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**Occupational Health: Exploring Job Stress and Work Ability
in Nurse Managers**

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**Occupational Health: Exploring Job Stress and Work Ability in Nurse
Managers**

by

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Dedication

I dedicate this work to all of the nurses who have contributed to the science of our noble profession and on whose shoulders we stand.

Acknowledgements

I am truly thankful to all those who assisted and inspired me to move forward in my academic endeavors. I am grateful to my family, especially my dear husband Alex, who cheered me on through this long journey.

I also want to thank my committee, who have all played a role in inspiring me academically and professionally.

Occupational Health: Exploring Job Stress and Work Ability in Nurse Managers

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Nurse managers provide key leadership toward reaching patient care and organizational goals in the new models of healthcare endorsed by the Institute of Medicine (2011). While much work had been reported in the literature related to stress and nursing, no studies were found that assessed job stress and work ability among nurse managers in the United States. This quantitative, exploratory study used two instruments—the Nurse Stress Index (1989) and the Work Ability Index™ (2013)—and investigator-generated work-related questions to assess levels of job stress and work ability among nurse managers working in acute care hospitals in the United States. The Neuman Systems Model (2002), a holistic, open systems model provided a theoretical framework in which the nurse manager is situated among the variables in the study.

The role of the nurse manager has evolved from one of expert clinician (i.e., head nurse) to one with significant spans of control and responsibility for patient care outcomes and organizational goals (Shirey, 2006). The current definitions of healthy workplaces in nursing found in the literature are narrow in scope and relate to the nursing practice environment (American Association of Critical Care Nurses, 2005). By measuring work

ability, this study adopts a broader view and looks at healthy workplaces from an occupational health standpoint within the context of the World Health Organization model of healthy workplaces, which includes physical work environment, psychosocial work environment, personal health resources, and enterprise community involvement (Burton, 2010).

The findings of this study ($n=92$) suggest that nurse managers in the United States are experiencing relatively low to moderate levels of work-related job stress and have average or good/excellent work ability. Limitations include a nonrandom homogenous sample of limited size, which could account for results that contradict findings from other studies that found high levels of job demands and stress (Johansson, Sandahl, & Hasson, 2013; Shirey, 2009).

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List of Abbreviations

AACCN	American Association of Critical Care Nurses
BA	Bachelor of Arts
BSN	Bachelor of Science in Nursing
CCR	Confidence and Competence in Role
CINAHL	Cumulative Index of Nursing and Allied Health Literature
DNP	Doctor of Nursing Practice
DPF	Dealing with Patients and Families
GSBS	Graduate School of Biomedical Science
HWC	Home/Work Conflict
NEXT	Nursing Early Exit
NSI	Nurse Stress Index
NSM	Neuman Systems Model
OSI	Organizational Support and Involvement
PhD	Doctor of Philosophy
PRW	Prioritizing Resources and Workload
RN	Registered Nurse
TDC	Thesis and Dissertation Coordinator
TDT	Time Demands and Trivial Tasks
U.S.	United States
UTMB	University of Texas Medical Branch
WAI	Work Ability Index
WHO	World Health Organization

Chapter 1: Introduction

Mandates from the Institute of Medicine (2011) seminal report, *Future of Nursing: Leading Change, Advancing Health* reminds healthcare leaders of the importance of front-line nurses and their unit managers in designing new models of healthcare that are high quality, efficient, and safe places for patients to receive care. The report also advocates for the support of nurse leaders and the development of “new workplace cultures” (p. 234). Evidence-based management, a key component of meeting these mandates, is dependent upon an understanding of the “current state” of the nurse management workforce as an occupational group in the United States.

The nurse manager role has evolved since the early 1980s from a “head nurse” with narrow duties to one that is increasingly complex with a larger scope of responsibility (Shirey, 2006). The Institute of Medicine (2011) describes the competency set required for nurses to be effective leaders and fully participate with other stakeholders in shaping dynamic healthcare as: (1) a common set of foundational leadership skills; and (2) a specific set of skills dependent upon context, time, and place (p. 224). The *Nurse Manager Inventory Tool* (Nurse Manager Leadership Partnership, 2006), created by a collaboration between the American Organization of Nurse Executives and the American Association of Critical-Care Nurses, uses a framework of three learning domains: the science of managing business, the leader within, and the art of leading people to operationalize the skills that comprise the nurse manager role. These three domains include fifteen competencies. In addition, the authors acknowledge the vital role of nurse managers in “shaping healthy work environments” (p. 1). Within the context of the evolving role complexity and the need for healthy work environments, it is natural to inquire about the state of the work environment of nurse managers and how well it supports their optimal health and job performance.

Occupational health is a science concerned with providing workplaces that are safe and optimal both from a physical and psychological standpoint (World Health Organization [WHO], 2001). Ideal occupational health environments have the potential to maximize a person's work ability over a lifetime, and also provide individuals with a high level of self-actualization in life. In the occupational health literature, work ability refers to an individual employee's ability to "do work" and involves a complex interplay between individual occupational competence (work), holistic health, and occupational virtue (values/motivation) (Finnish Institute of Occupational Health, 2014; Tengland, 2011). In Finland, research related to occupational health status and work ability has been conducted since the 1980s. Low work ability scores have correlated with early exit from nursing and early disability/retirement in workers (Hasselhorn, Tackenberg, & Muller, 2003; Ilmarinen & Tuomi, 2001; Nursing Early Exit Study [NEXT], 2009). The experience of work-related stress in nursing and nurse managers has been established in nursing science (Shirey, 2006; Shirey, McDaniel, Ebright, Fisher, & Doebebling, 2010). Nevertheless, many of the studies specific to nurse managers have been conducted outside the United States. To gain the evidence needed to support role and workplace design, exploratory assessment of occupational health and more quantitative data about stress levels in United States nurse managers are needed.

BACKGROUND AND SIGNIFICANCE

During the 1980s, three forecasted trends prompted the Finnish Institute of Occupational Health research program related to the work ability and occupational health of their workforce: (1) the projected aging of the workforce related to population dynamics of the baby boom after World War II; (2) changes in the structure of work related to technology; and (3) questioning the "traditional" retirement age of 55 to 63 years (Ilmarinen & Tuomi, 2001, p. 1).

In the report *Healthy Work in an Ageing Europe: Strategies and Instruments for Prolonged Working Life*, Morschhauser and Sochert (2006) focus on two areas: (1) workforce demographics; and (2) activities and tools that can prolong work life. In addition, the report discusses The European Network for Workplace Health Promotion, which actively promotes public health and healthy workplaces. The focus is on both individual “health behavior” and healthy working conditions. The existence of ageism and the impact of pension reforms that promote extending retirement age, as well as the fact that an individual’s health directly influences the ability to stay in the workplace, are presented as central reasons for concern with the workplace as “the most important force for change” (p. 5) that must be considered by employers and nations to ensure positive economic performance. Baseline analyses of a workforce are recommended including: the workforce age structure, an age structure-related checklist of needed actions, assessment of work ability as perceived by the employee, and workshop sessions on possible challenges of working when one is older and potential solutions. The same trends that raised concern in the European workforce also can be observed in the United States.

In a report, *Highlights of The National Workforce Survey of Registered Nurses*, Budden, Zhong, Moulton, and Cimiotti (2013) acknowledge that ageing of the RN workforce is contributing to the persistent nursing shortage. The report detailed findings of a randomized and stratified sample of registered nurses from the United States (across all states) drawn from the National Council of States Boards of Nursing Nursys© database and individual state nursing board databases (for non-Nursys© participants) from January to March of 2013. The study revealed that the median age of RNs in the United States was 52 and the mean was 50 ($n=34,880$). There was an 82% employment rate and of those who were employed, 11% were working as nurse managers. In the Institute of Medicine report (2011), an entire chapter is devoted to better data on the healthcare workforce (pp. 255-266). The Institute of Medicine reported a future nursing workforce shortage of full-time employees ranging from 260,000 to 1 million and the high proportion of Baby Boom

nurses, with many nurses in the workforce over the age of 50. Regrettably, the emphasis on collection of better data focused on supply and demand, surveillance of market conditions, and healthcare workforce effectiveness research. The demand for healthcare resources based on population health needs and utilization rates was discussed, as well as student enrollment in nursing programs and faculty shortages, but there was no specific mention of how nurses' work ability or workplace design (i.e., healthy workplaces) might affect the health of nurse workers and impact workforce supply through retention of both the new generation of millennial nurses and actively employed nurses over age 50.

Nurse managers are key leaders in healthcare today (Institute of Medicine, 2011). A review of the literature related to nurse managers, occupational stress, and work ability reveals an ageing workforce subject to high levels of workplace stress. Research on stress in nurse managers has focused on coping and stressors related to: relationships, resources, learning roles, span of control, and health and economic impact of nurse managers (Shirey, 2006); however, this author was unable to locate any studies that measured work ability among nurse managers working in the United States. A need for more quantitative data on stress levels also was identified. Therefore, the primary purposes of this study was to address these gaps in the literature by exploring the current state of work ability in nurse managers and measuring their levels of job stress. A secondary purpose was to evaluate relationships between work ability and job stress dimensions specific to the nursing workplace. Study of the current state of work ability and stress among nurse managers will contribute valuable evidence-based knowledge supporting the business case for work redesign and interventions, which will improve the workplace and reduce negative impacts on the health of nurses engaged in this important role.

STATEMENT OF THEORETICAL FRAMEWORK

This study used one construct and two theoretical frameworks as foundational assumptions in conceptualizing work ability and the impact of stressors on an individual and/or community system respectively.

Stress

Selye, the founder of modern stress theory, and many other scientists have now empirically demonstrated the impact of stress on humans from both the physiologic and psychological perspectives (Segerstrom, 2010; Selye, 1976). This study assumes that stress theory is correct in that stress can be eustress (positive) or distress (negative), and both types of stress require adaption/adjustment.

The Work Ability House

The Finish Institute of Occupational Health uses a model called the *work ability house* to illustrate the structural concept of work ability (see Figure 1.1). The house represents work ability and is made up of four floors, representing: health and functional capacity; competence; values, attitudes, and motivation; and work, work community, and leadership. The model is holistic, as the house is oriented to external operational environment, immediate social environment, and family (Finnish Institute of Occupational Health, 2014). This study uses the work ability house framework as an essential structure for understanding the latent variable, work ability, as measured by the Work Ability Index™ instrument, and in understanding research literature on work ability. Because the work ability house is an applied or mid-range theory specific to occupational health, this study also relies on a grand nursing theory as a more complete framework on which the entire metaparadigm of study variables can rest.

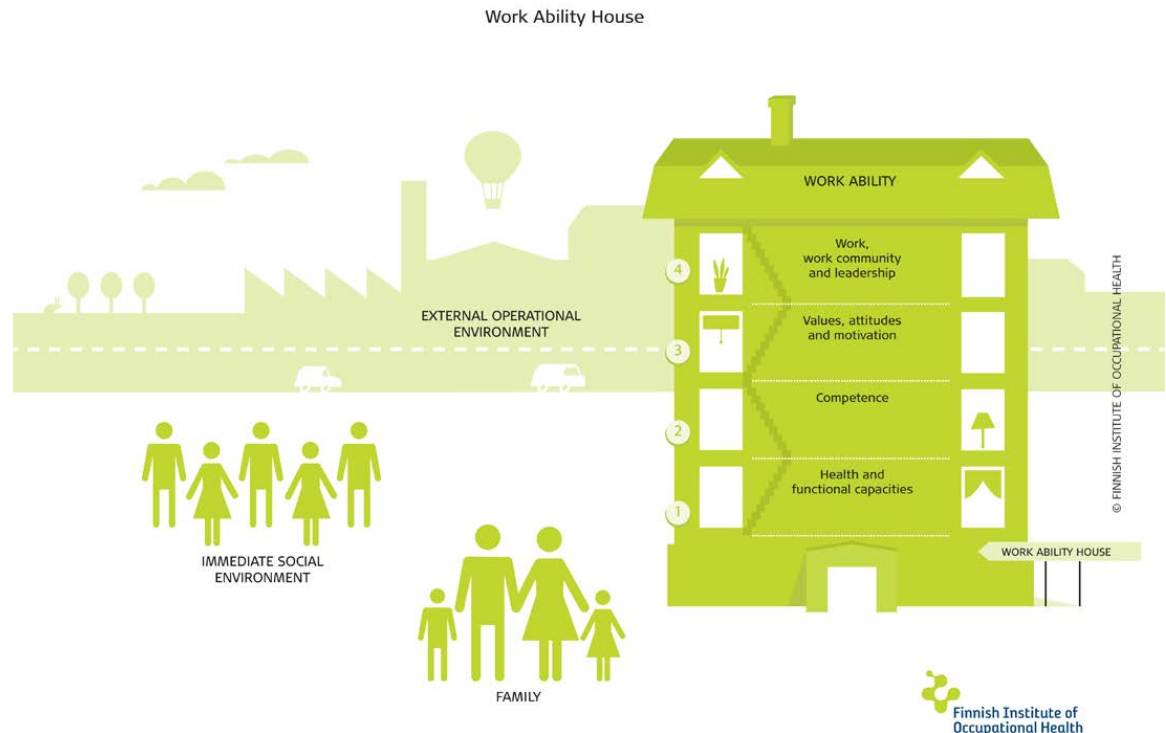


Figure 1.1: The Work Ability House Model (Finnish Institute of Occupational Health, 2014)

Neuman Systems Theory

Early nursing scientists like Betty Neuman and Callista Roy formulated nursing models using concepts of holistic wellness, stressors, and adaptive coping that are important frameworks for understanding the science of stress, resilience, and coping today (Neuman, 2002; Phillips, 2006). The Neuman systems model (NSM), a grand theory with mid-range application, was chosen as the metaparadigm framework for this study (see Figure 1.2). A metaparadigm represents a discipline's worldview, and is defined by the central concepts of interest to that particular discipline (Powers & Knapp, 1990). The nursing metaparadigm provides a configuration for sorting of concepts into the following essential areas: person, environment, health, and nursing (Kim, 2009). The Neuman Systems Model sets the individual into the metaparadigm and applies a view that accounts for multiple variables simultaneously affecting the individual to produce a current state of

health or wellness (Neuman, 2002). The Neuman Systems Model is a holistic, broad, and systems-based view of individuals and/or communities. It is a

... comprehensive systems-based conceptual framework for nursing and other health care disciplines that is concerned with stressors, reaction to stressors, and the prevention interventions that address potential and actual reactions to stressors... Moreover, it illustrates the composite of five interacting variables—physiological, psychological, sociocultural, developmental, and spiritual... (Neuman, 2002, p. 13).

