	*p*
Intercept	34.21	.000
CWEQ-II	9.74	.002
Resource/Charge RN	11.70	.001
RN Years On Unit	22.69	.000
Nurse Manager Tenure	4.31	.039

a. Dependent Variable: Recommend Hospital

Estimates of Fixed Effects[a]						
Parameter	Estimate	*SE*	*t*	*p*	95% CI	
					LL	*UL*
Intercept	45.82	7.83	5.85	.000	30.41	61.23
CWEQ-II	.94	.30	3.12	.002	.35	1.53
Resource/Charge RN	10.10	2.95	3.42	.001	4.29	15.91
RN Years on Unit	.80	.17	4.76	.000	.47	1.13
Nurse Manager Tenure	.16	.08	2.08	.039	.01	.30

a. Dependent Variable: Recommend Hospital

With each unit increase in the care unit level structural empowerment, the patients' likelihood to recommend the hospital increased 0.94 (p = .002). This model accounts for the significant covariates of RN resource/charge nurse experience (F = 11.70, p = .001), RN years working on the care unit (F = 22.69, $p \leq .0001$), and nurse manager tenure on the care unit (F = 4.31, p = .039).

H3a: As authentic leadership scores increase patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

There was minimal support for H3a. While authentic leadership did not have a significant influence on any of the patient satisfaction metrics examined in this study ($p > 0.05$), it did have a significant positive influence on falls with injury rates (p = .017) in the hypothesized direction. However, as depicted in Table 9, the relationship between authentic leadership and HAPU rates was in the opposite direction than hypothesized.

H3b: As structural empowerment scores increase patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

Overall there was substantial support for H3b. Structural empowerment had a significant influence in the hypothesized direction for all the patient satisfaction metrics (Tables 10 – 12) and for falls with injury rates (Table 8). However, the influence of structural empowerment on HAPU rates was in the opposite direction than hypothesized (Table 9).

H3c: The combined effects of increased authentic leadership and structural empowerment will result in the highest scores patient satisfaction and the lowest rates of falls with injury and pressure ulcers.

Given the above findings for H3a and H3b, there was limited support for H3c. This relationship was only significant for the falls with injury rates (Table 8) and showed a significant interaction effect for HAPU rates (Table 9). This interaction effect somewhat mitigates the main effects of authentic leadership and structural empowerment on HAPU rates, yet the net effect is still opposite the direction hypothesized.

Research Question 4

What is the relationship between actual staff nurse decisional involvement and patient quality outcomes?

Questions 4 was tested at the care unit level with generalized linear mixed effect regression gamma models for non-normally distributed outcome variables (falls with injury and HAPU) and with linear mixed effect regression models for normally distributed outcome variables (patient satisfaction metrics). The patient quality outcomes of falls with injury and hospital acquired pressure ulcers (HAPU) are not normally distributed, with a severe right-sided skew and many values of zero. Initially a natural log transformation of these variables was undertaken to attempt to correct this issue, but the assumption of normality was still violated necessitating a different data analysis plan than the previously utilized linear mixed models tests.

Falls with injury and HAPU. A generalized linear mixed modeling approach, with a gamma distribution and log link, was conducted with the falls with injury and HAPU patient quality outcome variables. The findings from these two models are depicted in Tables 13 and 15 below.

Table 13

Falls with Injury Model

Source	*F*	*p*
Corrected Model	2.15	.143
DIS Actual	2.15	.143

Probability Distribution: Gamma
Link function: Log

Table 14

HAPU Model

Source	*F*	*p*
Corrected Model	3.57	.059
DIS Actual	3.57	.059

Probability Distribution: Gamma
Link function: Log

Care unit level actual staff nurse decisional involvement did not have a significant influence on falls with injury ($F = 2.15$, $p = .143$) or HAPU ($F = 3.57$, $p = .059$).

Patient satisfaction. The three metrics related to patient satisfaction are RN communication, overall satisfaction with care, and likelihood to recommend the hospital. The patient satisfaction metrics were normally distributed, so a linear mixed effect regression modeling approach was used. While actual staff nurse decisional involvement was significantly ($p = .005$; not displayed in table) related to the RN communication metric, DIS was no longer significant ($p = .700$) when all significant covariates were specified in the model. These findings are shown in Table 15.

Table 15

RN Communication Model

Type III Tests of Fixed Effects[a]		
Source	*F*	*p*
Intercept	22.22	.000
DIS Actual	.15	.700
Unit Response Rate	9.68	.002
Leader Tenure	4.05	.046
RN Certification	5.67	.018
Resource/Charge RN	18.16	.000
RN Years On the Unit	15.28	.000
Years As RN	4.84	.029

a. Dependent Variable: RN Communication

Additionally, actual staff nurse decisional involvement did not have a significant relationship with overall patient satisfaction (p = .759) nor likelihood to recommend the hospital (p = .531; Tables 16 – 17).

Table 16

Overall Satisfaction with Care Model

Type III Tests of Fixed Effects[a]		
Source	*F*	*p*
Intercept	126.46	.000
DIS Actual	.09	.759

a. Dependent Variable: Overall Satisfaction

Table 17

Patient Likelihood to Recommend the Hospital Model

Type III Tests of Fixed Effects[a]		
Source	*F*	*p*
Intercept	166.38	.000
DIS Actual	.39	.531

a. Dependent Variable: Recommend Hospital

H4: As actual staff nurse decisional involvement scores increase, patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

While there was no statistically significant relationship between actual staff nurse decisional involvement and any of the patient quality outcome variables in this study, the HAPU variable approached significance with *p* value of 0.059.

Summary

This chapter presents the findings relative to each of the four research questions and their corresponding hypotheses for this study. Results indicate that care unit level authentic leadership and structural empowerment have a unique influence on actual staff nurse decisional involvement, the degree of dissonance between actual and preferred decisional involvement, and some patient quality outcomes beyond the influence of system or hospital level factors.

CHAPTER FIVE: DISCUSSION

The purpose of this study was to examine the influence of unit level authentic leadership and structural empowerment on staff nurse decisional involvement and patient quality outcomes on general care units in the acute-care hospital setting. The findings of this study support and extend previous research in this area in several ways. First, this study was unique in that it examined actual patient quality outcome data rather than using nurses' perception of quality on their care unit. Second, much of the previous research focused on effects of the hospital level or staff nurse level factors on staff nurse and patient outcomes. This study examined these variables at the care unit level while controlling for hospital and system level effects, which is a unique contribution to the knowledge base in this area. This chapter will discuss the study findings, limitations, and implications for practice, policy, education, and future research.

Participants

Hospitals

The hospital level survey response rates ranged from 25 – 51%. The highest response rates came from community hospitals with small numbers of units (two to four) participating in the study. The lowest response rates came from large, academic medical centers with greater than 20 care units participating in data collection. This finding may relate to organizational complexity and communication challenges unique to such settings (Mangold et al., 2006). Large academic medical centers may not provide the level of intimacy and involvement of a smaller community setting simply based on the sheer volume of people employed and the logistics of diffusing involvement across that number of individuals. There may also have been issues related to survey fatigue (Houston et al.,

2012) as some of the larger sites indicated several recent surveys of their nursing staff. There has been no published research to date on the typical survey burden throughout the year on nursing staff working in various settings.

Care Units

There was a wide variability of response rates (15% – 76%) across the 105 care units. This variability in response rate could be related to a variety of factors including staff nurse level of interest in participating in research (AACN, 2006), survey fatigue (Houston et al., 2012) or workload (Greenglass, Burke & Fiksenbaum, 2001).

Nurse manager. The nurse managers for the care units in this sample were more highly educated (72% master's level) than the national average of all nursing leaders (62%; American Organization of Nurse Executives (AONE) Salary Survey, 2013). The AONE survey of nurse leaders includes individuals in front-line leadership positions, such as nurse managers, up through systems-level chief nurse officers. While the hospitals in this study represent geographically diverse regions of the US, they all come from areas of highly educated workforces (US Census Bureau, 2013). Additionally, there may be a relationship between willingness to participate in a national nursing study and the value placed on educational level of the hospital leadership (AACN, 2006).

Staff Nurse Participants

There were 1,669 staff nurse respondents in this study, representing a 39% response rate. While a higher rate is desirable, this response rate is typical for a national study conducted in the US (*M* = 39%; National Council for State Boards of Nursing, 2013) and falls within the previously published range of 33-66% (Armstrong et al., 2009; Laschinger et al., 2011; Manojlovich & Laschinger, 2007; McDonald et al., 2010; Smith et al.,

2010; Wong & Laschinger, 2012). Anecdotally, several study sites disclosed that the staff nurses had been surveyed recently and/or heavily for other initiatives, which supports the notion that there may be some survey fatigue among participants.

The average RN age of 36.7 years is much younger than the national average of 47.0 reported by the Health Resources and Services Administration (HRSA; 2010). Additionally, this sample of staff nurses was more educated than the national population of RNs. According to a 2013 HRSA report, 55% of registered nurses in the US held a BSN whereas among this sample 78% hold a BSN. Finally, 14% of the sample reported current enrollment in a degree program, compared to the national average of 6.6% (HRSA, 2010). These differences may be related to regional demographic differences noted previously (U.S. Census Bureau, 2013) or to institution specific hiring practices. However, data related to recruitment was not collected as part of the current study and therefore unavailable for analysis.

Missing Data Analysis and Survey Tool Reliabilities

The extent of missing data across the three survey tools, Authentic Leadership Questionnaire (ALQ; 11%), Conditions of Work Effectiveness Questionnaire (CWEQ-II; 14.3%), and Decisional Involvement Scale (DIS; 25.3% actual and 31.9% preferred), displayed a pattern of increasing missingness as participants likely fatigued in completing the battery of questionnaires. The extent of missing data did warrant hypothesis testing with imputation models, which did not change any of the key findings. Therefore, all model building and reporting were conducted with the non-imputed values dataset.

The tool reliabilities, as measured by Cronbach's alpha, indicate ALQ and CWEQ-II are both robust measures. ALQ alpha values ranged from 0.86 to 0.93 on all subscales with

an overall alpha of 0.97, which is comparable to previously reported scores (Avolio, 2007). The alpha values for CWEQ-II also aligned with reports from Laschinger and colleagues (2001b) with subscales values of 0.74 – 0.89 and an overall alpha of 0.86.