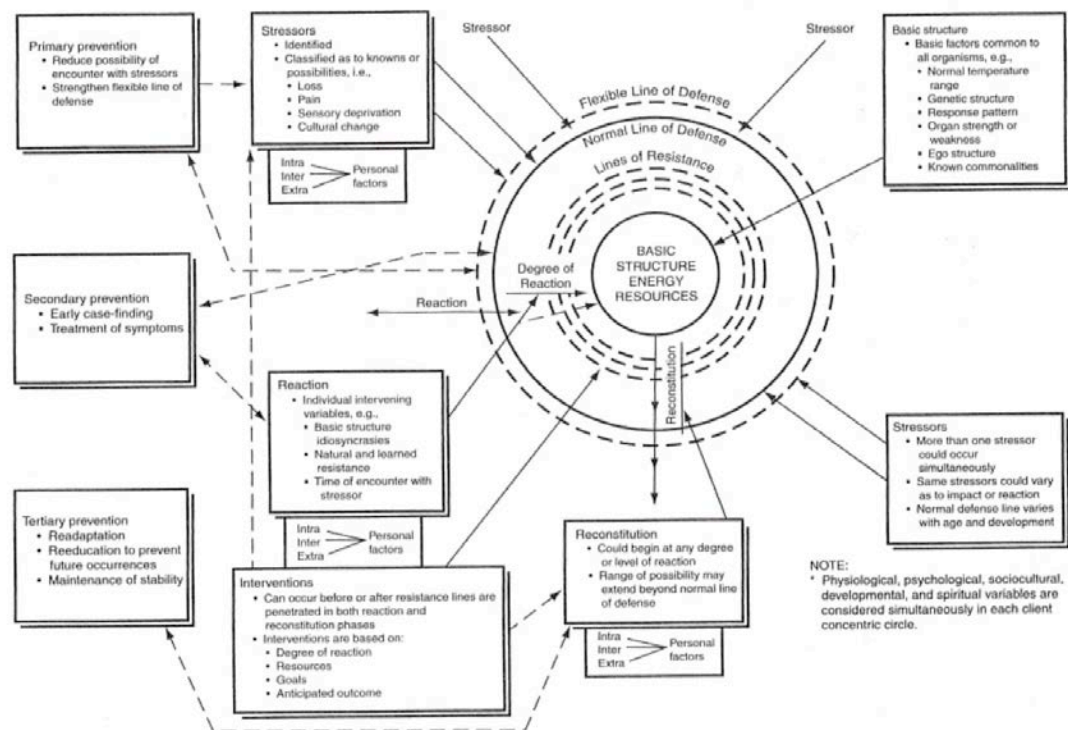


Figure 1.2: The Neuman Systems Theory

The visual diagram (Figure 1.2) shows these elements. In the case of this study, the core structure is an individual (nurse manager). According to the Neuman Systems Model theory, the core is a basic structure with energy resources and is surrounded by lines of resistance, a normal line of defense, and a flexible line of defense. Lines of resistance are mechanisms and resources that defend the core against stressors. The normal line of

defense represents the individual's usual state of wellness, or what the individual has become over time. The flexible line of defense also defends against stressors and can be rapidly enhanced or changed to affect factors related to the physiological, psychological, developmental, sociocultural, and spiritual variables. Neuman describes this line as a "buffer" and gives examples of "coping patterns, lifestyle factors, developmental, sociocultural, and belief system influences" that all affect adaption/response to stress acutely and over time (Neuman, 2002, p. 17). Beyond the consideration of stressors on the system, the Neuman Systems Model incorporates primary, secondary, and tertiary levels of prevention/intervention. Including these levels of prevention in the model allows for theoretical congruency/application as more related research is done with respect to nurse manager role redesign and interventions to improve work ability.

This study situates variables within the Neuman Systems Model framework with the nurse manager at the core as an individual and with baseline structure made up of genetics, response patterns, and general strength/weakness. The mechanisms and resources defending the individual from work stress could include a variety of factors like job design, system resources, work environment, and exercise. The normal line of defense, or the usual wellness state, is the product of an individual's work ability [competence + health + mental resources + occupational virtue(values/motivation)] and responses to life over time. The flexible line as a defensive area to strengthen the worker could include a variety of lifestyle and/or work interventions; for example, one study showed that exercise increased work ability by 6.1% (Ilmarinen & Tuomi, 2001). The work-related study questions (e.g., number of direct reports, administrative call duty, number of shifts worked, etc.) could be line of resistance variables on the flexible line of defense, or individual stressors. Because of the systems nature of the Neuman Systems Model, this exploratory study provides the initial evidence to which the Neuman Systems Model can be applied in future research.

OPERATIONAL DEFINITIONS

In addition to the assumptions about the construct of stress and the two frameworks for this study, Work Ability House and Neuman Systems Model, there are additional terms that must be defined operationally.

The *nurse manager* is a registered nurse with 24 hours, 7 days a week responsibility for the operation of a unit providing nursing care to populations as described in the unit's scope of service document. The nurse manager, therefore, bears full responsibility for operations and outcomes in the unit managed.

The *work ability* of the nurse manager is the central concept of this study and describes the individual's ability to perform duties (i.e. to work and be productive in the employment of another with respect to work demands). This ability is the product of an individual's occupational competence, individual health required to perform the work, mental resources, and occupational virtue (Ilmarinen & Tuomi, 2001; Tengland, 2011).

Job stress is defined as occupational stress; and, in this study, specifically describes sources of stress or daily pressure experienced by qualified nurses with some managerial responsibilities at work (Harris, 1989; Williams & Cooper, 1997).

Occupational health is a field that acknowledges the dynamic interaction of individuals with their physical and psychological work environments. It is concerned with the protection of workers' health with respect to occupational disease, accident prevention, and enhancing the overall general health and life productivity of workers (World Health Organization, 2001).

STATEMENT OF RESEARCH PURPOSE, GOALS, AND HYPOTHESIS

Nurse managers of today have increasingly complex roles. In addition to being accountable for multiple aspects of day-to-day operations on the units they manage, they are also directly responsible for translating an organization's multitude of regulations, policies, strategies, and goals to the front-line staff delivering care (Viitanen, Wili-Peltola, Tampusi-Jarvala, & Lehto, 2007). The overall purpose of this research was to complete a quantitative, exploratory inquiry on job stress and work ability in nurse managers working in acute care hospitals in the United States to increase knowledge about these key stakeholders in healthcare.

The long-term goal of the study is to support the business case for well-designed, evidence-based nurse manager roles. The rationale for robust support of the nurse manager role is clearly defined in the literature, which recognizes that nurse managers must have competencies in technical, human, and conceptual skills. Increasing responsibilities are continually added, yet resources are steadily reduced. In addition, nursing education has failed to keep pace with the demand for more complex managerial training (Lin, Wu, & White, 2005). Nurse manager leadership behaviors and degree of focus on quality affect job satisfaction and retention of those they lead (Kleinman, 2004; Lageson, 2004). In a qualitative study of 28 nurse managers at one facility, Parsons and Stonestreet (2003) identified communication, administrative management philosophy, effective administrative systems, successful personal practices, quality of care, and retention as dominant themes associated with successful retention of nurse managers. They found that nurse managers wanted leadership that would listen and provide direction, as well as greater engagement in planning and decision-making within their organizations. Nurse managers reported working 50- to 60-hour weeks and that they were expected to cover additional shifts to keep their units operational. The stress of working long hours and sometimes feeling that compensation was not commensurate with the 24/7, 365-day per

year responsibility for a unit were burdensome. Nurse managers were also very concerned about the quality of care in their units. Despite this, only six of the 28 nurse managers reported plans to look for other roles (Parsons & Stonestreet, 2003). By gathering quantitative data on the state of nurse managers' stress levels and work abilities, this study will explore the hypothesis that work stress experienced by nurse managers in the United States may be impacting their work ability.

IDENTIFICATION OF RESEARCH AIMS AND RESEARCH QUESTIONS

The following aims and research questions guided this exploratory, quantitative, non-experimental study.

Study Aim 1

Measure baseline job stress (Nurse Stress Index score) and work ability (Work Ability Index™ score) specific to nurse managers working in acute care hospitals in the United States, and evaluate the differences between work ability scores (dichotomized total individual Work Ability Index™ score into two groups Group 1: average [work ability levels 1 and 2] and Group 2: good/excellent [work ability levels 3 and 4]) on the six Nurse Stress Index subscales (Managing Workload 1, Managing Workload 2, Organizational Support and Involvement, Dealing with Patients and Relatives, Home/Work Conflict, and Confidence and Competence in Role).

RESEARCH QUESTION 1.1

What are the current levels of job stress (Nurse Stress Index total scores) and work ability (Work Ability Index™ total scores) among nurse managers?

RESEARCH QUESTION 1.2

What are the differences between work ability categories (Work Ability Index™ scores dichotomized into Group 1: average [work ability levels 1 and 2] and Group 2:

good/excellent [work ability levels 3 and 4] across job stress dimensions (Nurse Stress Index subscales: Managing Workload 1, Managing Workload 2, Organizational Support and Involvement, Dealing with Patients and Relatives, Home/Work Conflict, And Confidence and Competence in Role)?

Study Aim 2

Evaluate the relationship between job stress and work ability.

RESEARCH QUESTION 2.1

Is there a relationship between job stress subscales (Nurse Stress Index subscales: Managing Workload 1, Managing Workload 2, Organizational Support and Involvement, Dealing with Patients and Relatives, Home/Work Conflict, and Confidence and Competence in role) and work ability total scores (Work Ability Index™) in nurse managers?

RESEARCH QUESTION 2.2

Which of the job stress subscales (Managing Workload 1, Managing Workload 2, Organizational Support and Involvement, Dealing with Patients and Relatives, Home/Work Conflict, and Confidence and Competence in Role) predict work ability total scores (Work Ability Index™)?

RESEARCH QUESTION 2.3

Which of the job stress subscales (Managing Workload 1, Managing Workload 2, Organizational Support and Involvement, Dealing with Patients and Relatives, Home/Work Conflict, and Confidence and Competence in Role), demographic factors, or work place variables predict increased risk of poor work ability (Work Ability Index™

scores dichotomized into needs improvement [work ability levels 1 and 2] and acceptable work ability [work ability levels 3 and 4])?

Chapter 2: Literature Review

This review of the literature will begin with a brief historical background of stress theory, occupational health, and nurses' work and health as used in the framing of this study. Next, empirical literature findings relevant to the research questions will be presented—specifically literature related to nurse managers' job stress, moderators of stress, and what is known about work ability scores in nurses.

The literature search was conducted searching the following databases: CINAHL, OVID/Medline, PsyInfo, and Web of Science using the search terms of nurse manager, stress, occupational health, and work ability. The database search was limited to English language, peer-reviewed research articles. Additional searches for pertinent literature and writings were performed using Google/Google Scholar and by obtaining significant works of literature related to the study; both books by primary authors and articles known to the researcher or mentioned in the research findings or article bibliographies. In addition, articles that were linked to articles chosen for review and suggested as “similar” by the database publishers (computer pop-ups) were also reviewed as topically appropriate. Finally, the review also included several articles listed as key publications by the Finnish Institute of Occupational Health (2014) website under key research and two articles on the Work Ability Index™ that were provided by the publisher of the instrument during correspondence about instrument reliability and validity.

STRESS AND THE WORKPLACE

Selye, the originator of modern stress theory, and many other scientists have now empirically demonstrated the impact of stress on humans from both a physiologic and psychological perspective (Segerstrom, 2010; Selye, 1976; Vedhara & Irwin, 2005). Myriad of theories have been developed with respect to stress in the workplace, many of which potentially relate to how nurse managers encounter and respond to stress and could

be impacted by work design. A summary of major theories from an overview of *Theories of Psychological Stress at Work* by Dewe et al. (2012) is presented in Table 2.1. Detailed review of work-stress theory is beyond the scope of this study. However, a familiarity with these major theories of stress is useful to inform a perspective on the study variables, possible connections of variables to theory, and the selection of the Neuman Systems Model (2002) as the theoretical framework for the study.

Table 2.1: Major Theories of Stress Related to the Workplace as Identified and Described by Dewe et al. (2012)

Theory	Theorist	Stress Level	Major Ideas/Themes
Transactional Model of Stress	Lazarus (1982)	Dependent on worker's personal cognitive appraisal of threat.	A product made up of the transaction between the individual and the environment produces stress. The primary and secondary appraisal by the individual of the transaction affects how impactful it is and leads to a problem-focused or an emotion-focused view.
Person-Environment Fit	Lewin (1935) & Murray (1938)	Dependent on worker's individual perceptions of fit.	Stress is a product of mismatch between the person and environment. An interaction between the person and the environment is basic to understanding individual reaction to stressors. Based on fit the level of psychological strain can be predicted.
Conservation of Resources Theory	Hobfoll (1989)	Dependent on worker's cognitive assessment and the work environment	Congruency of demands and resources dictates stress. A model with more objective indicators related to personal and environmental resources as they relate to the individual.
Job Demands-Control-Support Model of Work Design	Karasek & Theorell (1990)	Dependent on amount of control the worker has over the demands of work	Control acts as a mediator between stress produced by job demands.

As outlined in Chapter 1, the Neuman Systems Model is an open system, dynamic model in which the individual is at the center surrounded by the environment (home,

workplace, community). Stressors (real or perceived) affect the individual's wellness to varying degrees based on the individual's constitution (physical and mental), lines of defense, and degrees of reaction to stressors (Neuman, 2002, p. 13). All work-stress theories include mediators that impact individual stress level such as perceived threats, perception of fit, work environment, and perceived control. The workplace stress theories all make valid contributions and have been incorporated within the context of the Neuman Systems Model theory to acknowledge the potential contributions of multiple theories and variables to understanding work stress.

NURSES' WORK AND HEALTH

This literature review addressing nurse managers, stress, and occupational health would not be complete without a brief discussion of the current definition of a healthy work place for nurses in the United States, the definition of healthy workplace designated as most appropriate for this study, and a review of literature on the outcomes of work demands and health in the nursing population.

Healthy Workplaces

Healthy work environment has frequently been described in terms of practice environment, care outcomes such as patient mortality, staff retention, and job satisfaction—which are all influenced by communication, collaboration, and leadership (Aiken, Clarke, Sloane, Lake, & Cheney, 2008; Blake, Leach, Robbins, Pike, & Needleman, 2013). Healthy workplaces for nurses also have been associated with the professional practice environment, especially with respect to the achievement of nursing excellence designations such as Magnet® (Disch, 2002; Kramer, Schmalenberg, & Maguire, 2004). The American Association of Critical Care Nurses (2005) lists six essential standards that organizations should focus on when establishing and sustaining healthy work environments for nurses (Table 2.2). These standards align with the Institute

of Medicine’s recommended core competencies for health professionals and are closely aligned with the American Association of Colleges of Nursing document, *Hallmarks of the Professional Nursing Practice Environment* (2002). Nevertheless, the American Association of Critical Care Nurses acknowledges that their standards are not broad enough to cover all elements of a healthy workplace (American Association of Critical Care Nurses [AACCN], 2005). Consideration of worker health outcomes also is needed to establish effective practice environments, a view supported by Shirey (2006) who states, “...limited research has been done on nurse manager health outcomes related to occupational stress” (p. 202).

Table 2.2: American Association of Critical Care Nurses - Essential Standards for a Healthy Work Environment for Nurses

Standard	AACCN Criteria
Skilled Communication	Nurses ‘communication skills are as important as clinical skills
True Collaboration	True collaboration should be sought and promoted
Effective Decision Making	Nurses must be valued partners in making policy, patient care planning and evaluation, & operations decisions
Appropriate Staffing	Must take into account patient acuity and staff skill level
Meaningful Recognition	Nurses are recognized and recognize others for value brought to the organization
Authentic Leadership	Nurse leaders must take responsibility for supporting and creating healthy work environments for nurses

While these descriptions and standards of a healthy workplace are certainly appropriate and applicable to management of stress and creation of healthy workplaces in nursing, a broader view of healthy workplaces that supports nurse manager well-being framed this study and will drive future research. Thus, the definition of a healthy workplace as described by the World Health Organization (WHO) has been adopted for this study.

The World Health Organization definition of a healthy workplace was proposed after an extensive review and analysis by Burton (2010) of workplace health concepts in

published literature. Burton's review focused on articles and ideas related to healthy workplaces with an outlook of workplace health that considered: (1) work, health, and community; (2) interventions aimed at improving worker health, well-being, and productivity; and (3) models of healthy workplaces and improvement processes for changing workplaces. The final World Health Organization definition of healthy workplace is:

A healthy workplace is one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of workers and the sustainability of the workplace by considering the following, based on identified needs: health and safety concerns in the physical work environment; health, safety and well-being concerns in the psychosocial work environment including organization of work and workplace culture; personal health resources in the workplace; and ways of participating in the community to improve the health of workers, their families and other members of the community (Burton, 2010, p.2).

In addition to being recommended by the World Health Organization, the model (Figure 2.3) is also recommended for use at a national level by the United States Centers for Disease Control and Prevention (U.S. Department of Health and Human Services, 2015). Although this study on nurse managers does not address the physical environment, the World Health Organization model also includes the physical environment, which should not be neglected in developing healthy workplaces in healthcare.

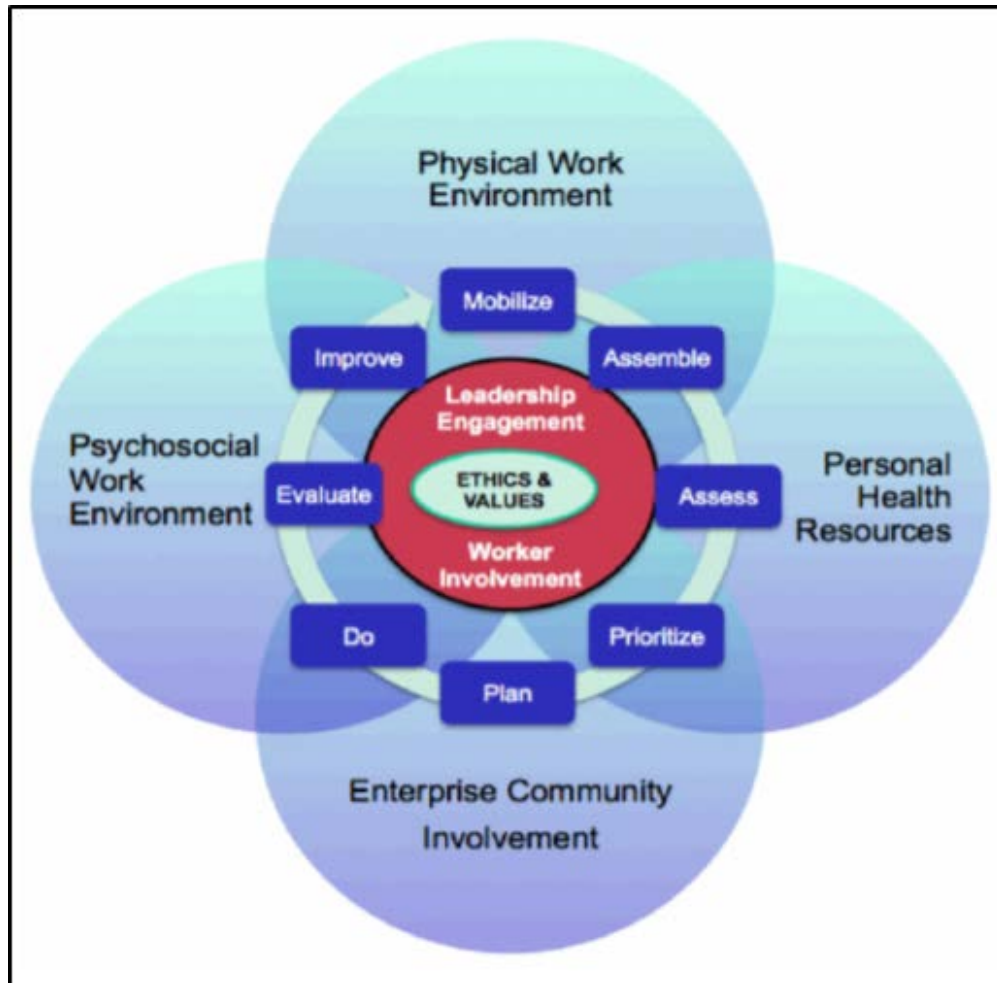


Figure 2.3: WHO Model of Healthy Workplaces and Continuous Improvement

Work Demands and Health in Nurses

The effects of the demands of nursing practice on the self-rated health and well-being of nurses is well documented, although no studies have examined health outcomes in terms of objective morbidity. Quantitative research has consistently linked stress to health and self-reported well-being outcomes. Shamian, Kerr, Laschinger, and Thomson (2002) studied Canadian nurses ($n=6609$) stratified across 160 acute care hospitals and found that better work environment scores were associated positively with health indicators such as burnout, musculoskeletal pain, self-rated general health, and absence due to illness.

The study also reported that full-time nurses had lower health scores than nurses who worked part-time.

Another study focused on health effects was a study of Korean nurses ($n=746$) working in acute-care hospitals by Cho et al. (2014) that found nurses with high mean work-demand scores had poorer self-rated health and problems with sleep, work/family conflict, stress, burnout, lower job satisfaction, and higher intent to leave nursing. A large retrospective study of Brazilian nurses ($n=453-459$) using data from 1999 by Stacciarini and Troccoli (2004) reported a significant positive correlation ($p \leq 0.05$) between occupational stress and poor psychological ($r=0.50$) and physical health ($r=0.43$). An older study of 144 nurse managers in the United States by Cooper, Manning, and Poteet (1988) found that participants had better mental health than a normative comparative group on a mental health subscale; however, the study used tax assessors in the United Kingdom as the normative comparative group. The study also supported the person-environment-fit theory of occupational stress. A multinational survey of nurse leaders by Hader (2010) also indicated a perception of good health by a majority of respondents ($n=1523$); but this sample was made up of only 47.9% nurse managers. Although the survey was open to international participants, many of the statistics were reported compared to United States nurse leader data without stratification of role or nationality.

A qualitative study by Shirey, Ebright, and McDaniel (2008) of five midwestern nurse managers reported typical health effects from both psychological and physical symptoms including insomnia/sleep issues, palpitations, muscle tension, and physical exhaustion. Participants reported stress they attributed to “perceived demands” exceeding resources (p. 128). The nurse managers also mentioned the need to constantly reprioritize and manage role expectations from others that were often unrealistic. In a second qualitative study by Shirey et al. (2010), 18 nurse managers reported health effects of stress related to their work. Insomnia was the most common physiologic outcome reported; two participants also reported having high blood pressure requiring medication. No other qualitative studies

were identified that addressed health effects or work ability. The Work Ability Index™, used in this study to assess work ability, is also a self-report instrument; but the health questions included in the Work Ability Index™ are related to specific physician-diagnosed morbidity and have been shown to be predictive of concrete health outcomes including early retirement and disability (Ilmarinen & Tuomi, 2001; Tuomi, Huuhtanen, Nykyri, & Ilmarinen, 2001).

NURSE MANAGERS AND STRESS

The literature on nurse managers and stress views the nurse manager to be in a dynamic role that is increasingly complex, frequently emotionally exhausting, and reflective of the rapid expansion and re-structuring of healthcare systems. Rather than providing increasing ancillary support with expansion, hospitals have increased responsibility and spans of control without providing nurse managers with simultaneous changes in support levels (American Association of Colleges of Nursing, 2002; Hader, 2010; Shirey et al., 2008; Udod & Care, 2011).

Qualitative studies have focused on perceptions and moderators of stress, and how nurse managers coped with stress. Because coping is not a variable of interest in this study, findings related to coping are not included in this literature review. Udod and Care (2011) in a descriptive, qualitative study of nurse managers working in a tertiary care center in Canada found that multiple demands in the nurse manager role created significant stress and nurse managers had limited coping abilities. Identified stressors included financial responsibility, inadequate human resources, managing others, intrapersonal distress, the middle management role, and competing priorities. Work-life imbalance was also prevalent. The qualitative study was limited by the sample size (five participants), location, and management experience (1-3 years). An additional limitation involved the methodology, which did not indicate sampling to thematic saturation or a strong method of analysis.

Shirey et al. (2010) conducted a second qualitative study of nurse managers from three U.S. hospitals (1 Magnet/2 non-Magnet; $n=21$). The researchers used 14 open-ended questions to explore: (1) situations contributing to nurse manager stress, (2) their individual coping strategies, and (3) health-related outcomes. Three major themes emerged as stressors for nurse managers: people and resources, tasks and work volume, and performance expectations. Subthemes within each major theme revealed the complexity and stressful nature of the nurse manager role. One unique finding was related to comanagers (two in the sample). Comanagement consisted of two individuals sharing management responsibility for nursing unit operation. Comanagers experienced less stress and were the only participants who did not report “the overwhelming nature of nurse manager work” and “frequent feelings of inadequacy” (pp. 88-89). Comanagers reported being more supported and better able to deal with the volume of work. Subthemes with respect to health-related outcomes included psychological outcomes, physiologic outcomes, and functional ability. A strong argument was made for more quantitative research on nurse managers to build the foundation of knowledge required to make a “business case” for improving the nurse manager role through individual, organizational, and structural means (pp. 89-90). Limitations of the study included reporting statistical findings on the qualitative sample in the results section, for example, “67% of the sample had adverse psychological outcomes” (p. 88), self-reported data, and structure and time constraints related to the use of a prescribed number of questions (14) answered in a prescribed time limit of one and one-half to two hours. As a result of the Shirey et al. (2010) findings on less stress in comanagers, a question related to comanagement was added to the work variables in this study. However, only five participants in the nurse manager work ability study sample ($n=92$) reported being/having comanagers, suggesting that this form of nurse management is uncommon but potentially useful.

Generally, quantitative studies focused frequently on stress/role stress, mental health, reasons to leave, potential predictors of stress, or moderators of stress. One study

of nurse managers in the southwestern United States ($n=480$) conducted by Kath, Stichler, Ehrhart, and Schultze (2013) examined five potential predictor variables: role ambiguity, role overload, role conflict, organizational constraints, and interpersonal conflict. The results indicated that role overload was the highest predictor of stress (13% of the variance), followed by organizational constraints (7%), and role conflict (6%). In another paper on the same sample, Kath, Stichler, and Ehrhart (2012) identified autonomy, social support, and predictability as variables that buffered stress. Van Bogaert et al. (2014) in a recent study of nurse managers ($n=365$) working in two university hospitals and 15 general hospitals in Belgium found that one out of six nurse managers had high to very high feelings of emotional exhaustion. Using a hierarchical regression model, role conflict and role meaningfulness were predictors of work related stress and well-being. The job and role variables explained 25% of the variance for emotional exhaustion, and job characteristics explained an additional 11%. Authority to make decisions, work agreements, and work/home interference were also risk factors for emotional exhaustion and leaving the nurse manager role. Positive feelings related to work/home life, collaboration, and positive perception of work agreements were found to decrease emotional exhaustion, accounting for 52% of the variance. Lindholm, Dejin-Karlsson, Östergren, and Udén (2003) in a Swedish study of nurse managers ($n=205$) supported the connection between the effect of high job demands on self-rated health and sick days. Each of these examples support a potential relationship of job stress variables similar to subscale job stress variables in the Nurse Stress Index and health outcomes included in the Work Ability Index™.

NURSES AND WORK ABILITY

No studies could be located that evaluated the work ability of nurse managers in the United States using the Work Ability Index™. This section of the literature review will provide an overview of literature pertaining to nurses and work ability in other countries.

The European NEXT (Nurses' Early Exit; 2009) study was a cross-sectional survey assessment of over 77,000 nurses in 10 European countries; the study had a 39.7% response rate. The NEXT study examined nurse working conditions, reasons for leaving nursing, identification of those at risk for leaving nursing, definition of "health ageing" in health care work, baseline data for "targeted health promotion" to preserve the work ability of nurses, and the impact of work mobility on Polish and Slovakian countries.

Camerino et al. (2006) used data from the NEXT study in a quantitative study examining the relationship between age and perception of work ability, and the association between perceived work ability and intent to leave nursing. The authors attributed the importance of the study to the ageing population, larger numbers of older people who are no longer employed, and the small percentage of RNs working until the traditional retirement age of 65. The Work Ability Index™ scores of nurses ≥ 45 years of age were significantly lower ($p < 0.01$) than younger groups. Variations in Work Ability Index™ scores were noted between nurses from different countries, and differences in age-related scores were more prominent in some countries. An odds ratio calculation supported the association between low Work Ability Index™ scores and intent to leave the nursing profession. A second paper by Camerino et al. (2008) with data from the NEXT study representing seven countries ($n=7516$) used the Work Ability Index™ as the outcomes measure and work schedule, sleep, rewards, satisfaction with pay, work involvement and motivation, and satisfactory hours as predictor variables. Sleep quality and favorable psychosocial factors were found to significantly affect work ability.