While the overall Cronbach's alphas for the DIS tool (.94 = actual, .92 = preferred) were strong and consistent with previous reports (Havens & Vasey, 2005), there was noted instability in some of the subscales. These were unit staffing (α = .63 actual; α = .61 preferred), recruitment (α = .56 actual), and collaboration (α = .67 preferred). While Scherb and colleagues (2011) did not report on all subscales of DIS tool, they did note the two lowest performing subscales were collaboration (α = .67) and unit staffing (α = .67). These findings are also similar to the original psychometrics of the DIS tool, which showed the subscales of collaboration and unit staffing as the lowest scoring, yet both performed above the 0.70 benchmark. Dissimilar with the current findings, the original psychometric testing showed a high degree of internal consistency (α = .89 and .90) for the recruitment subscale (Havens & Vassey, 2005). Instability of these subscales may be related to dramatic differences across care units or hospitals related to staff involvement in these three realms. The subscale items may no longer compliment one another as intended. For example, the recruitment subscale has items that address recruiting, interviewing, and selecting nurses for employment on the care unit. Perhaps staff nurses on a particular care unit are highly involved in the interview process, but have no decisional involvement in recruiting or selecting applicants. Additionally, clinical practice may differ from these questions in significant ways, such as the collaboration subscale. One item specifically asks about collaboration with physician colleagues, yet relationships are broadly applied in practice across interdisciplinary teams, not just between MDs and RNs (Nancarrow et al., 2013).

Survey Findings

Staff Nurse Level

The mean ALQ score (2.92 ± 0.93) in this study is comparable to other samples of nurses, albeit slightly higher. Bamford and colleagues (2013) reported a mean ALQ score of 2.35 (SD ± 0.99) for a sample of RNs in Ontario hospitals. The subscale with the highest score for ALQ was moral perspective (3.07 ± 0.93). This encompasses questions that assess the leaders adherence to a moral code and that he/she values the moral code of the staff nurses as well. It also addresses alignment between what the leader says are his/her values and if actions are in agreement with those stated beliefs. The lowest performing subscale was self-awareness (2.79 ± 1.11). This subscale explores whether the leader actively seeks feedback and has insight into when it is time to re-evaluate a plan of action. While Wong and Laschinger (2012) had overall ALQ scores that were somewhat lower than this sample, the highest and lowest subscales on ALQ findings were in alignment with this study. This provides some indication that these may be consistent strengths and weaknesses among the nurse manager group but warrants further study.

The CWEQ-II mean score of 22.46 (*SD* ± 3.66) is also somewhat higher than other samples (20.55 ± 3.0; Armellino et al., 2010), which surveyed nurses from critical care units. This indicates that the current sample of general care unit staff nurses perceive relatively high levels of structural empowerment even in comparison to a sample of critical care nurses. The highest scoring subscale on the CWEQ-II was access to opportunity (4.36 ± 0.72) and the lowest scoring subscale was formal power (3.34 ± 0.90). Other studies have found access to opportunity to be the highest scoring subscale (Wong & Laschinger, 2012), but rather than formal power, found access to resources to be the lowest performing. That

study was conducted with Canadian nurses, who work in a notably different healthcare system. Armellino and colleagues (2010) utilized a sample of staff nurses from New York and found access to opportunity (4.19, *SD* not reported) to be the highest scoring subscale and formal power to be the lowest (2.99, *SD* not reported). These findings indicate that there is some agreement across studies that staff nurses tend to have access to opportunity in their work environments, yet lack access to formal power.

The actual and preferred DIS global scores (43.08 ± 14.11 and 56.48 ± 10.98, respectively) are comparable to other samples of nurses, with consistent reporting of DIS actual scores lower than preferred scores (Houston et al., 2012; Mangold et al., 2006). This DIS dissonance finding reflects staff nurses desire to have greater decisional involvement than they currently do in practice. For both the actual and preferred DIS, the subscale of unit staffing (2.79 ± 0.96 and 3.26 ± 0.77, respectively) had the highest scores and recruitment (1.68 ± 0.93 and 2.40 ± 0.81) had the lowest scores. This suggests that while staff nurse decisional involvement is high, the dissonance between the scores indicates both are areas for potential improvement in practice. The greatest dissonance between actual and preferred decisional involvement was the subscale of support staff (0.81), which includes issues related to setting and monitoring standards of practice. While several studies utilizing the DIS did not report values for subscales, Scherb and colleagues (2011) report that unit staffing (2.91 ± 1.03) was the highest scoring and unit governance (1.68 ± 0.60) the lowest scoring. This sample of staff nurses from a southwestern healthcare system reported recruitment (1.76 ± 0.74) as the second lowest subscale on DIS. These data provide some consistency of findings that staff nurses want more decisional involvement than they are currently experiencing in practice. Specifically, recruitment, unit

staffing, and support staff present areas of opportunity to increase staff nurse decisional involvement.

Care Unit Level

The care unit level survey results for ALQ (2.89 ± 0.54), CWEQ-II (22.24 ± 1.60), and DIS (42.53 ± 5.69) were similar to the staff nurse level results, yet slightly lower. It is difficult to compare these values to other care unit level findings in the literature because previous research of these variables has been mostly limited to the hospital level or the staff nurse level. The exception to this is a study by Purdy and colleagues (2010) who reported on CWEQ-II. They found care unit level mean of 17.58 (*SD* = 1.56), which is significantly lower than the mean reported for the current study. This difference in findings may be related to a sample of nurses who worked in Canadian hospitals. There were 21 hospitals in the Purdy and colleagues (2010) study for a total of 61 care units, which indicates that many of these hospitals were smaller in size than the current sample which was drawn from 105 care units across 11 hospitals. Geographical differences and/or complexity of organizations in the sample may account for the differing findings.

Patient Quality Outcomes

In the present study the mean falls with injury rate of 0.61 (*SD* = 0.81) was lower than the national average of 0.93 (*SD* not reported; NDNQI, 2012). Likewise, the HAPU rate of 1.58 for this sample is lower than the national average (Lyder et al., 2012). The mean values for the patient satisfaction metrics – RN communication (84%), overall satisfaction with care (81%), and likelihood to recommend the hospital (87%) – are all higher than the national averages reported by CMS (78%, 70%, and 71%, respectively; HCAHPS Survey Results, 2014). This indicates that across all patient quality outcome metrics for this study,

the sample outperformed the national average. This may be related to the fact that all hospitals in this sample participate in NDNQI data collection and benchmarking. The practice of collecting and critically analyzing performance against benchmarks has been shown to improve practice (He et al., 2013). Thus these findings may be most generalizable to hospitals that participate in formal quality data collection practices. These findings may also provide evidence of improving patient care in the U.S. healthcare system, yet either replication of these findings or nationally reported outcome data are needed to support this interpretation.

Discussion by Research Questions

Research Question 1

What are the unique and combined effects of authentic leadership and structural empowerment on staff nurse decisional involvement?

H1a: As authentic leadership scores increase, staff nurse decisional involvement scores will increase.

H1b: As structural empowerment scores increase, staff nurse decisional involvement scores will increase.

H1c: The combined effects of increased authentic leadership and structural empowerment will result in the highest scores of staff nurse decisional involvement.

The findings from this study provide support for all hypotheses stated above. Higher levels of authentic leadership and structural empowerment at the care unit level were associated with enhanced actual staff nurse decisional involvement. While no previous studies have examined the relationships among these variables, the findings of this study

are aligned with previous research linking authentic leadership and structural empowerment with desirable staff nurse outcomes.

Authentic leadership. The present study provides evidence of a relationship between increasing levels of authentic leadership by the nurse manager and actual staff nurse decisional involvement. This finding aligns with previous research that linked authentic leadership to improved staff nurse outcomes, including greater person-job match, work engagement (Bamford et al., 2013; Wong et al., 2010), job satisfaction, and self-reported job performance (Wong & Laschinger, 2012). While none of these studies examined staff nurse decisional involvement specifically, taken together the findings suggest authentic leadership has a positive influence on staff nurse outcomes.

Structural empowerment. The findings of this study also indicate that unit-level structural empowerment has a positive influence on staff nurse decisional involvement. This findings aligns with previous reports of the relationship between structural empowerment and several staff nurse outcomes such as increased nurse job satisfaction (Laschinger et al., 2001a; Laschinger & Finegan, 2005; Lautizi et al., 2009; Ning, et al., 2009), perceptions of respect (Faulkner & Laschinger, 2008; Laschinger, 2004; Laschinger & Finegan, 2005), trust in management (Laschinger & Finegan, 2005), organizational citizenship behaviors (Gilbert et al., 2010), decreased burnout (Laschinger et al., 2003b), and anticipated turnover (Hauck et al., 2011). Again, these studies did not specifically examine staff nurse decisional involvement, yet taken in conjunction with the current findings, provide evidence of a pattern between structural empowerment and improved staff nurse outcomes.

The findings suggest that integration of authentic leadership and structural empowerment at the care unit level has a significant influence on staff nurse decisional involvement. Nurse managers with higher levels of authentic leadership are equipped with the relational skills needed to facilitate an empowering work environment. These skills are delineated in authentic leadership theory as relational transparency, moral perspective, balanced processing, and self-awareness (Luthans & Avolio, 2003). Nurse managers with higher levels of authentic leadership are then better able to cultivate a work environment with the key elements of structural empowerment (access to opportunity, information, resources, formal and informal power; Kanter, 1977, 1993). This combination of authentic leadership and structural empowerment facilitates greater staff nurse decisional involvement on their care units.

Model covariates*.* Staff nurse educational level was a significant covariate in the model linking authentic leadership and structural empowerment to actual staff nurse decisional involvement. From the associate degree up through the doctoral level of education there was an increasing inverse relationship between education level and actual staff nurse decisional involvement. Staff nurses' expectations of their degree of decisional involvement may increase with higher levels of education (Wade, 1999), which may result in their perception of their actual levels of involvement diminishing. However, the relationship did not hold true for the diploma level nurses in this sample, who reported the second lowest levels of actual staff nurse decisional involvement. This may be related to the small number of diploma nurses in this sample (n = 23), or possibly reflect a level of actual decisional involvement that is lower than their nurse colleagues at higher levels of education. It is unclear with the current published evidence. Mangold and colleagues

(2006) found no significant relationship between education level of a sample of Midwestern staff nurses and decisional involvement scores when education level was measured as less than a BSN or BSN or higher.

Research Question 2

What influence does authentic leadership and structural empowerment have on the degree of dissonance between staff preferred and actual decisional involvement?

> H2: As authentic leadership and structural empowerment increase, the degree of dissonance between staff nurse preferred and actual decisional involvement will decrease.

Decreased dissonance between actual and preferred levels of staff nurse decisional involvement was found as levels of authentic leadership and structural empowerment increased. Nurse managers with higher levels of authentic leadership are more self-aware and balanced processors (Luthans & Avolio, 2003). In turn, these skills would make them better equipped to be sensitive to staff nurses' expectations for involvement and respond accordingly with a more structurally empowering environment (Laschinger et al., 2013). These actions may help to diminish the gap between preferred and actual decisional involvement at the care unit level.