Additional papers using the Work Ability Index™ in studies of nurses and occupational health are numerous, and many were located searching Web of Science. Some examples include a study of important indicators of women's occupational health, the effect of physical exercise on work ability in healthcare workers, work ability and work related stress in obstetrical nurses, and others (Jakobsen et al., 2015; Nowrouzi et al., 2015; Tavakoli-Fard, Mortazavi, Kuhpayehzadeh, & Nojomi, 2016). Wide-spread, successful use

in Europe of the Work Ability Index™ as a measure of worker occupational health supports the approach of this study using the Work Ability Index™ as a measure of occupational health in nurse managers in the United States to obtain baseline work ability data in nurse managers.

CONCLUSION

The literature demonstrates that nursing is a stressful occupation and there is a need to develop healthy workplaces for nurses. There is also a need to look at the nurse manager within the larger context of the work environment and a duty to research occupational health measures that will promote well-being, productivity, and an optimal working life for nurse managers. Since no prior studies have been done on work ability and stress in nurse managers in the United States using the Work Ability Index™, this study on occupational stress and work ability in nurse managers fills this gap.

Chapter 3: Research Design and Methods

This chapter will describe in detail the research design and study methodology, including the participants, instruments, procedures, and data analysis.

RESEARCH DESIGN

The quantitative, non-experimental, and exploratory study design included an online survey with two instruments, as well as additional investigator-generated questions used to assess job stress, work ability, workplace, and demographic variables in nurse managers.

Variables

Job stress was measured using the Nurse Stress Index (Harris, 1989) and work ability was measured using the Work Ability Index™ (Rautio & Michelsen, 2013). The six subscales within the Nurse Stress Index (managing workload 1, managing workload 2, Organizational Support and Involvement, Dealing with Patients and Relatives, Home/Work Conflict, and confidence and competence in role) were used as variables to identify potential relationships between categories of nursing job stressors and work ability. Finally, potential confounding variables and variables characterizing the sample were characterized using investigator-generated workplace questions and standard demographic questions.

PARTICIPANTS

Human Subjects Protection

The potential risk of participation in the study was minimal, as all data were collected anonymously and there was no mechanism for identifying the participants. Before the study began, approval of all procedures and protocols was obtained from the

University of Texas Medical Branch at Galveston Institutional Review Board. Participation in the online survey established consent.

Sample Inclusion and Exclusion Criteria

A power analysis performed before the study using a contact population of 2000 with a 95% confidence interval, a 5% margin of error, and a 50% response distribution recommended an ideal sample size of 323 (Raosoft, 2004). Data collection was discontinued after 6.5 months because response to recruitment materials had ceased. Factor analysis to verify subscale validity was not possible because the final sample size was 92, a study limitation.

Participants were registered nurses (RNs) working as nurse managers in acute care hospitals in the United States who were able to speak, read, and write English. The study definition of nurse manager was a participant who identified themselves as full-time employees with 24/7 responsibility for the operation of a unit delivering nursing care to a patient population. Exclusion criteria included: less than one year of experience as a nurse manager, working at a hospital with fewer than 25 beds, and not supervising staff giving direct patient care.

Setting and Data Collection

The setting was online and a multimodal recruitment approach was implemented to reach the broadest spectrum of nurse managers. A link to the survey (Appendix A) was embedded in web postings to nursing-related professional networking and social media sites, web postings to the investigators' personal social networking sites, mailings to hospitals in all regions of the United States, and one purchased announcement through a professional nursing association (Appendix B). There was no way to determine how many individuals viewed the survey link. Of 163 respondents who opened the survey link, 63 either did not meet survey criteria or failed to complete the survey. The final sample size

was 92 participants. All 92 answered 100% of the questions on both the Nurse Stress Index and the Work Ability Index™.

INSTRUMENTS

Permission was obtained for use of the Nurse Stress Index (Harris, 1989) and the Work Ability Index™ (Rautio & Michelsen, 2013). In addition, investigator-generated questions were used to measure work related variables and demographic variables.

The Nurse Stress Index

The Nurse Stress Index (NSI) construct of interest was occupational nursing stress, described as sources of stress or daily pressure experienced by RNs with some managerial responsibilities (Harris, 1989; Williams & Cooper, 1997). The Nurse Stress Index includes 30 items organized in six subscales with five items each utilizing a 5-point Likert scale (1=*no pressure* to 5=*extreme pressure*). Before the survey, the term pressure/stressor was defined as a problem, something you find difficult to deal with, or about which you feel worried, anxious, or stressed. The possible score for each subscale ranged from 1-25. The possible total individual score ranged from 30-150. Minimal wording modifications were made in the Nurse Stress Index to ensure that survey question wording implied the appropriate administrative structure (e.g., where a question stated “Management expects me to interrupt my work for new priorities,” the word ‘management’ was changed to ‘administration’).

The Nurse Stress Index (Harris, 1989) is made up of six subscales: Managing Workload 1 (MW1); Managing Workload 2 (MW2); Organizational Support and Involvement (OSI); Dealing with Patients and Relatives (DPR); Home/Work Conflict (HWC); and Confidence and Competence in Role (CCR). Managing Workload 1 and Managing Workload 2 measure pressure/stress associated with insufficient time and resources related to task completion and deadlines. These subscales measure the degree to

which crisis and trivial non-nursing tasks overshadow professional planning, and the extent to which demands of others and prioritization of tasks add to feelings of pressure/stress. To differentiate between these two management subscales, the Managing Workload 1 and Managing Workload 2 subscale designations were changed to Time Demands and Trivial Tasks (TDT) and Prioritizing Resources and Workload (PRW), respectively. The Organizational Support and Involvement subscale characterizes feelings related to feedback the nurse manager receives when their performance is not optimal. It reflects pressure/stress related to lack of organizational support and lack of involvement in decision-making and work planning. The Dealing with Patients and Relatives subscale reflects pressure/stress in three areas: dealing with death and dying, violence in nursing, and the nurse-patient relationship. The Home/Work Conflict subscale measures pressure/stress related to home-work conflict and dealing with problems that may be occurring at home. The Competence and Confidence in Role subscale captures pressure/stress related to organizational change, confidence in ability to cope at work, and areas/degrees of work responsibility (See Appendix C).

The construct of occupational stress in qualified nurses was tested for reliability throughout the three stages of Nurse Stress Index development primarily through factor analysis and computation of coefficient alpha. A summary review of English peer-reviewed articles published between 1989 and 2011 using the Nurse Stress Index revealed alpha reliability values ranging from 0.74 to 0.81 (Harris, 1989; McGowan, 2001) (See Appendix D).

The Work Ability Index™

The Work Ability Index™ (WAI™) is a predictively validated instrument initially developed by the Finnish Institute of Occupational Health (Tuomi, Ilmariennen, Jahkola, Katajarinne, & Tulkki, 1998). It was later updated in 2012 and 2014 by Rautio, Michelsen, Hopsu, and Seitsamo to identify individuals who are at risk of withdrawing from the

workforce and/or developing disability related to reductions in work ability. The Work Ability Index™ is made up of nominal, ordinal, and Likert items covering seven dimensions that are combined into a work ability score ranging from 7-49. Ilmarinen and Tuomi (2001) described validity and reliability testing of the Work Ability Index™ during the index development through cross-sectional studies including clinical exams, correlational analyses, and follow-up inquiries (predictive validity). The Finnish Institute of Occupational Health (2014) reports an alpha reliability of 0.83 for the Work Ability Index™.

DIMENSIONS OF THE WORK ABILITY INDEX™

The seven dimensions are the individual's:

- Current work ability compared with their lifetime best
- Work ability in relation to the demands of the job
- Number of diagnosed illnesses or limiting conditions
- Estimated impairment due to diseases/illnesses or limiting conditions
- Amount of sick-leave taken during the last year
- Prognosis of their work ability in two years' time
- Estimate of their mental resources

The total scores can also be broken down into four score categories (levels) with corresponding objectives of measures:

7-27 points: poor - objective of measures: restore work ability

28-36 points: average - objective of measures: improve work ability

37-43 points: good - objective of measures: support work ability

44-49 points: excellent - objective of measures: support work ability

(Rautio & Michelsen, 2013). For the purposes of analysis in this study, these four categories were dichotomized into two groups: Group 1: average (work ability levels 1 and 2) and Group 2: good/excellent (work ability levels 3 and 4). Because the Work Ability

Index™ has been used primarily in Europe, this study will add to the body of knowledge related to use of this psychometric instrument in the United States.

Work-related Variables and Demographic Questions

Workplace and demographic questions were used to characterize the sample and rule out significant extraneous covariates that might need to be controlled for in the analyses of research questions. The workplace variables were nursing excellence designation, comanager status, administrative call, direct patient care, shift coverage, committee work, hospital size, type of unit, unit size, number of direct reports, unit schedule, and timekeeping. Demographic variables include gender, ethnicity, education, age, years as RN, and years as nurse manager.

PROCEDURES

Recruitment materials (Appendix B) were distributed by both use of the internet and postal mailing. Web announcements with a link to the survey were placed on the following nursing professional networking websites: Allnurses.com; NurseZone.com; NursingVoices.com; Sigma Theta Tau International Global Member Forum; and Association of Operating Room Nurses Nurse Link. The investigator posted web announcements to personal social networking sites Twitter, Facebook, Google+, and LinkedIn. Emails with study information and electronic copies of printable flyers with the survey link were sent to the primary investigator's personal network of professional colleagues. The American Hospital Association Guide to the Health Care Field (American Hospital Association, 2008) was used to randomly select hospital systems in the west, midwest, northeast, and southern geographic regions of the United States as defined by the U.S. Department of Commerce, Economics and Statistics Administration (2000). Letters were sent by postal mail to the Chief Nursing Officer or Director of Nursing at each institution. Each letter contained a cover letter inviting the nurse leader's institution to

participate, a double-sided flyer with a study description and announcement with link to the survey, and five business cards with the study link. Recipients were requested to distribute the research participation opportunity to their own personal network and places of work within their institutional guidelines. An announcement in the American Association of Nurse Executives *Enews Update: Research Participation Opportunities* was also purchased.

DATA ANALYSIS

Data were analyzed using SPSS (Version 23.0). Significance of all analyses were set at the $p=.05$ level and all variables were assessed for homogeneity and normality. Analyses specific to each aim and related research question are addressed in Chapter 4.

Chapter 4: Results

This chapter presents the results of the study beginning with psychometric analyses, preliminary analysis, descriptive statistics for the sample demographics, work-related questions, and study instruments. Results addressing the two specific aims of the study, (1) measuring baseline job stress and work ability; and (2) evaluating relationships between work job stress and work ability, and results of analyses for each specific research question also are presented.

PSYCHOMETRIC ANALYSES

Nurse Stress Index

Cronbach's alpha reliability scores for the Nurse Stress Index are presented in Table 4.1. All subscales except the Dealing with Patients and Relatives had reliability scores greater than 0.70, indicating satisfactory reliability. The reliability score for the Dealing with Patients and Relatives subscale was 0.67, indicating fair reliability. The Nurse Stress Index individual total score alpha value was 0.93, reflecting a degree of redundancy when subscales are combined. These alpha levels all indicate instrument reliability in the acceptable range for this sample. The Nurse Stress Index management subscales, Prioritizing Resources and Workload and Time Demands and Trivial Tasks, were found to be highly correlated constituting a violation of assumptions for regression analyses (i.e., multicollinearity); therefore, regression analyses were performed with two sets of variables that included each of the management subscales separately. Factor analysis was not completed due to a sample size of fewer than 100 participants.

Work Ability Index™

The Work Ability Index™ is an index made up of eight sections, seven of which are graded to arrive at a combined work ability score. The Work Ability Index™ individual

total score is typically distributed into four work ability categories: poor=7-27; average=28-36; good=37-43; and excellent=44-49 (Rautio & Michelsen, 2013). Of the seven Work Ability Index™ domains, only two were appropriate for reliability analyses. Section 2 on work demands (Cronbach's alpha=0.763) and Section 7 on psychological resources (Cronbach's alpha=0.795) each demonstrated acceptable reliabilities with Cronbach's alpha values >0.7.

Radkiewicz & Widerszal-Bazyl (2005) analyzed the psychometric properties of Work Ability Index™ using the NEXT (2009) data set. The instrument was examined for internal reliability, discriminate power, factor validity, and correlational aspects of the construct validity. It was determined that the Work Ability Index™ was “internally coherent, predictive, and cross-nationally stable.” It was recommended that the question related to number of sick days be eliminated as “meaningless and unnecessary” (p. 304).

Table 4.1: Nurse Stress Index Descriptive Statistics and Reliability

Nurse Stress Index	Number of Items	Cronbach's α
<i>NSI Individual Total Score (sum of subscales)</i>	30	0.928
TDT subscale	5	0.837
PRW subscale	5	0.790
OSI subscale	5	0.850
DPR subscale	5	0.667
HWC subscale	5	0.744
CCR subscale	5	0.788

TDT: Time Demands & Trivial Tasks; OSI: Organizational Support & Involvement; DPR: Dealing with Patients/Relatives; HWC: Home/Work Conflict; CCR: Confidence & Competence in Role; PRW: Prioritizing Resources/Workload

PRELIMINARY ANALYSIS

The preliminary analyses evaluated each variable for subcategory sample sizes, distribution problems, homogeneity, and missing data. Variables where the sample size was too small for analysis (e.g., states, unit types, etc.) were collapsed into larger subcategories.

NURSE MANAGER SAMPLE DESCRIPTION

Data collection began on July 29, 2015 and continued through February 9, 2016. Invitations to participate were distributed using a multimodal approach via the investigator's personal social network, web posting to professional websites, one purchased newsletter announcement, and two waves of traditional postal service recruitment letter mailings. A total of 163 respondents opened the survey link. Of those responses, 63 either did not meet study criteria and exited the survey or were eliminated as incomplete responses. Manual examination of responses resulted in elimination of an additional four participants because their answers indicated that they did not meet the stated definition of a nurse manager, resulting in a final sample size of 92. All participants in the final sample answered 100% of the questions on the Nurse Stress Index and the Work Ability Index™.

Age, Gender, & Ethnicity

This sample of nurse managers ($n=92$) had an average age of 47.9 (± 9.6) years with a range of 27-64 years (see Table 4.2). The *Highlights of the National Workforce Survey of Registered Nurses* (Budden, Zhong, Moulton, & Cimiotti, 2013) reported an average age of registered nurse respondents ($n=34,880$) in the United States as 50 years. The sample ethnicity was predominantly white and gender was predominantly female. According to the U.S. Department of Health and Human Services (2010), the registered nurse population in the United States is predominantly white and female. Therefore, this sample is typical of the nurse manager population in the United States.

Table 4.2: Age, Gender, & Ethnicity (N=92)

Characteristic	<i>n</i>	Mean (SD) or %
<i>Age</i>		47.90 ($\pm$ 9.66)
<i>Gender</i>		
Male	19	20.70
Female	73	79.30
<i>Ethnicity</i>		
Non-White	10	10.90
White	82	89.10

Level of Education and Years of Nurse Management Experience

The majority of respondents had Bachelor of Science degrees in Nursing (51.09%, $n=47$). Other education included Master's degrees (38.04%, $n=35$), Associate's degrees (5.43%, $n=5$), Doctor of Nursing Practice (2.17%, $n=2$), Doctor of Philosophy (2.1%, $n=2$), and Diploma (1.09%, $n=1$). Budden et al. (2013) reported that in the United States, the distribution by education for RNs was Diploma (11%), Associate's Degree (28%), Baccalaureate Degree (34%), Master's Degree (12%), Doctoral Degree-Nursing Practice (<1%), and Doctoral Degree-Nursing PhD (1%). Thus, this sample is reflective of the national distribution of education among RNs. However, due to the small number of respondents in several subcategories, the variable was reorganized into Diploma or Associates Degree (7%, $n=6$), Bachelor's Degree (51%, $n=47$), and Graduate Degree (42%, $n=39$) for the purpose of statistical analysis. Participants reported nurse management experience ranging from 1-35 years with an average of 8.31 years ($\pm$ 7.68), a median of 6 years, and a mode of 2 years.

Geographic Location, Hospital Size, and Nursing Excellence Designation

U.S. Department of Commerce Economics and Statistics Administration (2000) geographic regions were used to describe the locations of participating nurse managers (see Figure 4.1). The sample was primarily from the south (48%, $n=44$), followed by the

midwest (25%, $n=23$), the west (16%, $n=15$), and the northeast (11%, $n=10$). A Kaiser Family Foundation (2016) report generated from 2014 American Hospital Association Annual Survey data indicated that there are approximately 4,926 community hospitals (i.e., nonfederal) in the United States. The five states with the most community hospitals by geographic area were: in the south (13%), Texas ($n=426$) and Florida ($n=210$); the west (7%), California ($n=343$); the northeast (4%), Pennsylvania ($n=196$); and the midwest (4%), Illinois ($n=189$). Thus, while the sample reflects a larger percentage of hospitals in the south; it has fewer participants from the two geographic regions with the next greatest numbers of community hospitals, the west and northeast, and higher representation from the midwest.

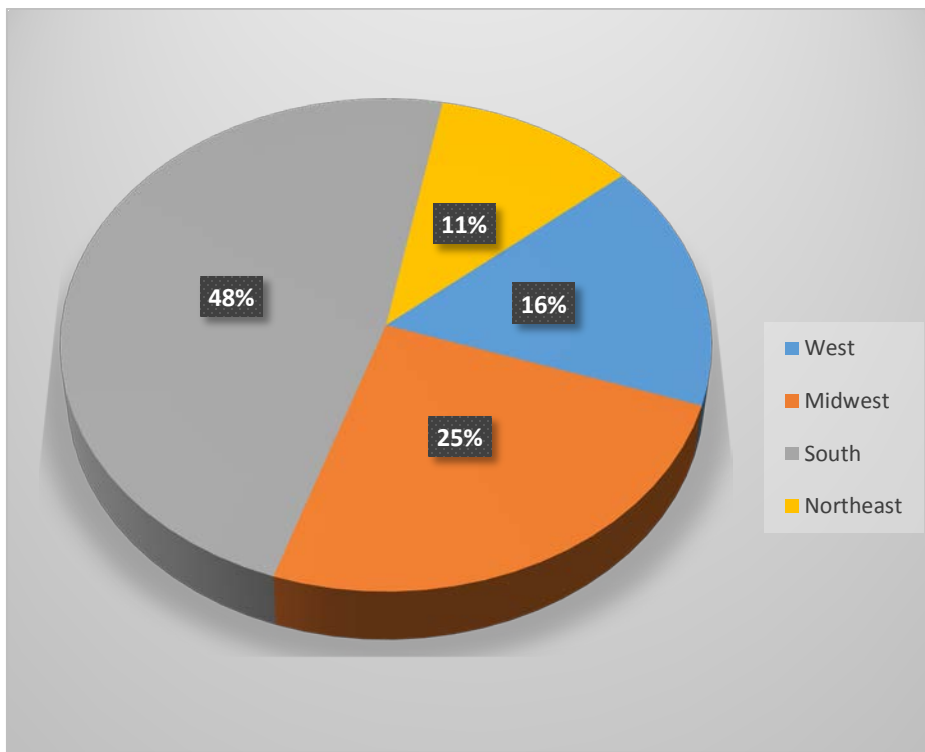


Figure 4.1 Geographic Locations of Sample Respondents

Only nurse managers working in hospitals with more than 25 beds were included in the sample. Participants worked in hospitals with an average of 348 (± 198.76) beds. The minimum number of beds was 34 and the maximum number of beds was 850. Based on

Centers for Disease Control and Prevention (2015) figures on community hospital distribution by number of beds in the United States, the sample heavily represented nurse managers who worked in larger hospitals >300 beds (see Table 4.3).

Slightly more than half ($n=48$, 52.20%) of the nurse managers sampled worked in hospitals with no nursing excellence designation. Slightly more than a quarter ($n=25$, 27.20) worked in hospitals with a Pathway to Excellence®, and one fifth ($n=19$, 20.70%) worked in hospitals designated as Magnet® hospitals. In the United States, there are 137 Pathway to Excellence® hospitals and 433 Magnet® hospitals (American Nurses Credentialing Center, 2016a; 2016b).

Table 4.3: Total United States Community Hospitals by Size and Sample Hospital Size Distribution

Number of Beds	Community Hospitals ($n=4505$)	Sample Hospital Size ($n=92$)
25-49	26.33% ($n=1186$)	3.26% ($n=3$)
50-99	21.29% ($n=959$)	13.04% ($n=12$)
100-199	22.09% ($n=995$)	9.78% ($n=9$)
200-299	12.67% ($n=571$)	9.78% ($n=9$)
300-399	7.41% ($n=334$)	19.57% ($n=18$)
400-499	4.06% ($n=183$)	20.65% ($n=19$)
500 ≥	6.15 % ($n=277$)	23.91 % ($n=22$)

Workload Related Variables

Nurse managers often have varying degrees of responsibility. These variables were included to assess for variance in workload. Workload variables were grouped as management of unit variables, role as direct care provider variables, and administrative duties variables.

MANAGEMENT OF UNIT RELATED VARIABLES

The unit and management variables are the type of nursing service area, the number of licensed beds, the number of direct reports, and the management arrangement (Table 4.4). Respondents managed a variety of unit types. Based on typical reporting structures

and patient throughput practices, the seven original response categories were collapsed to four types of nursing service areas: acute care, critical care, procedural area, and other. Of the total respondents to this question, one third worked in acute care, with the second largest group working in a procedural area, followed by critical care and other. While the range of licensed beds in the service area managed was large (0-65), the average number of beds was 24 (± 15.25), with a median of 24, reflecting a normal distribution. The number of direct reports was defined as the number of employees for which a nurse manager performed annual evaluations. The range for respondents was broad, 1-150, and the difference between the mean (51.28 ± 33.62) and median (46) number of direct reports indicates a proportional distribution biased towards larger numbers of direct reports.

Finally, variability also existed with respect to the amount of direct role support nurse managers received. Slightly more than half of nurse managers had charge nurses or supervisors to whom they could delegate some duties. But, over one third of the sample worked alone and only 5 respondents had a comanager with whom they shared duties.

Table 4.4: Management of Unit Related Variables (N=92)

Characteristic	<i>n</i>	Mean (SD) or %
<i>Type of Nursing Service Area</i>		
Acute Care	33	35.90%
Procedural Area	27	29.30%
Critical Care	18	19.60%
Other	14	15.20%
<i>Number of Licensed Beds in Service Area Managed</i>		24.22 (± 15.25) Min: 0 Max: 65
<i>Number of Direct Reports</i>		51.28 (± 33.62) Min: 1 Max: 150
<i>Management Arrangement</i>		
Work alone, no assistant or supervisor	38	41.30%
Comanager/share all duties	5	5.40%
Charge nurses or supervisors do some duties	49	53.30%

ROLE AS A DIRECT CARE PROVIDER AND SHIFT COVERAGE

Nurse managers are sometimes required to deliver patient care. For the purpose of this study, direct patient care was defined as the delivery of any direct care to patients including nursing admission, head-to-toe assessment, performance of procedures, passing medication, or other hands-on care. One fifth of the nurse managers in the study reported no direct patient care; a quarter reported some direct care, but they did not work whole shifts; and more than half reported performance of direct patient care including working entire shifts (Table 4.5).

Table 4.5: Direct Care Responsibilities and Shift Work

Responsibility	<i>n</i>	Percent
<i>Direct Care Provider to Patients (N=92)</i>		
No direct care of patients	20	21.70
Yes, direct care; but not a whole shift	24	26.10
Yes, direct care including whole shifts	48	52.20
<i>Nurse Manager covering entire shifts (N=73)</i>		
Yes	46	63.01
No	27	36.97
<i>Nurse Manager covering day shifts (N=73)</i>		
Yes	56	76.71
No	17	23.29
<i>Nurse Manager covering night shifts (N=71)</i>		
Yes	37	52.11
No	34	47.89
<i>Number of Shifts Worked in the Last 30 Days</i>		
	54	
Mean	3.35 (± 4.62)	
Median	2	
Minimum	0	
Maximum	24	
Skewness	2.909	

Only those respondents who indicated performing direct care were directed to the question related to shifts. The number of participants responding affirmatively to the

questions related to direct patient care was $n=73$. Of that number, two thirds of the nurse managers worked entire shifts providing direct patient care. More than 75% of nurse managers answered yes to covering day shifts and slightly more than half of responding nurse managers indicated working night shifts. Alternatively, the difference between the mean (3.35 ± 4.62) and median (2) number of shifts worked indicates a proportional distribution biased towards larger numbers of shifts worked.

ADMINISTRATIVE DUTIES

Workload related to administrative duties can vary among units and institutions. The last group of workload related questions explored the following administrative duty requirements: administrative call, committee meeting attendance, quality metric reports, and staffing schedules/timekeeping (Table 4.6).

Table 4.6: Administrative Duties Required ($N=92$)

Characteristic	<i>n</i>	Mean (SD) or %		
<i>Administrative Call Responsibilities</i>				
	Yes	26	28.30 %	
	No	66	71.70%	
<i>Number of Committee Meetings Monthly</i>		92	9.39 (±7.07) Min: 8 Max: 45	
<i>Number of committee meetings the NM reported quality metrics to at least quarterly</i>		92	2.43 (±1.906) Min: 0 Max: 10	
Staffing Schedules and Timekeeping				
<i>I complete the staffing schedule</i>		92		
	Yes	45	48.91%	
	No	47	51.09%	
<i>I only have to review and approve the staffing schedule</i>		92		
	Yes	51	55.43%	
	No	41	44.57%	
The following timekeeping questions were CHECK ALL THAT APPLY with “no” answers assumed:				
Nurse managers who have timekeepers for time edits	39.13% (<i>n</i> =36)	Yes	60.87% (<i>n</i> =56)	No
Nurse managers who have to edit associates time	50.00% (<i>n</i> =46)	Yes	50.00% (<i>n</i> =46)	No

Characteristic	<i>n</i>	Mean (SD) or %		
Nurse managers who have to approve all time-off requests	64.13% (<i>n</i> =59)	Yes	35.87% (<i>n</i> =33)	No
Nurse managers who review and approve time sheets	68.48% (<i>n</i> =63)	Yes	31.52% (<i>n</i> =29)	No

The majority of the sample of nurse managers did not take administrative call. Because the definition of nurse manager included 24/7 responsibility for unit operations in the unit managed, this would not mean that they didn't take calls for issues related to their units around the clock. Administrative call would refer to taking nursing administrative call for the hospital. Overall, it appears that administrative call did not heavily influence workload in this sample.

The range of committee meetings attended monthly was also quite large (2-45), with a mean of 9.39 (± 7.07). Based on the frequency data (See Figure 4.2), 80% of the sample had between 2 and 12 monthly committee meetings with considerable variability reflecting the ubiquitous nature of regular committee meetings as part of the managers' typical workload.

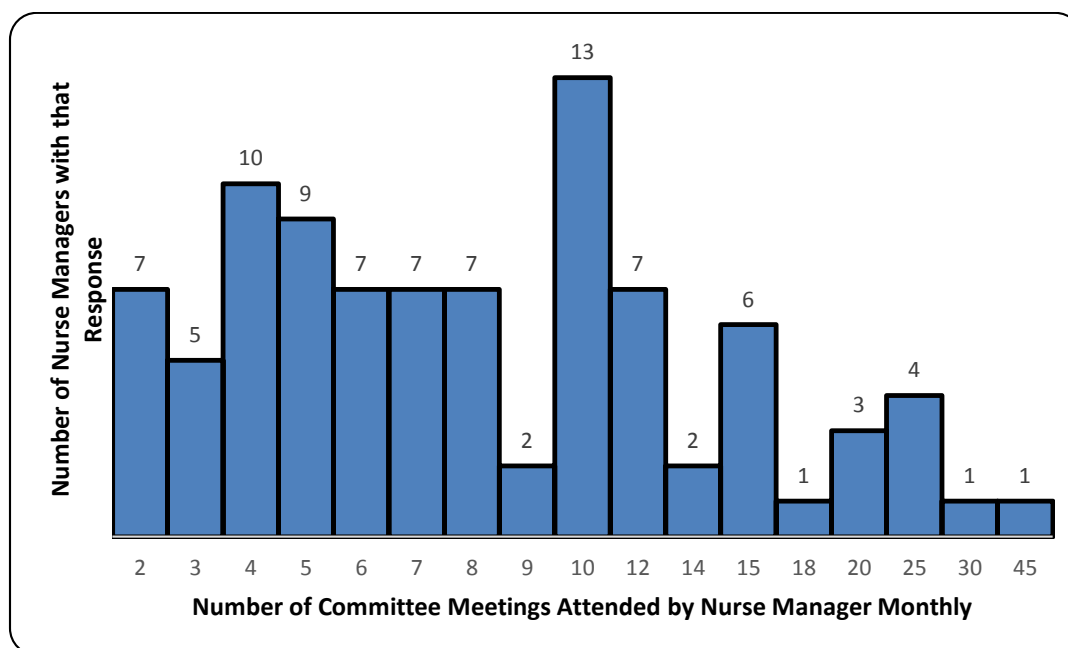


Figure 4.2: Frequency Table - Number of Monthly Committee Meetings

The number of quality metric reports that nurse managers were required to present in committee meetings at least quarterly was more normally distributed. The most frequent number of metric reports due at least quarterly was 2 ($n=29$), followed by 3 ($n=13$) and 1 ($n=11$). Only 25% ($n=23$) of the sample had responsibility for 4 or more quarterly metric reports, and 17% ($n=16$) reported zero responsibility for reporting quality metrics to committees at least quarterly.