Model covariates. The typical shift worked by the staff nurse was a significant covariate in the model linking authentic leadership and structural empowerment to decreased decisional involvement dissonance. While there was no shift in particular with a statistically significant effect, the overall effect was significant. One possible explanation is that novice staff nurses are adjusting to shift work (Duchscher, 2009), such as day/night rotation or straight night shifts. These shifts were associated with the lowest dissonance

scores, meaning the smallest gap between actual and preferred levels of decisional involvement. Novice staff may have lower preferences for decisional involvement as a group than more experienced staff nurses (Benner, 1982), thus diminishing the dissonance scores. Yet if this was the case, then one would have expected years as a RN or years on the care unit to also be significant covariates, which they were not. Another possible explanation is that off-shift staff nurses have come to expect less decisional involvement due to decreased face time with leadership or opportunity to attend meetings held during the day shifts. This decreased expectation could result in a diminished dissonance score for this group. However, there is not a clear explanation for this finding at this time as there is little published research addressing this.

Research Question 3

What are the unique and combined effects of authentic leadership and structural empowerment on patient quality outcomes (i.e., falls with injury, hospital acquired pressure ulcers, and patient satisfaction with care)?

H3a: As authentic leadership scores increase patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

H3b: As structural empowerment scores increase patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

H3c: The combined effects of increased authentic leadership and structural empowerment will result in the highest scores patient satisfaction and the lowest rates of falls with injury and pressure ulcers.

Falls with injury. Patient falls with injury rates were significantly lower on care units with higher levels of authentic leadership and structural empowerment. Much of the

previous literature review on falls presented mixed findings. While some studies aligned with the current findings, showing a significant inverse relationship with nursing leadership (Capuano et al., 2005; Castle & Decker, 2011; Houser, 2003), others found no significant relationship (Boyle, 2004; Flynn et al., 2010; Taylor et al., 2012). However, these studies did not specifically examine authentic leadership. Wong and Giallonardo (2013) found that "authentic leadership was significantly associated with decreased adverse patient outcomes through trust in the manager and areas of work life" (p. 740), yet these were staff nurse reports of perceived patient care quality. Similarly, Laschinger and colleagues (2001b, 2008) report a significant direct relationship between structural empowerment and nurses' assessed quality of care of their units. Yet another study reported a statistically significant inverse relationship between care unit level structural empowerment and rates of patient falls (Purdy et al., 2010). The current study collected data on actual falls with injury, rather than staff nurse perceived rates of falls and conducted a direct unit level analysis with the measures of authentic leadership and structural empowerment. The current findings add to the knowledge base linking authentic leadership and structural empowerment to decreased patient falls with injury rates.

Model covariates*.* Unit response rate was a significant covariate in this model, with increasing staff nurse response rates to the survey associated with decreasing falls with injury rates on the care unit. Response rate could be viewed as a crude measure of staff nurse engagement, which has been shown to influence patient quality outcomes (Bacon & Mark, 2009).

The percentage of staff nurses reporting charge or resource nurse experience on the care unit was another significant covariate, which was connected to worsening rates of falls

with injury. The more staff nurses with experience in this leadership role on a care unit would, however, seem more likely to improve patient quality outcomes. This finding could be indicative of some other phenomena not examined in this study or some model instability discussed further in the limitations section.

Similar to Lake and colleagues (2010), RN education level and certification were not significantly associated with patient fall rates. Contrary to previous research (Bouldin et al., 2013), the current study did not find hospital characteristics of region in the US, metropolitan status, Magnet® status, nor academic medical center status (Bouldin et al., 2013) to be significant covariates in the model. This is likely related to the relatively small number of hospitals (n = 11) included in the current study, as the power analysis was conducted for the care unit level rather than the hospital level.

HAPU. Hospital acquired pressure ulcer rates were significantly higher on care units with higher levels of authentic leadership and structural empowerment. This finding was the opposite of the hypothesized inverse relationship and differs from other findings in the literature. Previous studies have found no relationship between nursing leadership measures and pressure ulcer rates (Boyle, 2004; Flynn et al., 2010; Taylor, et al. 2012) or an inverse relationship (Castle & Decker, 2011). This finding could be related to several factors. As discussed with the falls with injury model, there was noted instability in some coefficients during the model building process for the patient quality outcome models. There are also known weaknesses in the data collection methodologies for HAPU rates. The standard data collection method is a quarterly surveillance of all patients in the hospital to assess for prevalence of HAPUs (Montalvo, 2007). The interval nature of the data collection means not all HAPUs are accounted for in the data. Additionally, general care units are

attributed a HAPU that may have begun developing while on other care units, such as the emergency department, intensive care unit, or operating room. Pressure ulcers that were identified and documented upon admission are not counted towards the HAPU rate (Montalvo, 2007). There is currently no way to account for the shared patient care responsibility across care units within the established data collection criteria.

Patient satisfaction. Patient satisfaction includes three metrics, communication with nurses, overall satisfaction with care, and likelihood to recommend the hospital. All were positively influenced by the degree of structural empowerment on the care unit. This finding aligns with previous work linking structural empowerment to improved patient satisfaction (Donahue et al., 2008). Kanter's structural empowerment theory (1977, 1993) includes access to information, support, resources and opportunity, which could, in turn, facilitate enhanced patient satisfaction.

Authentic leadership was not found to be a significant influence on patients' experiences of care. This finding differs from previous reports of an integrative review linking relational leadership styles with improved patient satisfaction (Wong et al., 2013). Yet it is similar to other studies that found no significant relationship (Gardner et al., 2007; Larrabee et al., 2004; Raup, 2008). Authentic leadership may have an indirect relationship with patient satisfaction through structural empowerment. Wong and Laschinger (2012) have previously demonstrated an indirect relationship of authentic leadership through structural empowerment on various outcomes. The current study provides support for the strength of the relationship between unit level authentic leadership and structural empowerment, which could be tested with a path model in future research.

Model covariates for RN communication. There were several significant covariates in this model, including care unit type, unit response rate, and nurse manager tenure on the unit. All of these covariates had significant positive relationships with the patient satisfaction metric, RN communication. Medical care units had a greater influence on improving patient experience with regards to nurse communication compared to surgical units. This may be related to the often unexpected nature of medical admissions compared to surgical admissions, necessitating expert communication skills to ease patient and family fears regarding clinical updates and the plan of care (Pytel, Fielden, Meyer & Albert, 2009). As mentioned previously, the unit response rate can be viewed as a crude metric for staff nurse engagement, which has been shown to be related to patient quality outcomes (Bacon & Mark, 2009). Nurse manager tenure on the care unit may be related to his/her practice experience or expertise in the role (Warshawsky et al., 2013), as well as the time necessary to develop trust between the staff and leader (Laschinger & Finegan, 2005).

Model covariates for overall satisfaction. The significant covariates in this model were unit response rate, RN certification, nurses with resource/charge nurse experience, and RN years on the care unit. All covariates had a positive relationship with the overall patient satisfaction metric. The covariates of nurse certification, charge or resource nurse experience, and nurses' years working on the care unit could all be components of practice expertise within the nurse dose framework (Manojlovich & Sidani, 2008). This combination of factors related to nursing expertise may contribute to enhanced patient satisfaction.

Model covariates for likelihood to recommend the hospital. Nurses with resource/charge nurse experience, RN years on the care unit, and nurse manager tenure on the care unit were all significant, positive covariates in the model of likelihood to

recommend the hospital. As discussed in the previous section on overall satisfaction, these covariates could all be seen as elements of practice expertise (Manojlovich & Sidani, 2008), which may increase the likelihood of patients recommending the hospital.

Research Question 4

What is the relationship between actual staff nurse decisional involvement and patient quality outcomes?

> H4: As actual staff nurse decisional involvement scores increase, patient satisfaction will increase, while falls with injury, and pressure ulcer rates will decrease.

The findings did not provide support for a direct relationship between actual staff nurse decisional involvement and any of the patient quality outcomes collected in this study. This differs from previous research that did find significant relationships between staff nurse decisional involvement and lower rates of pressure ulcers and higher patient satisfaction (Houser et al., 2012). Findings of the present study may be related to several factors. The hospital level effect on staff nurse decisional involvement may account for most of the variance, thus unit level effects may be very small for this particular variable. There may be another mechanism connecting authentic leadership and structural empowerment to patient quality outcomes, such as staff nurse engagement (Bacon & Mark, 2009) or psychological empowerment (Purdy et al., 2010). Finally, as discussed previously, the analysis of the DIS Cronbach's alpha indicated instability in some of the tool's subscales. It is possible that there may have been a shift in practice since the creation of the tool in 2003. Some items, such as the collaboration and recruitment subscales, may no longer resonate with current nursing practice, as discussed previously.

Limitations

There are internal and external threats to the validity of this study. Threats to internal validity include limitations related to the study design and procedures whereas threats to external validity relate to limitations of generalizability to other groups, settings or situations (Creswell, 2009). The cross-sectional design of the present study allows for a description of the relationships among the variables, but cannot determine causality (Polit & Beck, 2012). Additionally, the sample of general care units, while having strong geographical and hospital type representation, was a convenience sample, which may result in non-coverage error. This occurs when parts of the population are not in the sampling frame and thus have no opportunity for inclusion in the study (Dillman et al., 2009). This is a typical source of error in survey research due to time and financial limitations. All hospitals in this study collect and report quality data to NDNQI, which represents a hospital population of approximately 35% of hospitals within the US (Press Ganey Associates, 2015; American Hospital Association, 2015). This may limit the generalizability of the current findings to hospitals that also collect this data. However, the analysis for this study focused on care unit level influences rather than hospital level. Holding this hospital level factor constant provides assurance of the unique contribution detected at the care unit level.

The survey data collected from the staff nurses was self-reported data, which makes it subject to response biases (Polit & Beck, 2012); however, the anonymous collection of the responses helps to mitigate this potential bias. While it was the original intent to assess for nonresponse error (Dillman et al., 2009) in this study, this was a major barrier to

hospital participation with sites unable to provide either the information or access needed to conduct such an analysis.

Finally, the stability of the patient quality outcome models related to falls with injury and HAPU rates is questionable, which may present issues of statistical conclusion validity (Polit & Beck, 2012). This is due to the very small incidents of these events with many values of zero in the dataset making it challenging to adequately research these phenomena and drive the remaining incidents out of practice. Differing methodologies with very large datasets or potentially longitudinal designs could provide additional rigor to the research in this area, yet will be costly and time consuming.

Implications for Practice

The findings of this study provide support for focusing healthcare resources on hiring and developing front-line nurse leaders with an authentic leadership approach. Such leaders then need to be given the autonomy to facilitate structural empowerment, which had a significant influence across patient quality outcome metrics. Nurse managers will need training to understand the evidence-base supporting authentic leadership practice, and then development in the form of self-reflection and coaching to incorporate these behaviors in their leadership practice. As stated by Shirey (2006), "to become an authentic leader requires that an individual pursue a personal journey of self-discovery, self-improvement, reflection, and renewal…[and] requires courage to commit to a process of personal transformation" (p. 263).

The relationship between authentic leadership and dissonance scores for staff nurse decisional involvement indicates a need for open and honest discourse between staff nurses and unit-based leadership about mutual expectations (Hess, 2011). The finding that

nurse manager tenure was a significant covariate in some patient quality outcome models, indicates hospital settings should focus efforts on retention of their front-line managers (Warshawsky et al., 2013).