The last set of workload variable questions related to staff scheduling and timekeeping (Table 4.6). Participants were asked two questions about their responsibility related to the staffing schedule, followed by a group of five statements that described timekeeping responsibilities. Respondents were asked to select all applicable answers. More than half of the nurse managers did not have timekeepers for time edits and were evenly split between those who edited associates' time themselves and those who did not. A majority indicated they were responsible for review and approval of all leave requests and time sheets. Approximately half of the sample appeared to have much more support when it came to schedules and timekeeping. With 53% of the sample delegating duties to a supervisor or charge nurse, this was not surprising.

AIMS AND ASSOCIATED RESEARCH QUESTIONS

Aim 1 – Research Questions 1.1 & 1.2

The aim of the first two research questions involved: (1) measurement of baseline job stress (Nurse Stress Index) and work ability (Work Ability Index™) in nurse managers working in acute care hospitals in the United States; and (2) evaluating differences between work ability levels and Nurse Stress Index total individual scores and subscale job stress variable scores: Time Demands and Trivial Tasks; Prioritizing Resources and Workload; Organizational Support and Involvement; Dealing with Patients and Relatives; Home/Work Conflict; and Confidence and Competence in Role.

RESEARCH QUESTION 1.1

Research Question 1.1 asks what are the current levels of job stress (Nurse Stress Index total individual scores and subscale scores) and the current work ability levels (Work Ability Index™ individual scores) of nurse managers working in acute care hospitals in the United States? To answer this question, a discussion of Nurse Stress Index individual and subscale scores (Table 4.7) will be followed by presentation of the Work Ability Index™ individual work ability and individual scores (Table 4.8) and score groups (Table 4.9).

Table 4.7: Nurse Stress Index Individual and Subscale Scores (N=92)

	Min	Max	Mean	Median	Mode	Std. Deviation	Skewness
NSI Individual Total Score	39	128	73.03	72.50	58.00	18.93	0.407
TDT	5	24	15.34	15.00	17.00	4.351	0.259
PRW	7	25	14.84	15.00	15.00	4.303	0.152
OSI	5	25	12.82	12.00	8.00	4.921	0.486
DPR	5	19	10.52	10.50	9.00	3.366	0.258
HWC	5	23	8.11	8.00	5.00	3.297	2.107
CCR	5	22	11.41	11.00	7.0	4.141	0.671

TDT: Time Demands & Trivial Tasks; OSI: Organizational Support & Involvement; DPR: Dealing with Patients/Relatives; HWC: Home/Work Conflict; CCR: Confidence & Competence in Role; PRW: Prioritizing Resources/Workload

The total Nurse Stress Index individual scores could range from 30-150 and were approximately symmetric in this sample, indicating a normal distribution between low to extreme levels of pressure/stress (Table 4.7). Only the Home/Work Conflict subscale was significantly positively skewed, indicating a slightly non-normative distribution, but mean and standard deviation results were comparable with the other subscales.

The six Nurse Stress Index subscales each measured a different aspect of the Nurse Stress Index (Table 4.7). Possible Nurse Stress Index subscale scores could range from 1-25. The Time Demands and Trivial Tasks and Prioritizing Resources and Workload subscales had the highest group scores of 15.34 and 14.84, respectively. These scores

corresponded to feelings of moderate pressure and may indicate feelings of work overload in this sample.

The group score on the Organizational Support and Involvement subscale was the second highest at 12.82, indicating feelings of slight to moderate pressure with respect to decision-making and planning. High scores in this area may indicate a feeling by nurse managers that they only receive feedback when there is a problem with their performance. The CCR subscale group score was 11.41, corresponding with feelings of slight pressure related to confidence in ability to cope and/or uncertainty about degree or area of responsibility.

The group score on the Dealing with Patients and Relatives subscale was 10.52, which indicates feelings of slight pressure with respect to dealing with death and dying, violence in nursing, or the nurse-patient relationship. Finally, the group score on HWC was 8.11, reflecting feelings of slight pressure resulting from conflict between home and work demands.

In this sample, possible Work Ability Index™ individual scores could range from 7-49. The results indicate a left-censored sample (i.e., one clearly distributed in the upper 50% of the possible range of values; see Table 4.8). The mean and median were very close, indicating a normal distribution within this truncated range. The sample was bimodal, with the most frequent scores being 35.00 ($n=8$) and 40.00 ($n=8$).

Table 4.8: WAI™ Individual Scores

	<i>N</i>	Min	Max	Mean	Median	Mode	Std. Deviation	Skewness
WAI™ Individual Score	92	26.50	49	39.853	40.000	^a 35.00	4.7431	-.311

^aTwo modes were calculated, however only the lowest was used.

The Work Ability Index™ further classifies the individual scores into categories based on total scores: poor (7-27), average (28-36), good (37-43), and excellent (44-49). Given the left censoring of the sample, a majority of the individuals reported either good

or excellent work ability (Table 4.9). Based on those scores, the Work Ability Index™ handbook by Rautio & Michelsen (2013) indicated that a majority of the sample would benefit from either strengthening or maintenance of work ability. The scores indicated that only one individual needed recovery of work ability and 25 individuals needed promotion of work ability.

Table 4.9: Frequency of Scores by Work Ability Group (WAI™ defined ranges)

Score	Work Ability	Frequency (n)	Measures Needed
7-27	Poor	1	Recovery of Work Ability
28-36	Average	25	Promotion of Work Ability
37-43	Good	40	Strengthening of Work Ability
44-49	Excellent	26	Maintenance of Work Ability

However, the lack of participants in the lower categories required combining groups for the purposes of comparative analyses of interest in this study. Therefore, the individual Work Ability Index™ score groups were dichotomized into those needing recovery or promotion of work ability, (Group 1: average) reflecting 28.3% ($n=26$) of the sample and those who only needed strengthening or maintenance of work ability, (Group 2: good/excellent) reflecting 71.70% ($n=66$) of the sample.

RESEARCH QUESTION 1.2

Research Question 1.2 was related to differences between the dichotomized Work Ability Index™ group categories across the job stress dimensions of the six Nurse Stress Index subscales and the Nurse Stress Index total individual scores. To answer this question, a t-test was conducted to assess differences between the two Work Ability Index™ groups (average and good/excellent) on the Nurse Stress Index subscales and individual total scores. Levene's test of homogeneity was not significant for any dependent variable and equal variances were assumed. Significant mean differences ($p \leq .05$, two-tailed) were found in four Nurse Stress Index subscales: Time Demands and Trivial Tasks; Prioritizing Resources and Workload; Organizational Support and Involvement; Home/Work Conflict; and Nurse Stress Index total scores (Table 4.10).

Table 4.10: Significant Differences Between Work Ability Index™ Groups 1 & 2 Across Nurse Stress Index Subscales and Individual Scores

NSI Subscale	Sig (2-tailed) $p \leq .05$	t	WAI™ Group	n	Mean
TDT	.001	3.322	Group 1: average	26	17.62
			Group 2: good/excellent	66	14.44
PRW	.004	2.926	Group 1: average	26	16.85
			Group 2: good/excellent	66	14.05
OSI	.002	3.200	Group 1: average	26	15.31
			Group 2: good/excellent	66	11.83
DPR	.565	.578	Group 1: average	26	10.85
			Group 2: good/excellent	66	10.39
HWC	.007	2.779	Group 1: average	26	9.58
			Group 2: good/excellent	66	7.53
CCR	.091	1.710	Group 1: average	26	12.58
			Group 2: good/excellent	66	10.95
NSI Individual Total Score	.002	3.256	Group 1: average	26	82.77
			Group 2: good/excellent	66	69.20

TDT: Time Demands & Trivial Tasks; OSI: Organizational Support & Involvement; DPR: Dealing with Patients/Relatives; HWC: Home/Work Conflict; CCR: Confidence & Competence in Role; PRW: Prioritizing Resources/Workload

In each of the subscales that demonstrate a significant difference in mean scores, the Nurse Stress Index subscale or individual score mean was higher for the average group than for the good/excellent group. Because a higher Nurse Stress Index score suggests higher pressure/stress, this result supports the hypothesis that more stress is experienced by the groups/individuals with average work ability scores than those with good or excellent work ability scores. Therefore, the observed differences between Work Ability Index™ groups may be due to the pressure/stress identified by the Nurse Stress Index.

Aim 2 – Research Questions 2.1, 2.2, & 2.3

The second aim of the study was to evaluate possible relationships between job stress and work ability.

RESEARCH QUESTION 2.1

Research Question 2.1 looked for relationships between the Nurse Stress Index subscales and individual work ability scores in nurse managers. Results ($p \leq .05$, two-tailed) are presented in Table 4.11.

Table 4.11: Pearson's Correlation Between Nurse Stress Index Subscales and Work Ability Index™ Individual Scores

NSI Subscale (N=92)	Sig (2-tailed)	<i>r</i>
TDT	<.001	-.444
PRW	<.001	-.448
OSI	<.001	-.426
DPF	.230	-.126
HWC	<.001	-.369
CCR	.004	-.297

TDT: Time Demands & Trivial Tasks; OSI: Organizational Support & Involvement; DPR: Dealing with Patients/Relatives; HWC: Home/Work Conflict; CCR: Confidence & Competence in Role; PRW: Prioritizing Resources/Workload

Significant negative relationships were found between all of the subscales except Dealing with Patients and Relatives although the direction was similar. The inverse nature of the relationship is reflective of the fact that higher Nurse Stress Index subscale scores are indicative of more pressure/stress and lower Work Ability Index™ individual scores are indicative of poorer work ability. The effect size for the relationship between work ability and Time Demands and Trivial Tasks; Prioritizing Resources and Workload; Organizational Support and Involvement; and Home/Work Conflict fall between -.3 and -.5 representing a medium/moderate negative correlation, i.e., as these Nurse Stress Index subscales increase (more stress) Work Ability Index™ goes down indicating poorer work ability. The *r* value for the confidence and competence in role subscale falls between -.1 and -.3 reflecting a small/weak negative effect size, i.e., as confidence and competence in role score goes up (more stress), Work Ability Index™ individual total score goes down (poorer work ability).

RESEARCH QUESTION 2.2

Research Question 2.2 asked which Nurse Stress Index subscale(s) might have a predictive relationship with work ability scores. Stepwise, forward and backward regression were completed using the six Nurse Stress Index subscales as independent variables and the Work Ability Index™ individual scores as dependent variables. However, the two Nurse Stress Index management scales, Time Demands and Trivial Tasks and Prioritizing Resources and Workload, were found to be highly correlated ($r=.728$, $p<.001$; criterion for multicollinearity risk is $r>0.60$) and displayed evidence of significant multicollinearity with the most extreme tolerances (closer to 0) and variance inflation factor (VIF) values (larger) (TDT Tolerance=.404, VIF=2.473; PRW Tolerance=.298, VIF=3.359) across all predictors. Therefore, separate models were run with each management subscale as part of the set. Results indicated that models differed depending on which management subscale was being included (Prioritizing Resources and Workload for forward regression and Time Demands and Trivial Tasks for backward regression). Results for stepwise regression were identical with forward regression results; however stepwise/forward and backward regressions produced different models so forward and backward results will be reported.

The forward regressions with each set of management subscales are displayed in Table 4.12. Depending on the management subscale included, the resulting predictor set varied. When Time Demands and Trivial Tasks was included, a two-factor model was retained with Time Demands and Trivial Tasks and Organizational Support and Involvement as predictors accounting for about 25% of the variance. When Prioritizing Resources and Workload was included with the other four subscales, a different two-factor model was retained including Prioritizing Resources and Workload and Home/Work Conflict as predictive of Work Ability Index™ individual work ability scores accounting for slightly less (24%) of the variability.

Of the variance accounted for in each model, Prioritizing Resources and Workload (PRW) was the strongest predictor (Beta=-.391). All subscales have an expected inverse predictive relationship with the Work Ability Index™ individual score indicating more stress in these domains predicting poorer work ability.

Table 4.12: Forward Regression

PREDICTOR SET	Standardized Coefficients			Model	
	Sig. Predictors	Beta	t	Sig.	R ² F(df); p
TDT, OSI, DPR, HWC, CCR					.249 (2, 89)=14.779; <i>p</i> <.001
TDT subscale		-.305	-2.831	.006	
OSI subscale		-.267	-2.485	.015	
PRW, OSI, DPR, HWC, CCR					.236 (2, 89)=13.941; <i>p</i> <.001
PRW subscale		-.391	-3.455	.001	
HWC subscale		-.310	-2.100	.039	

TDT: Time Demands & Trivial Tasks; OSI: Organizational Support & Involvement; DPR: Dealing with Patients/Relatives; HWC: Home/Work Conflict; CCR: Confidence & Competence in Role; PRW: Prioritizing Resources/Workload

Backward regression was performed to check for possible synergistic relationships that may have been missed by the more conservative forward and stepwise approaches (Table 4.13). In backward regression, all variables are entered into the model and the weakest is removed sequentially until there are no remaining significant predictors in the model or all remaining predictors are significant. Criteria for removal is less stringent than in forward regression ($P_{OUT}=.10$ versus $P_{IN}=.05$) in order to capture variables that contribute significant variance in combination with others. Results produced a model that differed from analyses obtained using forward regression (three predictors instead of two) as well as across management subscale predictor sets. As with forward regression, the management subscales were the strongest predictors in each model which also included the same secondary significant factor identified in the forward regression (Organizational Support and Involvement for the Time Demands and Trivial Tasks set and Home/Work Conflict for the Prioritizing Resources and Workload set). They differed across management sets and from forward regression results in the third predictive factor. Home/Work Conflict predicted about 18% of the shared variance in the Time Demands

and Trivial Tasks management set model. Dealing with Patients and Relatives predicted about the same amount but in the opposite direction (i.e., higher stress Dealing with Patients and Relatives was associated with higher Work Ability Index™ scores or better workability) in the Prioritizing Resources and Workload management set, which is counter to expectations.

Overall models with Time Demands and Trivial Tasks accounted for the greatest variance in both forward and backward regressions. Backward regression R^2 results were somewhat stronger with the inclusion of the third marginally significant subscale. The Time Demands and Trivial Tasks, Prioritizing Resources and Workload, Organizational Support and Involvement, and Home/Work Conflict subscales have an expected inverse predictive relationship with the Work Ability Index™ individual score, indicating greater stress in these domains predicting poorer work ability. The positive relationship between Dealing with Patients and Relatives and work ability is unexpected. The overall percent of variance accounted for by all models is modest (24-28%) and suggests that other factors not included in the models may be important.

Table 4.13: Backward Regression

PREDICTOR SET Sig. Predictors	Standardized Coefficients			Model	
	Beta	<i>t</i>	Sig.	R^2	<i>F(df), p</i>
TDT, OSI, DPR, HWC, CCR				.275	(3, 88)=11.151, $p<.001$
TDT subscale	-.241	-2.146	.035		
HWC subscale	-.182	-1.781	.078		
OSI subscale	-.238	-2.208	.030		
PRW, OSI, DPR, HWC, CCR				.263	(3, 88)=10.448, $p<.001$
PRW subscale	-.432	-3.879	<.001		
HWC subscale	-.250	-2.413	.018		
DPR subscale	.183	1.696	.093		

TDT: Time Demands & Trivial Tasks; OSI: Organizational Support & Involvement; DPR: Dealing with Patients/Relatives; HWC: Home/Work Conflict; CCR: Confidence & Competence in Role; PRW: Prioritizing Resources/Workload

RESEARCH QUESTION 2.3

Research Question 2.3 explored whether any of the Nurse Stress Index subscales predicted an increased risk of poor workability as grouped by the dichotomized Work Ability Index™ score groups (i.e., Group 1: average and Group 2: good/excellent). A logistic regression was calculated for the Nurse Stress Index subscales with each management set was employed in the analyses for Research Question 2.2 to assess risk of poor workability outcomes as reflected by membership in the average Work Ability Index™ groups variable.

The only subscale that entered the forward logistic regression model with the first management set was Time Demands and Trivial Tasks (Table 4.14), which indicated an approximate 20% increase in risk of poor to average workability for each point increase in Time Demands and Trivial Tasks score. When assessing the management set with Prioritizing Resources and Workload, Prioritizing Resources and Workload failed to be a significant risk factor. Instead, Organizational Support and Involvement represented a significant predictor of risk with respect to average workability with a 16% increase in risk for each point increase on the Organizational Support and Involvement scale. Overall classification accuracy was slightly better with Organizational Support and Involvement than with Time Demands and Trivial Tasks.

Table 4.14: Forward Logistic Regression

PREDICTOR SET	Sig. Predictors	χ^2 (df)	Sig	Correct Class %	B	Sig	95% C.I. for EXP(B)		
							Exp(B)	Lower	Upper
TDT, OSI, DPR, HWC, CCR									
	TDT subscale	10.27 (1)	.001	71.7	.180	.003	1.197	1.065	1.345
PRW, OSI, DPR, HWC, CCR									
	OSI subscale	9.389 (1)	.002	72.8	.148	.004	1.160	1.050	1.282

TDT: Time Demands & Trivial Tasks; OSI: Organizational Support & Involvement; DPR: Dealing with Patients/Relatives; HWC: Home/Work Conflict; CCR: Confidence & Competence in Role; PRW: Prioritizing Resources/Workload

The backward logistic regression (Table 4.15) Time Demands and Trivial Task management set results indicated Organizational Support and Involvement combined with Time Demands and Trivial Tasks was a predictor set reflecting a 10% and 14% increase in risk of average work ability respectively. The inclusion of 1.0 within the boundary of the confidence intervals for both variables suggest that these two subscales separately do not reliability predict risk but in combination may improve prediction. Similarly, the second management set with Prioritizing Resources and Workload resulted in two variables Organizational Support and Involvement joined by Home/Work Conflict as marginally significant predictors representing increases in risk of average workability of 13% and 15%, respectively. The same inclusion of 1.0 for the confidence interval for Home/Work Conflict explains why this variable failed to be included in the forward solution and only contributes to prediction of risk jointly with Organizational Support and Involvement.

Table 4.15: Backward Logistic Regression

PREDICTOR SET	χ^2		Correct				95% C.I. for EXP(B)		
Sig. Predictors	(df)	Sig	Class %	B	Sig	Exp(B)	Lower	Upper	
TDT, OSI, DPR, HWC, CCR									
TDT subscale	13.206 (2)	.001	71.7	.128	.055	1.137	.997	1.295	
OSI subscale				.098	.089	1.103	.985	1.235	
PRW, OSI, DPR, HWC, CCR									
OSI subscale	12.432 (2)	.002	72.8	.124	.021	1.132	1.019	1.257	
HWC subscale				.137	.100	1.147	.974	1.352	

TDT: Time Demands & Trivial Tasks; OSI: Organizational Support & Involvement; DPR: Dealing with Patients/Relatives; HWC: Home/Work Conflict; CCR: Confidence & Competence in Role; PRW: Prioritizing Resources/Workload

Chapter 5: Discussion of Findings, Conclusions, and Recommendations

Study results presented in chapter 4 are discussed in this chapter. Limitations of the study, recommendations for future research, and implications for nursing are also discussed.

STUDY AIM 1

Research Question 1.1: Current Levels of Job Stress and Work Ability

The Nurse Stress Index, as a measure of job stress, reflected a mean score of 73.03 $\pm$ 18.93 corresponding to a sample experiencing a level of stress somewhere between slight and moderate. With the scale midpoint at moderate pressure, only 16% of the sample of nurse managers had Nurse Stress Index total scores that indicated greater than moderate to extreme stress. This contradicts the findings of Kath, Stichler, and Ehrhart (2012), who reported levels of perceived job stress among nurse managers in the United States as above the mean of the work stress scale (four items from the Subjective Stress Scale [Motowidlo, Packard, & Manning, 1986]) in their survey. However, the Nurse Stress Index is a measure of nursing job stress that is composed of various factors directly related to nursing work with a considerably smaller and more homogeneous sample, which could account for the different results.

Work Ability Index™ scores were also favorable, with a minority of the sample (28%) having poor ($n=1$) or average ($n=26$) work ability while the majority (72%) had good ($n=40$) or excellent ($n=26$) work ability. This is a positive finding because lower work ability scores correspond with greater risk of the nurse manager for disability, early retirement, or early exit from nursing (Camerino et al., 2006; Ilmarinen & Tuomi, 2001). This finding is similar to those from a study of Swedish nurse managers ($n=78$) and staff nurses ($n=1806$) by Johansson, Sandahl, & Hasson (2013), who reported that even though front-line managers reported higher job demands than staff nurses, 88% of the nurse

managers reported good or fairly good self-rated health and only 4% reported self-rated health as bad or fairly bad. The self-rating of health is similar to the Work Ability Index™, which includes extensive health-related questions.

From an occupational health standpoint, this sample of nurse managers could be described overall as having good to excellent work ability. Rautio & Michelson (2013) Work Ability Index™ handbook prescribes interventions based on these scores as: poor = recovery of work ability; average = promotion of work ability; good = strengthening of work ability; and excellent = maintenance of work ability. These interventions fit into the Neuman systems model as primary prevention (before stress reaction to strengthen lines of defense) for work ability scores in the good and excellent range, secondary prevention (interventions after a stress reaction to mobilize support) for those with average work ability scores, and tertiary prevention (after treatment of a stressor reaction to assist in maintenance of recovery) for individuals with poor work ability scores (Neuman, 2002).

Across the group scores on the Nurse Stress Index subscales, only the Time Demands and Trivial Tasks and Prioritizing Resources and Workload subscales had mean group scores indicating feelings of moderate pressure/stress. The Time Demands and Trivial Tasks and Prioritizing Resources and Workload subscales were related to workload, and higher stress levels in these areas is consistent with the results of the Swedish study, which also indicated high job demand among nurse managers (Johansson et al., 2013).

Research Question 1.2: Differences Between Work Ability Groups and Job Stress Dimensions

The significant differences between average and good/excellent workability groups in stress scores on the individual total Nurse Stress Index scores and Prioritizing Resources and Workload, Organizational Support and Involvement, and HWC subscales were expected. A study of nurse managers by Kath, Stichler, Ehrhart, and Sievers (2013) found that role overload in terms of work expected, time, or resources was most predictive of

stress in nurse managers; the Prioritizing Resources and Workload, Organizational Support and Involvement, and Home/Work Conflict Nurse Stress Index subscales include items specifically assessing time pressures, workload, and essential resources.

Overall, the results with respect to AIM 1 reflect a nurse manager workforce in the United States with good work ability scores and moderate stress in areas related to time demands, tasks, resources, and workload. Johansson, Sandahl, and Hasson (2013) noted a similar pattern and posited a connection between high control over work and reduced stress-related symptoms and fewer self-reported health problems. However, the Nurse Stress Index and Work Ability Index™ results were somewhat surprising in light of research studies reporting exhaustion and high workload among nurse managers. For example, a 2014 study by Van Bogaert et al. reporting 1 of 6 nurse managers in their total sample ($n=365$) had high to very high emotional exhaustion.

STUDY AIM 2

Research Question 2.1: Job Dimensions and Work Ability

The significant inverse relationships between all of the job dimension variables in the Nurse Stress Index subscales (except Dealing with Patients and Relatives) and workability were expected because poor workability conditions would naturally be associated with higher levels of stress in various job dimensions. The higher workability scores in this sample are associated with lower scores on these job dimensions, indicative of less stress. The strongest relationships were moderate in strength and involved all three dimensions related to time demands, resources, and organizational factors (TDT: $r=-.444$, $p<.001$; PRW: $r=-.448$, $p<.001$; and OSI: $r=-.426$, $p<.001$). The moderate relationships between these factors and work ability support findings in the literature with respect to the importance of organizational support. The higher stress in this study's sample associated with both Time Demands and Trivial Tasks, Prioritizing Resources and Workload, and Organizational Support and Involvement are somewhat similar to a study on work-related

stress among nurse managers in Belgium by Van Bogaert et al. (2014) who found a relationship between work stress and organizational factors. The somewhat lesser effect of the Nurse Stress Index Home/Work Conflict subscale ($r=-.368$, $p<.001$) in this study's sample suggests that nurse managers in the sample have managed to negotiate this stressor more successfully than those stressors related to the Nurse Stress Index Organizational Support and Involvement subscale.

Research Question 2.2: Job Dimensions Predictive of Work Ability Score

The forward and backward regressions produced different models for job scales that might predict work ability scores. Backward regression is a more inclusive approach allowing variables that are synergistic with other variables to be tested; thus, it is more common to find additional variables of interest when conducting backward multiple regression compared to forward or stepwise multiple regression. Of greater interest is the fact that different models were found in the two approaches depending on which aspect of management, Time Demands and Trivial Tasks or Prioritizing Resources and Workload, were included in the models. As mentioned in Chapter 4, the collinearity of Time Demands and Trivial Tasks and Prioritizing Resources and Workload required separate regression analyses. Of the two management scales, Time Demands and Trivial Tasks accounted for the greatest variance in both forward and backward models, with 25% and 28% respectively. These inverse relationships were expected because higher Work Ability Index™ indicates better work ability and lower job stress subscale scores reflect less stress.

An unexpected positive relationship was discovered in the backward regression where higher stress on the Dealing with Patients and Relatives subscale was marginally predictive of higher workability. Perhaps some aspect of reward in the ability to problem-solve and assisting staff and families with difficult situations improves job satisfaction. The high multicollinearity between two of the strongest subscales on the Nurse Stress Index suggests that they can be linearly predicted from each other, so both should be considered

to account for similar variance. Future studies should seek to explore factor analysis of the Nurse Stress Index and add or develop other factors that might differentiate between these management dimensions more distinctly or combine them. Similarly, to these regression findings, Kath et al. (2013) found that role overload accounted for 13% of the variance in predicting stress in their sample of U.S. nurse managers. In fact, role overload was the most important work environment predictor of stress in that study. Certainly the items in the Time Demands and Trivial Tasks subscale involve role overload, as the subscale is concerned with time demands, pressures, deadlines, and trivial tasks. However, the findings of Kath et al. (2013) accounted for less variance than the findings in this study, suggesting that the current Nurse Stress Index management subscales capture something in addition to role overload and warrant more investigation.

Research Question 2.3: Job Dimensions and Work Ability Group

The last research question took a different approach in trying to assess the risk for developing poor workability using the Nurse Stress Index scales as predictors. The inquiry was challenged by the lack of a group displaying true poor workability. The truncated range of workability scores blunted the ability to assess contribution of risk by each of the Nurse Stress Index subscales. Forward logistic regression indicated approximately a 20% increase in risk of average work ability for each point increase in Time Demands and Trivial Tasks. The Time Demands and Trivial Tasks subscale questions were related to trivial tasks (e.g., fighting fires rather than working a plan, too little time to do what is expected, time demands of others, and time pressures and deadlines) related to resources, priorities, and task/work volume, which are reported in the literature as sources of nurse manager stress. For example, in a qualitative pilot study of nurse managers in Canada, Udod and Care (2013) identified both limited resources and competing priorities as stressors. Shirey et al. (2010), in a well-designed qualitative study of nurse managers in the midwest,

identified (1) people and resources and (2) tasks and work volume as important contributors to nurse manager stress.

Surprisingly, in the forward logistic regression model, the second management scale, Prioritizing Resources and Workload, failed to be a significant predictor and Organizational Support and Involvement predicted a 16% increase in risk of average workability for each point increase on the Organizational Support and Involvement scale. Comparing the Prioritizing Resources and Workload and Organizational Support and Involvement items, it is clear that the Prioritizing Resources and Workload items are related to workload fluctuation, resource shortages, and priorities, while Organizational Support and Involvement explores working with leadership in decision-making that affects the nurse manager, performance feedback, and overall support, as well as relationship with superiors. In the quantitative literature, relationships with leadership have been shown to influence intent to leave (Blake, Leach, Robbins, Pike, & Needleman, 2013). Kath, Stichler, and Ehrhart (2012) reported that autonomy and social support acted as buffers to the stress experienced by nurse managers. The four scales used to measure this support included one for supervisor support. These results provide some corroboration for the correlation observed in the present study between Organizational Support and Involvement subscale and work ability scores.