While this study does not provide evidence of a link between actual staff nurse decisional involvement and patient quality outcomes, it does add to the evidence connecting unit-level authentic leadership and structural empowerment to improved patient quality outcomes. Thus, focusing efforts solely on hospital or system level quality improvements is misguided and overlooks the unique influence of care unit level factors.

Implications for Policy and Education

This study specifically examined authentic leadership of the nurse manager at the care unit level and provides evidence of value added to the work environment for staff nurses. Previous research has highlighted the cascading effect of authentic leadership and structural empowerment throughout an organization, calling for nurse executives (McDonald et al, 2010; Shirey, 2009) and staff nurses (Giallonardo et al., 2010) to embrace these concepts and behaviors. Throughout all levels of nursing formal (ADN, BSN, MSN, and doctoral) and continuing education, leadership skills should be developed. Training at all levels of nursing leadership should be provided to illustrate the benefits of leadership theories to practice and patient quality outcomes.

As the U.S. healthcare industry implements the 2010 Patient Protection and Affordability Act and strives to attain the triple aim of improving patient satisfaction with care, population heath, and reducing costs (Berwick, Nolan, & Whittington, 2008), the need for authentic leaders to facilitate structural empowerment and staff nurse decisional involvement is of critical importance. How a standardized intervention will be

implemented at the care unit level is a value-added part of the process that has the potential to improve patients' experiences of care, the quality of the care provided and to drive down costs. Staff nurses know their patients and colleagues and are in the best position to tailor an implementation plan and practice processes that will meet the standard of care, yet retain the authority for how it will be work in their practice setting (Kramer& Schmalenberg, 2003).

Implications for Research

The nested nature of authentic leadership, structural empowerment, and decisional involvement in practice indicates the need for a more comprehensive analysis to determine the unique contribution of each variable at each level. The hospital level measures of structural empowerment and the levels of authentic leadership throughout the nursing leadership hierarchy may certainly influence the work environment and boundaries of the nurse managers' practice. "Frontline nurse leaders, who most often connect with staff nurses, may or may not have the power to provide a more professional practice environment for their staff" (Manojlovich, 2005, p. 372). The relationships between these variables, at all levels of complex healthcare systems, needs to be further investigated. Such studies will inform the design of effective individual and/or team-based interventions for empirical testing.

According to the ANCC (2008) one of the forces of Magnetism® is transformational leadership, yet this study suggests that nursing leaders remain open to the evolving nature of leadership theory and practice. Perhaps practice environments are becoming better served by authentic rather than transformational leaders at the care unit level. This study did not examine the comparative influence of authentic leadership to other leadership

theories, such as transformational leadership or leader-member exchange theory, on staff nurse and patient quality outcomes. One is unable to state that authentic leadership is the most effective approach. Additional research is needed in this area to test the most effective leadership theory to guide the nursing practice of the future.

While not all hospitals in this sample had data on the educational preparation of the nurse managers, those reporting indicated 72% had a master's degree and 16% had a degree in management, such as a MBA, MHA, or MS in Administration. Future research should investigate if there is any significant difference in staff nurse and patient outcomes based on education level and formal leadership education of nurse managers. This would provide more robust validation for minimum requirements for entry into a formal nurse managerial role.

The degree of authentic leadership and structural empowerment at the care unit level should be examined in the context of implementing changes in practice. As a new intervention is being implemented in practice settings, one could examine how the implementation process differs in settings with high versus low levels of authentic leadership and structural empowerment. This research would add to the depth of understanding of how authentic leadership practice and structural empowerment are operationalized in practice.

This study did not provide support for actual staff nurse decisional involvement influencing patient quality outcomes. Future research determining if this is related to a need to revise the DIS tool or if another variable is the mechanism of action connecting authentic leadership and structural empowerment to patient quality outcomes would provide clarity to the current findings.

Conclusion

This study extends the knowledge base connecting unit based authentic leadership and structural empowerment to increased actual staff nurse decisional involvement, patient satisfaction, and decreased falls with injury rates. This study was unique in that it examined actual patient quality outcome data rather than using nurses' perception of quality on their care unit. Additionally, much of the previous research focused on effects of the hospital level or staff nurse level factors on staff nurse and patient outcomes. This study examined these variables at the care unit level while controlling for hospital and system level effects, which is a unique contribution to the knowledge base in this area.

References

Agency for Healthcare Research and Quality (2012). *National healthcare quality report.* Retrieved fromhttp://archive.ahrq.gov/research/findings/nhqrdr/nhqr12/index.html

Agency for Healthcare Research and Quality (2013). *Making health care safer II: An updated critical analysis of the evidence for patient safety practices.* Retrieved from http://www.ahrq.gov/research/findings/evidence-basedreports/ptsafetyuptp.html

Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J. A., Busse, R., Clarke, H., … Shamian, J. (2001). Nurses' reports on hospital care in five countries. *Health Affairs, 20*(3), 43–53. doi: 10.1377/hlthaff.20.3.43

Aiken, L. H., Clarke, S. P., Sloane, D. M, Sochalski, J., & Silber, J. H. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Journal of American Medical Association, 288*, 1987–1993.

Aiken, L. H., Clarke, S. P., Sloane, D. M., Lake, E. T., & Cheney, T. (2008). Effects of hospital care environment on patient mortality and nurse outcomes. *Journal of Nursing Administration*, *38,* 223–229.

Aiken, L. & Patrician, P. (2000). Measuring organizational traits of hospitals: The revised nursing work index. *Nursing Research*, *49*, 146–153.

Aiken, L. H., Sermeus, W., Van den Heede, K., Sloane, D. M., Busse, R., McKee, M., … Kutney-Lee, A. (2012). Patient safety, satisfaction, and quality of hospital care: Cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. *British Medical Journal, 344*, e1717. doi: 10.1136/bmj.e1717

American Association of Colleges of Nursing (2006). *AACN position statement on nursing research.* Retrieved fromhttp://www.aacn.nche.edu/publications/position/nursing-research

American Hospital Association (2015). *Fast facts on US hospitals.* Retrieved from http://www.aha.org/research/rc/stat-studies/fast-facts.shtml

American Nurses Association (2005). *National database for nursing quality indicators: Guidelines for data collection and submission on quarterly indicators*, version 5.0.

American Nurses Credentialing Center (2008). *Announcing a new model for ANCC's Magnet recognition program.* Retrieved fromhttp://www.nursecredentialing.org/MagnetModel

American Organization of Nurse Executives (2013). *AONE salary and compensation study for nurse leaders: 2013 edition.*

Armellino, D., Griffin, M. T. & Fitzpatrick, J. J. (2010). Structural empowerment and patient safety culture among registered nurses working in adult critical care units. *Journal of Nursing Management, 18*, 796–803. doi: 10.1111/j.1365-2834.2010.01130.x

Armstrong, K. J. & Laschinger, H. (2006). Structural empowerment, magnet hospital characteristics, and patient safety culture. *Journal of Nursing Care Quality, 21*, 124–132.

Armstrong, K., Laschinger, H., & Wong C. (2009). Workplace empowerment and magnet hospital characteristics as predictors of patient safety climate. *Journal of Nursing Care Quality, 24*, 550–62.

Avolio, B. J. (2007). Promoting more integrative strategies for leadership theory building. *American Psychologist, 62*, 25–33.

Avolio, B. J., Gardner, W. L., Walumbwa, F. O., Luthans, F., & May, D. (2004). Unlocking the mask: A look at the process by which authentic leaders' impact follower attitudes and behaviors. *Leadership Quarterly*, *15*, 801–823.

Avolio B. J., Walumbwa F. O., & Weber T. J. (2009). Leadership: Current theories, research, and future directions. *Annual Review of Psychology, 60,* 421–449.

Bacon, C. T. & Mark, B. (2009). Organizational effects on patient satisfaction in hospital medical-surgical units. *Journal of Nursing Administration*, *39*, 220–227.

Bae, S. H. (2011). Assessing the relationships between nurse working conditions and patient outcomes: Systematic literature review. *Journal of Nursing Management, 19,* 700–713. doi: 10.1111/j.1365-2834.2011.01291.x

Baharestani, M. M., Black, J. M., Carville, K., Clark, M., Cuddigan, J. E., Dealey, C., … Sanada, H. (2009). Dilemmas in measuring and using pressure ulcers prevalence and incidence: An international consensus. *International Wound Journal*, *6*, 97–104. doi: 10.1111/j.1742-481X.2009.00593.x

Bamford, M., Wong, C. A., & Laschinger, H. (2013). The influence of authentic leadership and areas of worklife on work engagement of registered nurses. *Journal of Nursing Management, 21*, 529–540. doi: 10.1111/j.1365-2834.2012.01399.x

Barker, A., Kamar, J., Morton, A. & Berlowitz, D. (2009). Bridging the gap between research and practice: Review of a targeted hospital inpatient fall prevention programme. *Quality & Safety in Health Care, 18,* 467–472.

Benner, B. (1982). From novice to expert. *American Journal of Nursing, 82,* 402–407.

Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: Care, health, and cost. *Health Affairs*, *27*, 759–769. doi: 10.1377/hlthaff.27.3.759

Bhindi, N. & Duignan, P. (1997). Leadership for a new century: Authenticity, intentionality, spirituality, and sensibility. *Educational Management and Administration, 25*, 117–132.

Boev, C. (2012). The relationship between nurses' perception of work environment and patient satisfaction in adult critical care. *Journal of Nursing Scholarship, 44,* 368–375. doi: 10.1111/j.1547-5069.2012.01466.x

Bouldin, E. L. D., Andersen, E. M., Dunton, N. E., Simon, M., Waters, T. M., Liu, M., … Shorr, R. I. (2013). Falls among adult patients hospitalized in the United States: Prevalence and trends. *Journal of Patient Safety, 9*(1), 13–17. doi:10.1097/PTS.0b013e318 2699b64

Boyle S. M. (2004). Nursing unit characteristics and patient outcomes. *Nursing Economics, 22*, 111–123.

Brooks-Carthon, J. M., Kutney-Lee, A., Sloane, D. M., Cimiotti, J. P., & Aiken, L. H. (2011). Quality of care and patient satisfaction in hospitals with high concentrations of black patients. *Journal of Nursing Scholarship*, *43,* 301–310. doi: 10.1111/j.1547-5069.2011.01403.x

Cameron, I., Murray, G., Gillespie, L., Robertson, M., Hill, K., Cumming, R., & Kerse, N. (2010). Interventions for preventing falls in older people in nursing care facilities and hospitals. *Cochrane Database of Systematic Reviews, 1,* Art. No.: CD005465. doi: 10.1002/14651858.CD005465.pub2.

Capuano, T., Bokovoy, J., Hitchings, K., & Houser, J. (2005). Use of a validated model to evaluate the impact of the work environment on outcomes at a magnet hospital. *Health Care Management Review, 30*, 229–236.

Castle, N. G. & Decker, F. H. (2011). Top management leadership style and quality of care in nursing homes. *Gerontologist, 51*, 630–642.

Centers for Medicare and Medicaid Services (2014). *Hospital value-based purchasing.* Retrieved from http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/hospital-value-basedpurchasing/index.html?redirect=/ hospital-value-based-purchasing

Chapman, L. (2012). Qualtrics taps accel, sequoia for first-ever vc round. *The Wall Street Journal, May 15*. Retrieved from http://blogs.wsj.com/venturecapital/2012/05/15/ qualtrics-taps-accel-sequoia-for-first-ever-vc-round

Coleman, S., Gorecki, C., Nelson, A., Closs, S. J., Defloor, T., Halfens, R., …Nixon, J. (2013). Patient risk factors for pressure ulcer development: Systematic review. *International Journal of Nursing Studies, 50,* 974–1003. doi:10.1016/j.ijnurstu. 2012.11.019

Coussement, J., De Paepe, L., Schwendimann, R., Denhaerynck, K., Dejaeger, E., & Milisen, K. (2008). Interventions for preventing falls in acute- and chronic-care hospitals: A systematic review and meta-analysis. *Journal of American Geriatric Society*, *56*, 29–36.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Cummings, G. G., Midodzi, W. K., Wong, C. A., & Estabrooks C.A. (2010). The contribution of hospital nursing leadership styles to 30-day patient mortality. *Nursing Research, 59*, 331–339. doi: 10.1097/NNR.0b013e3181ed74d5

Davies, A., Wong, C. A., & Laschinger, H. (2011). Nurses' participation in personal knowledge transfer: The role of leader–member exchange (LMX) and structural empowerment. *Journal of Nursing Management, 19*, 632–643. doi: 10.1111/j.1365-2834.2011.01269.x

DeCicco, J., Laschinger, H. K. S., & Kerr, M. (2006). Perceptions of empowerment and respect: Effect on nurses' organizational commitment in nursing homes. *Journal of Gerontological Nursing, 32*(5), 49–56.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method.* Hoboken, NJ: John Wiley & Sons, Inc.

Disch, J. (2002). Creating healthy work environments. *Creative Nursing, 8*(2), 3–4.

Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly*, *44*, 166–203.

Donabedian, A. (1988). The quality of care: How can it be assessed? *Journal of the American Medical Association, 260*, 1743–1748.

Donahue, M., Piazza I., Griffin M. Q., Dykes P. C., & Fitzpatrick J.J. (2008). The relationship between nurses' perceptions of empowerment and patient satisfaction. *Applied Nursing Research, 21,* 2–7.

Doran, D., McCutcheon, A. S., Evans, M. G., MacMillan, K., Hall, K. M., Pringle, D… Valente, A. (2004). Impact of the manager's span of control on leadership and performance. *Canadian Health Services Research Foundation*, Ottawa, ON. Retrieved from http://www.cfhi-fcass.ca/migrated/pdf/researchreports/ogc/doran2_final.pdf

Duchscher, J. E .B. (2009). Transition shock: The initial stage of role adaptation for newly graduated Registered Nurses. *Journal of Advanced Nursing, 65*, 1103-1113. doi: 10.1111/j.1365-2648.2008.04898.x

Duffield, C., Diers, D., O'Brien-Pallas, L., Aisbett, C., Roche, M., King, M., & Aisbett, K. (2011). Nursing staffing, nursing workload, the work environment and patient outcomes. *Applied Nursing Research, 24*, 244–255. doi: 10.1016/j.apnr.2009.12.004

Dunton, N. (2008). Take a cue from the NDNQI. *Nursing Management*, *39*(4), 20–23. doi: 10.1097/ 01.NUMA.0000316054.35317.bf

Dykes, P. C., Carroll, D. L., Hurley, A., Lipsitz, S., Benoit, A., Chang, F., … Middleton, B. (2010). Fall prevention in acute care hospitals: A randomized trial. *Journal of the American Medical Association, 304*, 1912–1918. doi: 10.1001/ jama.2010.1567

Erickson, J., Hamilton, G., Jones, D., & Ditomassi, M. (2003). The value of collaborative governance and staff empowerment. *Journal of Nursing Administration, 33*(2), 96–104.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149–1160. doi: 10.3758/BRM.41.4.1149

Faulkner J. & Laschinger H. (2008). The effects of structural and psychological empowerment on perceived respect in acute care nurses. *Journal of Nursing Management, 16,* 214–221. doi: 10.1111/j.1365-2934.2007.00781.x

Flynn L., Liang Y., Dickson G. L., & Aiken L. H. (2010). Effects of nursing practice environments on quality outcomes in nursing homes. *Journal of the American Geriatrics Society, 58*, 2401–2406. doi: 10.1111/j.1532-5415.2010.03162.x

Flynn, L., Liang, Y., Dickson, G. L., Xie, M., & Suh, D. (2012). Nurses' practice environments, error interception practices, and inpatient medication errors. *Journal of Nursing Scholarship, 44,* 180–186. doi: 10.1111/j.1547-5069.2012.01443.x

Fowler, F. J. (2008). *Survey research methods* (4th ed). Thousand Oaks, CA: Sage.

Fox, J. (2008). *Applied regression analysis and generalized linear models* (2nd ed). Thousand Oaks, CA: Sage.

Friese, C. R., Lake, E. T., Aiken, L. H., Silber, J. H., & Sochalski J. (2008). Hospital nurse practice environments and outcomes for surgical oncology patients. *Health Services Research, 43*, 1145–1163.

Fuller, R., McCullough, E., Bao, M., & Averill R. (2009). Estimating the costs of potentially preventable hospital acquired complications. *Health Care Financing Review, 30*(4), 17–32.

Fusilero, J., Lini, L., Prohaska, P., Szweda, C., Carney, K., & Mion, L. C. (2008). The career advancement for registered nurse excellence program. *Journal of Nursing Administration*, *38*, 526–531.

Gardner, J. K., Thomas-Hawkins, C., Fogg, L., & Latham, C. E. (2007). The relationships between nurses' perceptions of the hemodialysis unit work environment and nurse turnover, patient satisfaction, and hospitalizations. *Nephrology Nursing Journal*, *34*, 271–281.

Gardner, W. L., Cogliser, C. C., Davis, K. A., & Dickens M. P. (2011). Authentic leadership: A review of the literature and research agenda. *Leadership Quarterly, 22*, 1120–1145. doi:10.1016/j.leaqua.2011.09.007

Gardner, W. L., Fischer, D., & Hunt, J. G. (2009). Emotional labor and leadership: A threat to authenticity? *Leadership Quarterly*, 20, 466–482. doi:10.1016/j.leaqua.2009.03.011

Giallonardo, L., Wong, C. A., & Iwasiw, C. (2010). Authentic leadership of preceptors: Predictor of new graduate nurses' work engagement and job satisfaction. *Journal of Nursing Management, 18*, 993–1003. doi: 10.1111/j.1365-2834.2010.01126.x

Gilbert, S., Laschinger, H. K. S., & Leiter, M. (2010). The mediating effect of burnout on the relationship between structural empowerment and organizational citizenship behaviours. *Journal of Nursing Management, 18*, 339–348. doi: 10.1111/j.1365-2834.2010.01074.x

Goldstein, E., Farquhar, M., Crofton, C., Darby, C., & Garfinkel, S. (2005). Measuring hospital care from the patients' perspective: An overview of the CAHPS hospital survey development process. *Health Services Research*, *40,* 1977–1995. doi: 10.1111/j.1475-6773.2005.00477.x

Gray-Siracusa, K. & Schrier, L. (2011). Use of an intervention bundle to eliminate pressure ulcers in critical care. *Journal of Nursing Care Quality, 26,* 216–225. doi: 10.1097/NCQ.0b013e31820e11be

Greco, P., Laschinger, H. K. S. ,& Wong, C. (2006). Leader empowering behaviors, staff nurse empowerment and work engagement/burnout. *Nursing Leadership, 19*(4), 41–56.

Greenglass, E. R., Burke, R. J., & Fiksenbaum, L. (2001). Workload and burnout in nurses. *Journal of Community & Applied Social Psychology, 11,* 211–215. doi:10.1002/ casp.614

Halter, C. W. (2006). Influence of hospital context on cost and length of stay following cardiac catheterization. *Nursing Economics, 24*, 246–252.

Hauck, A., Griffin, M. T., & Fitzpatrick, J. J. (2011). Structural empowerment and anticipated turnover among critical care nurses. *Journal of Nursing Management, 19*, 269–276. doi: 10.1111/j.1365-2834.2011.01205.x

Havens, D. S., & Vasey, J. (2003). Measuring staff nurse decisional involvement: The decisional involvement scale. *Journal of Nursing Administration, 33,* 331–336.

Havens, D. S., & Vasey, J. (2005). The staff nurse decisional involvement scale: Report of psychometric assessments. *Nursing Research, 54,* 376–383.

Havig, A. K., Skogstad, A., Kjekshus, L. E., & Romoren, T. I. (2011). Leadership, staffing and quality of care in nursing homes. *BMC Health Services Research, 11*, 327. doi:10.1186/ 1472-6963-11-327.

He, J., Dunton, N., & Staggs, V. (2012). Unit-level trends in inpatient fall rates in US hospitals. *Medical Care, 50*, 801–807. doi: 10.1097/MLR.0b013e31825a8b88

He, J., Staggs, V. S., Bergquist-Beringer, S., & Dunton, N. (2013). Unit-level time trends and seasonality in the rate of hospital-acquired pressure ulcers in US acute care hospitals. *Research in Nursing & Health, 36,* 171–180. doi: 10.1002/nur.21527

Heath, J., Johanson, W., & Blake, N. (2004). Healthy work environments: A validation of the literature. *Journal of Nursing Administration, 34,* 524–530.

Health Resources and Services Administration (2013). *The U.S. nursing workforce: Trends in supply and education*. Retrieved from http://bhpr.hrsa.gov/healthworkforce

Health Resources and Services Administration (2010). *The registered nurse population: Findings from the 2008 national sample survey of registered nurses.* Retrieved from http://bhpr.hrsa.gov/healthworkforce/rnsurveys/rnsurveyfinal.pdf

Hess, R. G. (2004). From bedside to boardroom—Nursing shared governance. *Online Journal of Issues in Nursing*, 9, 1–8.

Hess, R. G. (2011). Slicing and dicing shared governance: In and around the numbers. *Nursing Administration Quarterly, 35,* 235–241. doi:10.1097/NAQ.0b013 e3181ff387d

Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Fact Sheet. (2013). Retrieved from http://www.hcahpsonline.org/Facts.aspx

Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey Results. (2014). Retrieved from http://www.hcahpsonline.org/Summary Analyses.aspx

Hinshaw, A. S. & Atwood, J. R. (1981). A patient satisfaction instrument: Precision by replication. *Nursing Research, 31,* 170–175.

Hitcho, E. B., Krauss, M. J., Birge, S., Dunagan, W. C., Fischer, I., Johnson, S., …Fraser, V. J. (2004). Characteristics and circumstances of falls in a hospital setting. *Journal of General Internal Medicine, 19,* 732–739.

Houser, J. (2003). A model for evaluating the context of nursing care delivery. *Journal of Nursing Administration, 33*, 39– 47.

Houser, J., ErkenBrack, L., Handberry, L., Ricker, F., & Stroup, L. (2012). Involving nurses in decisions: Improving both nurse and patient outcomes. *Journal of Nursing Administration, 42,* 375–382. doi: 10.1097/NNA.0b013e3182619325

Houston, S., Leveille, M., Luquire, R., Fike, A., Ogola, G. O., & Chando, S. (2012). Decisional involvement in Magnet®, Magnet-aspiring, and non-Magnet hospitals. *Journal of Nursing Administration, 42,* 586–591. doi: 10.1097/NNA.0b013e318274b5d5

Hurtado, M. P., Angeles, J., Blahut, S. A., & Hays, R. D. (2005). Assessment of the equivalence of the spanish and english versions of the CAHPSs hospital survey. *Health Services Research, 40,* 2140–2161. doi: 10.1111/j.1475-6773.2005.00469.x.

Institute for Healthcare Improvement (2011). *What is a bundle?* Retrieved from http://www.ihi.org/knowledge/Pages/ImprovementStories/WhatIsaBundle.aspx

Institute of Medicine (2004). *Keeping patients safe: Transforming the work environment of nurses*. Washington, DC: The National Academies Press.

Isaac, T., Zaslavsky, A.M., Cleary, P.D., & Landon, B. E. (2010). The relationship between patients' perception of care and measures of hospital quality and safety. *Health Services Research, 45*, 1024–1040. doi: 10.1111/j.1475-6773.2010.01122.x

Jha, A. K., Orav, E. J., Zheng, J., & Epstein, A.M. (2008). Patients' perception of hospital care in the United States. *New England Journal of Medicine, 359*, 1921–1931.

Joint Commission (2009). *Implementation guide for the NQF endorsed nursing-sensitive care measure set 2009.* Retrieved from http://www.jointcommission.org/assets/1/6/NSC%20Manual.pdf

Kanter, R. M. (1977). *Men and women of the corporation*. New York, NY: Basic Books.

Kanter, R. M. (1993). *Men and women of the corporation* (2nd ed.). New York, NY: Basic Books.

Kee, C. C., Foley, B. J., Dudley, W. N., Jennings, B. M., Minick, P., & Harvey, S. S. (2005). Nursing structure, processes, and patient outcomes in Army medical centers. *Western Journal of Nursing Research*, *27,* 1040–1058.

Kluska, K. M., Laschinger, H. K. S., & Kerr, M.S. (2004). Staff nurse empowerment and effort-reward imbalance. *Canadian Journal of Nursing Leadership, 17*, 112–128.

Knol, J. & van Linge, R. (2009). Innovative behaviour: The effect of structural and psychological empowerment on nurses. *Journal of Advanced Nursing, 65*, 359–370. doi: 10.1111/j.1365-2648.2008.04876.x

Kowalik, S. A. & Yoder, L. H. (2010). A concept analysis of decisional involvement. *Nursing Administration Quarterly, 34*, 259–267. doi: 10.1097/NAQ.0b013e3181e702d7

Kramer, M. & Schmalenberg, C. (2003). Magnet hospital nurses describe control over nursing practice. *Western Journal of Nursing Research*, *25,* 434–452.

Kravitz, R. (1998). Patient satisfaction with health care. *Journal of General Internal Medicine, 13*, 280–282. doi: 10.1046/j.1525-1497.1998.00084.x

Kroposki, M. & Alexander, J.W. (2006). Correlation among client satisfaction, nursing perception of outcomes, and organizational variables. *Home Healthcare Nurse, 24* (2), 87–94.

Kutney-Lee, A., McHugh, M. D., Sloane, D. M., Cimiotti, J. P., Flynn, L., Neff, D. F., & Aiken, L. H. (2009). Nursing: A key to patient satisfaction. *Health Affairs*, *28*, w669–677. doi: 10.1377/hlthaff.28.4.w669

Lake, E. T. (2002). Development of the practice environment scale of the nursing work index. *Research in Nursing & Health*, *25*, 176–188.

Lake E. & Cheung R. (2006). Are patient falls and pressure ulcers sensitive to nurse staffing? *Western Journal of Nursing Research, 28*, 654–677. doi:10.1177/01939 45906290323

Lake, E. T., Shang, J., Klaus, S., & Dunton, N. E. (2010). Patient falls: Association with hospital magnet status and nursing unit staffing. *Research in Nursing & Health, 33,* 413–425. doi: 10.1002/nur.20399

Larrabee, J. H., Ostrow, C. L., Withrow, M. L., Janney, M. A., Hobbs, G. R., Jr., & Burant, C. (2004). Predictors of patient satisfaction with inpatient hospital nursing care. *Research in Nursing & Health*, *27*, 254–268.

Laschinger, H. K. S. (2004). Hospital nurses' perceptions of respect and organizational justice. *Journal of Nursing Administration, 34*, 354–364.

Laschinger, H. K. S. (2008). Effect of empowerment on professional practice environments, work satisfaction, and patient care quality: Further testing the nursing work life model. *Journal of Nursing Care Quality, 23*, 322–330. doi:10.1097/01.NCQ. 0000318028.67910.6b

Laschinger, H. K. S., Almost, J., & Tuer Hodes, D. (2003a). Workplace empowerment and magnet hospital characteristics: Making the link. *Journal of Nursing Administration 33*, 410–422.

Laschinger, H. K. S. & Finegan, J. (2005). Using empowerment to build trust and respect in the workplace: A strategy for addressing the nursing shortage. *Nursing Economics*, *23*, 6–13.

Laschinger, H. K. S., Finegan, J., & Shamian, J. (2001a). Promoting nurses' health: Effect of empowerment on job strain and work satisfaction. *Nursing Economics, 19*, 42–52.

Laschinger, H. K. S., Finegan, J., Shamian, J., & Wilk, P. (2001b). Impact of structural and psychological empowerment on job strain in nursing work settings: Expanding Kanter's model. *Journal of Nursing Administration, 31*, 260–272.

Laschinger, H. K. S., Finegan, J., Shamian, J., & Wilk, P. (2003b). Workplace empowerment as a predictor of nurse burnout in restructured healthcare settings. *Hospital Quarterly, 6*(4), 2–11.

Laschinger, H. K. S., Finegan, J., & Wilk, P. (2009). Context matters: The impact of unit leadership and empowerment on nurses' organizational commitment. *Journal of Nursing Administration, 39*, 228–235. doi: 10.1097/NNA.0b013e3181a23d2b

Laschinger, H. K. S., Finegan, J., & Wilk, P. (2011). Situational and dispositional influences on nurses' workplace well-being: The role of empowering unit leadership. *Nursing Research, 60*, 124–131. doi: 10.1097/NNR.0b013e318209782e

Laschinger, H. K. S. & Havens, D. S. (1996). Staff nurse work empowerment and perceived control over nursing practice, work satisfaction and work effectiveness. *Journal of Nursing Administration, 26*(9), 23–35.

Laschinger, H. K. S., Sabiston, J. A., & Kutzscher, L. (1997). Empowerment and staff nurse decision involvement in nursing work environments: Testing Kanter's theory of structural power in organizations. *Research in Nursing & Health, 20*, 341–352.

Laschinger, H. K., Wong, C. A. & Grau, A. (2012). The influence of authentic leadership on newly graduated nurses' experiences of workplace bullying, burnout and retention outcomes: A cross-sectional study. *International Journal of Nursing Studies, 49*, 1266–1276. doi:10.1016/j.ijnurstu.2012.05.012

Laschinger, H. K., Wong, C. A. & Grau, A. (2013). Authentic leadership, empowerment and burnout: A comparison in new graduates and experienced nurses. *Journal of Nursing Management, 21,* 541–552. doi: 10.1111/j.1365-2834.2012.01375.x

Lautizi, M., Laschinger, H. K. S., & Ravazzolo, S. (2009). Workplace empowerment, job satisfaction and job stress among Italian mental health nurses: An exploratory study. *Journal of Nursing Management, 17*, 446–452. doi: 10.1111/j.1365-2834.2009.00984.x

Llanwarne, N. R., Abel, G. A., Elliott, M. N., Paddison, C. A., Lyratzopoulos, G., Campbell, J. L, & Roland, M. (2013). Relationship between clinical quality and patient experience: Analysis of data from the English quality and outcomes framework and the national GP patient survey. *Annals of Family Medicine, 11,* 467–472. doi:10.1370/afm.1514.

Lucas, V., Laschinger, H. K. S., & Wong, C. A. (2008). The impact of emotional intelligent leadership on staff nurse empowerment: The moderating effect of span of control. *Journal of Nursing Management, 16*, 964–973. doi: 10.1111/j.1365-2834.2008.00856.x

Luthans, F. & Avolio, B. J. (2003). Authentic leadership development. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 241–261). San Francisco, CA: Barrett-Koehler.

Lyder, C. H., Wang, Y., Metersky, M., Curry, M., Kliman, R., Verzier, N. R., & Hunt, D. R. (2012). Hospital-acquired pressure ulcers: Results from the national Medicare Patient Safety Monitoring System study. *Journal of the American Geriatric Society*, *60*, 1603–8. doi: 10.1111/j.1532-5415.2012.04106.x.

Lyu, H., Wick, E. C., Housman, M., Freischlag, J. A., & Makary, M.A. (2013). Patient satisfaction as a possible indicator of quality surgical care, *JAMA Surgery*, *148*, 362–367. doi:10.1001/2013.jamasurg.270.

MacDonald, S. E., Newburn-Cook, C. V., Schopflocher, D., & Richter, S. (2009). Addressing nonresponse bias in postal surveys. *Public Health Nursing*, *26*, 95–105. doi: 10.1111/j.1525-1446.2008.00758.x

Macik-Frey, M., Quick, J. C., & Cooper, C. L. (2009). Authentic leadership as a pathway to positive health. *Journal of Organizational Behavior*, *30*, 453–458. doi: 10.1002/job.561

Mallidou, A. A., Cummings, G. G., Estabrooks, C. A., & Giovannetti, P. B. (2011). Nurse specialty subcultures and patient outcomes in acute care hospitals: A multiple-group structural equation modeling. *International Journal of Nursing Studies, 48,* 81–93. doi: 10.1016/j.ijnurstu.2010.06.002

Mangold, K. L., Pearson, K. K., Schmitz, J. R., Scherb, C. A., Specht, J. P., & Loes, J. L. (2006). Perceptions and characteristics of registered nurses' involvement in decision making. *Nursing Administration Quarterly, 30*, 266–272.

Manojlovich, M. (2005). The effect of nursing leadership on hospital nurses' professional practice behaviors. *Journal of Nursing Administration, 35,* 366–374.

Manojlovich, M. S. & Laschinger, H. K. S. (2002). The relationship of empowerment and selected personality characteristics to nursing job satisfaction. *Journal of Nursing Administration, 32*, 586–595.

Manojlovich, M. & Laschinger, H. (2007). The nursing worklife model: Extending and refining a new theory. *Journal of Nursing Management*, *15,* 256–263. doi: 10.1111/j.1365-2834.2007.00670.x

Manojlovich, M. & Sidani, S. (2008). Nurse dose: What's in a concept? *Research in Nursing & Health*, *31*, 310–319. doi: 10.1002/nur.20265

Manojlovich, M., Sidani, S., Covell, C. L., & Antonakos, C. L. (2011). Nurse dose: Linking staffing variables to adverse patient outcomes. *Nursing Research, 60*, 214–220. doi: 10.1097/NNR.0b013e31822228dc

Mark, B. A., Salyer, J., & Wan, T. T. H. (2003). Professional nursing practice: Impact on organizational and patient outcomes. *Journal of Nursing Administration, 33,* 224–234.

McClure, M., Poulin, M., Sovie, M., & Wandelt, M. (1983). *Magnet hospitals: Attraction and retention of professional nurses.* Kansas City, MO: American Nurses Association

McDonald, S. F., Tullai-McGuiness, S., Madigan, E. A., & Shively, M. (2010). Relationship between staff nurse involvement in organizational structures and perception of empowerment. *Critical Care Nursing Quarterly, 33*, 148–162. doi: 10.1097/CNQ.0b013e3181d9123c

McHugh, M. D., Kutney-Lee, A., Cimiotti, J. P., Sloane, D. M., & Aiken, L. H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Affairs*, *30,* 202–210. doi:10.1377/hlthaff.2010.0100

Medicare. (2013). *Hospital compare: About hospital compare data.* Retrieved from http://www.medicare.gov/hospitalcompare/Data/About.html

Montalvo, I., (2007). The national database of nursing quality indicators (NDNQI). *The Online Journal of Issues in Nursing*, 12. doi: 10.3912/OJIN.Vol12No03Man02

Mrayyan, M. T. (2004). Nurses' autonomy: Influence of nurse managers' actions. *Journal of Advanced Nursing*, *45*, 326–336.

Nancarrow, S. A., Booth, A., Ariss, S., Smith, T., Enderby, P., & Roots, A. (2013). Ten principles of good interdisciplinary team work. *Human Resources for Health*, *11*, 19. doi:10.1186/1478-4491-11-19

National Council of State Boards of Nursing (2013). The national council of state boards of nursing and the forum of state nursing workforce centers 2013 national workforce survey of RNs. *Journal of Nursing Regulation, 4*(Suppl.), S1–S72.

National Database of Nursing Quality Indicators (2012). Evidence of total fall rate (NQF# 0141) and injury fall rate (NQF# 0202). Retrieved from http://www.nursingworld.org/MainMenuCategories/Policy-Advocacy/Federal/Agencies/ANA-Leading-Patient-Safety/Falls-and-Falls-with-Injury-Measures

National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel (2009). *Prevention and treatment of pressure ulcers: Clinical practice guideline*. Washington, DC.

National Quality Forum. (2008). *Serious reportable events*. Retrieved from http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier1/4id&ItemID 1/457355

Needleman, J., Buerhaus, P., Mattke, S., Stewart, M., & Zelevinsky, K. (2002). Nurse-staffing levels and the quality of care in hospitals. *New England Journal of Medicine, 346*, 1715–1722. doi: 10.1056/NEJMsa012247

Ning, S., Zhong, H., Libo, W., & Qiujie, L. (2009). The impact of nurse empowerment on job satisfaction. *Journal of Advanced Nursing, 65*, 2642–2648. doi: 10.1111/j.1365-2648.2009.05133.x

Noone J. (2002). Concept analysis of decision making. *Nursing Forum*, *37*, 21–32.

Patient Protection and Affordable Care Act of 2010, 42 U.S.C. § 18001 et seq. (2010).

Patrick, A., Laschinger, H. K. 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*, 449–460. doi: 10.1111/j.1365-2834.2011.01238.x

Peterson, S. J., Walumbwa, F. O., Avolio, B. J., & Hannah, S. T. (2012). The relationship between authentic leadership and follower job performance: The mediating role of follower positivity in extreme contexts. *The Leadership Quarterly, 23*, 502–516. doi:10.1016/j.leaqua.2011.12.004

Piazza, I. M., Donahue, N., Dykes, P. C., Griffin, M. Q., & Fitzpatrick, J. J. (2006). Differences in perceptions of empowerment among nationally certified and noncertified nurses. *Journal of Nursing Administration*, *36*, 277–283.

Plato. (2002). *Five Dialogs: Euthyphro, Apology, Crito, Meno, Phaedo* (2nd ed). Translated by Grube, G. M. A. Revised by Cooper, J. M. Indianapolis, IN: Hackett.

Polit, D. F. & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed.) Philadelphia, PA: Lippincott Williams & Wilkins.

Press Ganey Associates (2002). *Inpatient psychometrics*. South Bend, IN: Press Ganey Associates, Inc.

Press Ganey Associates (2015). *Turning nursing quality insights into improved patient experiences.* Retrieved fromhttp://www.pressganey.com/ourSolutions /performance-and-advanced-analytics/clinical-business-performance/nursing-quality-ndnqi

Pronovost, P. J., King, J., Holzmueller, C. G., Sawyer, M., Bivens, S., Michael, M., … Miller, M. (2006). A web-based tool for the comprehensive unit-based safety program. *Journal on Quality and Patient Safety, 32*, 119–129.

Purdy, N., Laschinger, H. K. S., Finegan, J., Kerr, M. & Olivera, F. (2010). Effects of work environments on nurse and patient outcomes. *Journal of Nursing Management, 18*, 901–913. doi: 10.1111/j.1365-2834.2010.01172.x

Pytel, C., Fielden, N. M., Meyer, K. H., & Albert, N. (2009). Nurse-patient/visitor communication in the emergency department. *Journal of Emergency Nursing, 35,* 406–411. doi: 10.1016/j.jen.2008.09.002

Qualtrics (2015). *Who we are.* Retrieved from http://www.qualtrics.com/about/

Raup, G. H. (2008). The impact of ED nurse manager leadership style on staff nurse turnover and patient satisfaction in academic health center hospitals. *Journal of Emergency Nursing, 34*, 403–409. doi:10.1016/j.jen.2007.08.020

Rome, B. K. & Rome, S. C. (1967). Humanistic research on large social organizations. In J. F. T. Bugental (Ed.), *Challenges of humanistic psychology* (pp. 181–193). New York, NY: McGraw-Hill.

Scherb, C. A., Specht, J. K., Loes, J. L., & Reed, D. (2011). Decisional involvement: Staff nurse and nurse manager perceptions. *Western Journal of Nursing Research, 33,* 161–179. doi: 10.1177/0193945910378853

Seibert, S. E., Silver, S. R., & Randolph, W. A. (2004). Taking empowerment to the next level: A multiple-level model of empowerment, performance, and satisfaction. *Academy of Management Journal*, *47*, 332–349. doi: 10.2307/20159585

Shirey, M. R. (2006). Authentic leaders creating healthy work environments for nursing practice. *American Journal of Critical Care, 15,* 256–267.

Shirey, M. R. (2009). Authentic leadership, organizational culture, and healthy work environments. *Critical Care Nursing Quarterly, 32*, 189–198. doi:10.1097/CNQ. 0b013e3181ab91db

Shorr, R. I., Mion, L. C., Chandler, A. M., Rosenblatt, L. C., Lynch, D., & Kessler, L. A. (2008). Improving the capture of fall events in hospitals: Combining a service for evaluating inpatient falls with an incident report system. *Journal of American Geriatric Society*, *56*, 701–704. doi: 10.1111/j.1532-5415.2007.01605.x

Smith, L. M., Andrusyszyn, M. A. & Laschinger, H. (2010). Effects of workplace incivility and empowerment on newly-graduated nurses' organizational commitment. *Journal of Nursing Management, 18,* 1004–1015. doi: 10.1111/j.1365-2834.2010.01165.x

Sochalski, J. (2004). Is more better? The relationship between nurse staffing and the quality of nursing care in hospitals. *Medical Care 42,* II67–II73.

Spillane, J. P. (2006). *Distributed leadership.* San Francisco, CA: Jossey-Bass.

Spoelstra, S. L., Given, B. A., & Given, C. W. (2012). Fall prevention in hospitals: An integrative review. *Clinical Nursing Research, 21,* 92–112. doi:10.1177/1054 773811418106

Spreitzer, G. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*. *38*, 1442–1462.

Stone, P. W., Mooney-Kane, C., Larson, E. L., Horan, T., Glance, L. G., Zwanziger, J., & Dick, A. W. (2007). Nurse working conditions and patient safety outcomes. *Medical Care, 45,* 571–578. doi: 10.1097/MLR.0b013e3180383667

Sullivan, N. & Schoelles, K. M. (2013). Preventing in-facility pressure ulcers as a patient safety strategy: A systematic review. *Annals of Internal Medicine, 158,* 410–416. doi:10.7326/0003-4819-158-5-201303051-00008

Taylor, J. A., Dominici, F., Agnew, J., Gerwin, D., Morlock, L. & Miller, M.R. (2012). Do nurse and patient injuries share common antecedents? An analysis of associations with safety climate and working conditions. *BMJ Quality and Safety, 21*, 101–111. doi:10.1136/bmjqs-2011-000082

Tregunno, D., Jeffs, L., McGillis Hall, L., Baker, R., Doran, D. & Bassett, S. (2009). On the ball – leadership for patient safety and learning in critical care. *Journal of Nursing Administration, 39*, 334–339. doi: 10.1097/NNA.0b013e3181ae9653

Trinkoff, A. M., Johantgen, M., Storr, C. L., Gurses, A. P., Liang, Y., & Han, K. (2011). Linking nursing work environment and patient outcomes. *Journal of Nursing Regulation, 2*(1), 10–16.

Upenieks, V. V. (2003). Nurse perceptions of job satisfaction and empowerment: Is there a difference between nurses employed at magnet versus non-magnet hospitals? *Nurse Manager*, *34,* 43–44.

U.S. Census Bureau (2013). *American community survey.* Retrieved fromhttp://factfinder .census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_5YR_S1 501&src=pt

Utriainen, K. & Kyngas, H. (2009). Hospital nurses' job satisfaction: A literature review. *Journal of Nursing Management, 17*, 1002–1010. doi: 10.1111/j.1365-2834.2009.01028.x

Vahey, D. C., Aiken, L. H., Sloane, D. M., Clarke, S. P., & Vargas, D. (2004). Nurse burnout and patient satisfaction. *Medical Care*, *42,* II57–66. doi:10.1097/01.mlr.0000 109126.50398.5a

Vance, C. & Larson, E. (2002). Leadership research in business and health care. *Journal of Nursing Scholarship, 34*, 165–171.

Wade, G. H. (1999). Professional nurse autonomy: Concept analysis and application to nursing education. *Journal of Advanced Nursing, 30,* 310–318.

Wagner, J. I. J., Cummings, G., Smith, D. L., Olson, J., Anderson, L., & Warren, S. (2010). The relationship between structural empowerment and psychological empowerment for nurses: A systematic review. *Journal of Nursing Management, 18,* 448–462. doi: 10.1111/j.1365-2834.2010.01088.x

Walumbwa, F. O., Avolio, B. J., Gardner, W. L., Wernsing, T. S., & Peterson, S. J. (2008). Authentic leadership: Development and validation of a theory-based measure. *Journal of Management, 34*, 89–126. doi: 10.1177/0149206307308913

Walumbwa, F., Wang, P., Wang, H., Schaubroeck, J. & Avolio, B. (2010). Psychological processes linking authentic leadership to follower behaviours. *Leadership Quarterly, 21,* 901–914. doi:10.1016/j.leaqua.2010.07.015

Warshawsky, N., Rayens, M. K., Stefaniak, K., & Rahman, R. (2013). The effect of nurse manager turnover on patient fall and pressure ulcer rates. *Journal of Nursing Management, 21*, 725–732. doi: 10.1111/jonm.12101

Wong, C. A. & Cummings, G. G. (2007). The relationship between nursing leadership and patient outcomes: A systematic review. *Journal of Nursing Management, 15*, 508–521. doi: 10.1111/j.1365-2834.2007.00723.x

Wong, C. A. & Cummings, G. G. (2009a). Authentic leadership: A new theory for nursing or back to basics? *Journal of Health Organization and Management, 23*, 522–538. doi: 10.1108/14777260910984014

Wong, C. A., Cummings, G. G. & Ducharme, L. (2013). The relationship between nursing leadership and patient outcomes: A systematic review update. *Journal of Nursing Management, 21*, 709–724. doi: 10.1111/jonm.12116

Wong, C. A. & Giallonardo, L. (2013). Authentic leadership and nurse-assessed adverse patient outcomes. *Journal of Nursing Management, 21,* 740–752. doi:10.1111/ jonm.12075

Wong, C. A. & Laschinger, H. K. (2012). Authentic leadership, performance, and job satisfaction: The mediating role of empowerment. *Journal of Advanced Nursing, 69*, 947–959. doi: 10.1111/j.1365-2648.2012.06089.x

Wong, C. A., Laschinger, H. K. & Cummings, G.G. (2010). Authentic leadership and nurses' voice behaviour and perceptions of care quality. *Journal of Nursing Management, 18*, 889–900. doi: 10.1111/j.1365-2834.2010.01113.x

Yang, J., Liu, Y., Huang, C., & Zhu, L. (2013). Impact of empowerment on professional practice environments and organizational commitment among nurses: A structural equation approach. *International Journal of Nursing Practice, 19*, 44–55. doi: 10.1111/ijn.12016

Yates, G. R., Hochman, R. F., Sayles, S. M. & Stockmeier, C. A. (2004). Sentara norfolk general hospital: Accelerating improvement by focusing on building a culture of safety. *Joint Commission Journal on Quality and Safety, 30*, 434–542.

Zulkowski, K., Langemo, D, & Posthauer, M. E. (2005). Coming to consensus on deep tissue injury. *Advances in Skin & Wound Care, 18,* 28–29.

Appendix A: Demographic Data Collection

Staff Nurse Demographics	**Unit Characteristics**	**Hospital Characteristics**
Gender: -Male -Female	Unit Type: -Medical -Surgical -Medical-surgical mix	Type of Hospital: -Academic/teaching -Community
Age:	# of Beds:	Setting: -Urban -Suburban -Rural
Ethnicity: (wording from 2010 US census) Race: (wording from 2010 US census)	Tenure of Manager:	# of Beds:
Employment Status: -Full-time (>= 36 hrs/wk) -Part-time (20-35 hrs/wk) -Per diem (< 20 hrs/wk)	Highest Education Level of Manager: If holds a master's degree or greater, any formal education in management/admin? -Yes -No	Magnet Certified: -Yes -No, on the journey Please indicate stage:_____ (e.g.=part of strategic plan, putting processes/culture in place, collecting data, data submitted, site visit scheduled) -No
Typical Shift Worked: -Days only -Evenings only -Nights only -Day/Eve Rotation -Day/Night Rotation -Evening/Night Rotation -None of the above		Shared Governance Model: -Yes, >= 5 yrs -Yes, < 5 yrs -No
Education Level: -Diploma Program -Associate's Degree -Bachelor's Degree -Master's Degree		

-Doctorate of Nursing Practice -PhD or DNS		
Current Enrollment in Degree Program: -Bachelor's Degree -Master's Degree -Doctorate of Nursing Practice -PhD or DNS		
Certification in Specialty: -Yes -No		
Experience Level: -Years in nursing -Years in organization -Years on care unit		
Resource/Charge Nurse: -Yes -No		
Preceptor: -Yes -No		

Appendix B: Email Series to Staff Nurses

Staff Nurse Introduction to Survey Email

Subject: Upcoming Survey

I am writing to inform you of an upcoming research study regarding staff nurses' experience with leadership, empowerment, and decisional involvement on your care unit. As part of my doctoral research at Boston College, I am asking staff nurses at several hospitals across the country to reflect on the work environment on their care unit.

Your responses to this survey are very important and will help create an understanding of the connections between the care unit work environment and patient quality outcomes.

This survey will take you approximately 15 minutes to complete. You will be able to exit the survey and return to it at a later time through your survey link should you need to. The link to the electronic survey will be sent to you one week from today. Reminder emails containing the survey link will be sent during the survey collection period.

Your participation is voluntary and all of your responses will be kept confidential. Your survey responses are completely anonymous. There is no way for this researcher to link you to your responses.

The Boston College Institutional Review Board has approved this study. Your hospital approved the distribution of this survey to you. No personal or hospital identifiable information will be associated with your responses in any reports of this data. Should you have further questions or comments, please feel free to contact me at stacy.johnson@bc.edu or 857-445-1880.

Thank you for your time and consideration in completing this survey. As a gesture of appreciation, once you have completed the survey, you will have the option to be enrolled in a raffle to win an Apple iPad Air.

It is through the help of nurses like you that we can further understand the care unit work environment and its' influence on patient quality outcomes.

Many Thanks,

Stacy Hutton Johnson, RN, PhD(c)
William F. Connell School of Nursing
Boston College

Staff Nurse Email with Survey Link

Subject: Nationwide Nursing Survey

Dear Nursing colleague,

I emailed you last week about this exciting nationwide study examining the influence of care unit work environment on patient quality outcomes. Please find the link to the survey below.

This will only take you approximately 15 minutes to complete…I know what you're thinking…15 minutes without interruption on a care unit would be shocking! No worries. You are able to exit the survey and return to it at a later time through your link to complete it. Your responses will be saved.

The first page is the consent form and will ask you to click indicating your consent if you choose to participate. As a gesture of appreciation, at the end of the survey you will be invited to enter a raffle to win an Apple iPad Air ☺

Thank you in advance for your time and consideration! Best, Stacy

INSERT: survey link here

Stacy Hutton Johnson, RN, PhD(c)
William F. Connell School of Nursing
Boston College

Staff Nurse Reminder Email #1

Subject: I need your help!

Dear Nursing colleague,

I emailed you last week asking for 15 minutes of your time to complete a survey about your work environment. If you have already completed it, thank you. If not, please find the link below. My research is examining the influence of care unit level work environment on patient outcomes, and I can't do this without your help.

I realize how busy you are and how many surveys you are asked to complete! **At the end of this survey you will be able to enter yourself into a raffle to win an Apple iPad Air** ☺ Thank you so much for your time and consideration! Best, Stacy

INSERT: survey link here

Stacy Hutton Johnson, RN, PhD(c)
William F. Connell School of Nursing
Boston College

Staff Nurse Reminder Email #2

Subject: Last Chance to Enter iPad Air Raffle!

Dear Nursing colleague,

This is the final reminder about this exciting **NATIONWIDE** nursing survey! Be one of thousands of nurses to share your experiences of working on your unit!

As a nurse, I know all of the action happens on the units, which is why I am studying how factors at care unit level influence patient outcomes, but I need 15 minutes of your time to do this ☺

Your time is extremely valuable, so please **enter the raffle to win an Apple iPad Air** at the end of the survey. Just click on the link below! Best, Stacy

INSERT: survey link here

Stacy Hutton Johnson, RN, PhD(c)
William F. Connell School of Nursing
Boston College

Appendix C: Consent Page

BOSTON COLLEGE
WILLIAM F. CONNELL SCHOOL OF NURSING

Consent to Participate

You were selected to participate in this research study of the nursing work environment based on your experience as a RN working in the hospital setting. You are among thousands of RNs across the country who have been invited to participate in this survey. The purpose of this study is to better understand how the work environment on clinical care units influences patient quality outcomes.

If you agree to be in this study, you will be asked to complete an on-line survey, which should take you approximately 15 minutes to complete. Since interruptions are frequent in our work environments, you will be able to exit the survey and your responses will be saved, so you may return to the survey at a later time. You will receive automated email reminders to complete the survey throughout the data collection period. You are free to withdraw from the survey for any reason, at any time.

The survey is confidential and your participation is voluntary. There is no way you can be linked to your responses, which will ensure your confidentiality and anonymity. Additionally, responses to the survey are being analyzed at the unit level since the focus of this research is the care unit work environment as a whole. This provides you additional anonymity. This researcher is a doctoral candidate at Boston College. The only data shared with your employer will be at hospital or system-level, no information will be shared at the care unit level, except for the final analysis encompassing care units across the United States.

While there are no direct benefits for participating in this study, the knowledge gained has the potential to influence work environments at the care unit level. There are minimal risks or discomforts anticipated from participation in this survey.

Individuals who decide to participate can choose to be entered into a prize drawing for an Apple iPad Air (you will be provided a separate link after completing the survey to enter the drawing). There is no way to trace prize-drawing participants back to the original survey.

If you have any questions or concerns regarding this research you may contact Stacy Hutton Johnson, PhD(c), RN, MS/MBA, NE-BC, the Principle Investigator, at stacy.johnson@bc.edu or 857-445-1880. If you have any questions about your rights as a research participant, you may contact the Office for Research Protections, Boston College, at irb@bc.edu or 617-552-4778.

This study was approved by the Boston College Institutional Review Board (IRB) and by your hospital's IRB. Your hospital has released your email for invitation to participate in this study.

Thank you in advance for your time!!

By clicking yes I acknowledge that I have read the preceding consent form and consent to take the survey.

- ○ Yes – I consent to take the survey.
- ○ No - I do not wish to take the survey.