Backward logistic regression suggested that Time Demands and Trivial Tasks and Organizational Support and Involvement would not reliably predict work ability group separately, but may be predictive in combination. In the second management group set (Prioritizing Resources and Workload), it was suggested that Organizational Support and Involvement must be combined with Home/Work Conflict to predict risk of average workability. Perhaps home and work conflicts combined with a lack of organizational support (i.e., supervisor/leader supporting the nurse manager through the conflict) results in increased stress on the individual and greater risk of lower work ability.

LIMITATIONS

Some limitations of this study were related to sampling method and sample size. The snowball and convenience sampling method limit the generalizability of the findings; however, the use of the investigator's personal network of nurse leaders from around the United States made it possible to represent every region within the sample. The topic of the study, stress and nurse managers may have caused potential respondents to hesitate to disclose negative information about their workplace. Additionally, overloaded individuals are unlikely to have time to participate in studies and those that did respond may be more likely to have been those with time to participate. This would, in effect, have resulted in a sample who were more likely to be less stressed and have better work ability and may not accurately represent the nurse manager population as a whole. In future research on work ability, careful attention to these issues and a random, stratified sample would make findings generalizable.

The sample size of less than 100 participants affected the ability to evaluate the psychometric properties of study instruments using factor analysis. This was especially disappointing to the primary investigator because the Work Ability Index™ had not been used before in any sample of nurse managers from the United States. There is some likelihood that nurse managers in the United States are more heterogeneous than those in Europe where all prior research with the Work Ability Index™ has been conducted. The validation of this instrument as a measure of occupational health for nurse managers in the United States should be a key focus in future research. In addition, other methods of validating the psychometric properties of the Nurse Stress Index and Work Ability Index™, such as including other instruments established in the United States workforce to look at correlations with the work ability constructs, should be incorporated as well as future studies on work ability utilizing comparisons with objective data like biomarkers, observation, or physical exams to determine health status.

CONCLUSIONS AND IMPLICATIONS FOR NURSING

Overall, the findings of this study add to quantitative knowledge about work stress, workload variables, and occupational health among nurse managers working in acute care hospitals in the United States. The study findings build on the robust qualitative work of Shirey (2009) and the quantitative work of Kath (2013), who have contributed the greatest number of publications specific to nurse managers and stress in the United States since 2006 and provides intriguing possibilities of applying the Neuman Systems Model to the issue of work ability in Nurse Managers. The literature demonstrates that nurse manager roles are usually stressful, and despite concern about healthy work environments, the current focus is on healthy work environments for nurses in terms of only nursing practice environments rather than overall occupational health as described in the World Health Organization healthy workplace model. The nurse manager workforce in the United States faces the same challenges that prompted the Finnish Institute of Occupational Health to begin studying work ability in the 1980s: aging workforce, dynamic changes in work organization, and delayed retirement.

The study findings contribute new knowledge about the occupational health of nurse managers in the United States by using the Work Ability Index™. This research is important for several reasons., European studies support the finding that work ability in nurses may decline with age and can be predictive of early exit from nursing, disability, and healthy retirement (Camerino et al., 2006; Tuomi, Huuhtanen, Nykyri, & Ilmarinen, 2001). There may also be a connection between work ability and quality of life among nurses. A study of acute care nurses ($n=1212$) in randomly selected Croatian hospitals by Milosevic et al. (2011) using the Work Ability Index™ and the World Health Organization questionnaire on quality of life found that Work Ability Index™ scores ≥ 37 were the most significant predictor with respect to quality of life domains. The findings in the current study of only one nurse manager in the poor work ability category and twenty-five in the

average category, as well as the low levels of job stress as indicated by Nurse Stress Index scores, are reassuring in regards to the current state of job stress and occupational health in United States nurse managers working in acute care. Nevertheless, continued research is needed to clarify the impact of role variability on the occupational health of nurse managers and to explore domains of healthy workplaces that have not been addressed. Results of this study can be used to support existing research and to formulate new questions related to nurse manager well-being and productive, health-promoting work lives.

Appendix A: Survey Monkey

Welcome Page

Description of Study and Survey

Dear Participant,

The purpose of this research study is to explore the "current state" of job related stress and work ability in nurse managers who work in acute care hospitals in the United States. We know that nursing is a highly stressful profession. Sometimes this stress can affect how long someone will be able to work in a specific role and/or their work ability in general. The research will also look at what parts of the job might be creating stress for nurse managers and help to identify if nurse managers as a group are more likely to leave the profession of nursing, retire early, or be at risk for disability. The information from this research is a start in understanding more about nurse managers and gaining evidence for work re-design, developing interventions to improve the working world of nurse managers and promote healthy workplaces.

This study is part of my dissertation research. You are being asked to participate in this research project because you are a nurse manager working in an acute care hospital in the United States with more than 25 beds. Your participation in this research study is voluntary. Your consent to participate is implied by filling out the questionnaire. You may withdraw from the study at any time by stopping the survey. There is no cost to participate, and you will not be paid for your time. But your answers will contribute to the body of knowledge in nursing science about job stress and work ability in nurse managers. As a member of this group, your input is critical to advancing our understanding of the challenges for nurse managers. Your participation is greatly appreciated.

The survey takes 15 to 20 minutes and is completely anonymous. No identifying information is collected. The survey does collect general demographic information, current state of health and medical diagnoses, information about what causes you stress at work and how you feel about your ability to do your work. Because no identifying information is collected, the answers to all of these questions cannot be linked to any particular person. The results will be used to look at nurse managers' stress and work ability as a group together, not as individuals. This research study has been approved by the University of Texas Medical Branch Institutional Review Board for human research.

Please accept my heartfelt thanks for your contribution to this research project. Your participation makes this research possible. As a nurse leader myself, it is my hope that it will add to nursing science and designing healthy workplaces for nurse managers. If you have questions about this research study, please contact me at any of the addresses below.

Sincerely,
Sarah E. A. Woolsey, RN, BA, BSN
Doctoral Nursing Student
The University of Texas Medical Branch
Graduate School of Biomedical Science
Galveston, Texas
Email: sewoolse@utmb.edu
Phone: (830) 481-7718
www.linkedin.com/in/saraheawoolsey

Demographic Questions

This section will collect basic demographic information about participants.

* Are you male or female?

☐ Female

☐ Male

* What is your age?

* Are you White, Hispanic, Black or African-American, American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific islander, or some other race?

☐ White

☐ Hispanic

☐ Black or African-American

☐ American Indian or Alaskan Native

☐ Asian

☐ Native Hawaiian or other Pacific islander

☐ Other

* What is the highest level of nursing education you have completed?

☐ Diploma

☐ Associate Degree

☐ Bachelors Degree

☐ Masters Degree

☐ Doctor of Nursing Practice

☐ Doctor of Philosophy

* Have you been a Registered Nurse for more than one year?

☐ Yes

☐ No

RN Manager?

* For the purposes of this study a nurse manager is defined as a full time employee with 24/7 responsibility for the operations of a unit delivering nursing care to any patient population.

Does this describe you?

☐ Yes

☐ No

Experience as Nurse Manager

For the purposes of this study, you must have had at least 1 year of experience as a nurse manager. Should you have had less, please accept my thanks for your interest and please tell your nurse manager colleagues about the study.

* Have you been a nurse manager at least 1 year?

☐ yes

☐ no

Time as a Nurse Manager

* How many years have you been a Nurse Manager?

Work in a hospital?

* Do you work in a hospital in the United States?

☐ Yes

☐ No

Workplace Questions

Questions relating to the type of hospital, unit, and duties as assigned.

* In what state or U.S. territory is the hospital where you work?

* How many licensed beds does your hospital have?

* Please indicate any Nursing Excellence Designations your hospital currently has.

- ☐ My hospital does not have any nursing excellence designation.
- ☐ My hospital is a Pathway to Excellence® hospital.
- ☐ My hospital is a Magnet® hospital.

* Please indicate the type of unit you are primarily responsible for managing

- ☐ Med/Surg
- ☐ Telemetry/Intermediate Care
- ☐ Emergency Department
- ☐ Intensive Care Unit
- ☐ Operating Room
- ☐ Procedural Area e.g. Endoscopy, Cath Lab, Interventional Radiology
- ☐ Other (please specify)

* How many licensed beds are in your unit?

* How many direct reports do you have (definition = people for whom you complete an annual evaluation)?

*** Please select the response below that best describes your management arrangement.**

- ☐ I work alone as manager, & I have no assistant, supervisors, or co-manager. I am solely responsible for annual evaluations for my direct reports.
- ☐ I am a co-manager and share 24/7 operational responsibilities for my unit with another RN Manager/Full Time Employee, & we both complete annual evaluations for our direct reports.
- ☐ I have charge nurses or supervisors who do some management duties, but I am primarily responsible/accountable for unit operations.
- ☐ Other (please specify)

Delivering direct patient care is sometimes required of nurse managers. For the purpose of this study *Direct Patient Care* is defined as the delivery of any direct care to patients including nursing admission, head-to-toe assessment, performance of procedures, passing medication, or other hands on care. The questions in the next section will ask about how much direct care you may be providing on your unit.

Please answer the following questions regarding patient care activities in the LAST 12 MONTHS:

*** What statement below best describes your role as a direct care provider on your unit?**

- ☐ Direct patient care is not part of my current role.
- ☐ I never cover a whole shift. But, I do direct patient care occasionally (at least once a month).
- ☐ I never cover a whole shift. But, I do direct patientcare regulary (at least once a week).
- ☐ I do direct patient care when nurses are absent or to cover shifts when staffing is low.
- ☐ Other (please specify)

Direct Patient Care Questions

If you indicated that you are still doing some types of patient care, you are asked to answer the next few questions related to shift coverage. This could be "filling in" when a nurse calls in sick or working shifts due to staffing needs.

When I do direct patient care I sometimes cover an entire shift.

☐ Yes

☐ No

I cover day shifts on my unit.

☐ Yes

☐ No

I cover night shifts on my unit.

☐ Yes

☐ No

If you have cover shifts on your unit, how many have you worked in the last 30 days.

Additional Duties

Often Nurse Managers are assigned additional duties. The following questions are about additional duties you may perform as a nurse manager.

* Do you take administrative call for your facility?

- ☐ Yes
- ☐ No
- ☐ Other (please specify)

The following questions are about committee and group work commitments e.g. safety committee, joint commission readiness committee, any teams you may participate in on a regular basis.

* Please enter the number of committee meetings you currently attend on a monthly basis. If you do not have any committee responsibility, enter a zero.

* Please enter the number of committee meetings you must report quality metrics to at least quarterly. If you do not report quality metrics in any meetings regularly please enter a zero.

The next few questions are about staffing and payroll.

* I complete the staffing schedule.

- ☐ Yes
- ☐ No

* I only have to review and approve the staffing schedule.

- ☐ Yes
- ☐ No
- ☐ Other (please specify)

* When it comes to timekeeping and approving associate hours I (check all that apply).

- ☐ I have a timekeeper for edits.
- ☐ I have to edit associates time.
- ☐ I have to approve all time-off requests.
- ☐ I review and approve associates time sheets.
- ☐ Other (please specify)

Nurse Stress Index - Part 1

The Nurse Stress Index (1989) is used with permission of the developer P. E. Harris. Please read the instructions and complete each section.

Stress is a part of life and work. Pressure/stressors are defined as a problem, something you find difficult to deal with, or about which you feel worried or anxious or stressed. When answering the next questions think about your work as a nurse manager and things that may be causing you pressure/stress. There are no right or wrong answers to these questions.

*** Please Identify three changes which would alleviate stress in your job. Specify in order of importance (1 is most important, 2 is next in importance, and 3 is the least important of the three).**

1.

2.

3.

	No Pressure	Slight Pressure	Moderate Pressure	Considerable Pressure	Extreme Pressure
My superiors do not appreciate my home pressures	☐	☐	☐	☐	☐
Tasks outside of my competence	☐	☐	☐	☐	☐
The demands of others for my time at work are in conflict	☐	☐	☐	☐	☐
Shortage of essential resources	☐	☐	☐	☐	☐
Decisions or changes which affect me are made "above" without my knowledge or involvement	☐	☐	☐	☐	☐
Bereavement counseling	☐	☐	☐	☐	☐
Over-emotional involvement	☐	☐	☐	☐	☐
Uncertainty about the degree of area of my responsibility	☐	☐	☐	☐	☐
Time pressures and deadlines	☐	☐	☐	☐	☐
Deciding priorities	☐	☐	☐	☐	☐
Lack of support from administration	☐	☐	☐	☐	☐
Difficulty in dealing with aggressive people	☐	☐	☐	☐	☐
Job versus home demands	☐	☐	☐	☐	☐
Bringing about change in staff/organization	☐	☐	☐	☐	☐

Work Ability Index™

The Work Ability Index™ is a separate questionnaire from the other surveys in this research study. It is a licensed product copyrighted by the ©Finnish Institute of Occupational Health, WAI™ and Tuomi K., Ilmarinen J., Jahkola A., Katajarinne L., Tulkki A., 1997 (the original work); Rautio M., Michelsen T., Hopsu L., Seitsamo J., 2012, reprinted 2014 (the new version). Licensing to use this questionnaire has been granted to this researcher for this study.

1. Current Work Ability

(work ability compared to before)

* Let's assume that your work ability would receive a score of 10 points at its best. What point score would you give your current work ability? (0 means that you are currently unable to do any work)

Completely unable to work - 0	1	2	3	4	5	6	7	8	9	10 Work ability at its best -
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

* 2. Work ability considering the requirements of the work

a) Are the demands of your work mainly
(i.e. more than half of the working time)

- ☐ Mental work
- ☐ Physical work
- ☐ An equal amount of mental and physical work

* b) How would you evaluate your current work ability in terms of the physical demands of your work?

- ☐ Very good
- ☐ Fairly good
- ☐ Average
- ☐ Fairly poor
- ☐ Very poor

* c) How would you evaluate your current work ability in terms of the psychological demands of your work?

- ☐ Very good
- ☐ Fairly good
- ☐ Average
- ☐ Fairly poor
- ☐ Very poor

Current Illnesses

3. Illnesses by a Doctor

Please check off which of the following illnesses or injuries you have at the moment, recurring, or frequently. Check whether or not you suffer from this condition according to your own opinion or if it has been diagnosed or treated by a doctor. You may therefore check, yes diagnosed by a doctor *or* yes my own opinion *or* no for each illness.

* 1. Accidental Injury

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
To the back	☐	☐	☐
To the upper limbs, hands	☐	☐	☐
To the lower limbs/feet	☐	☐	☐
Elsewhere	☐	☐	☐

* 2. Musculoskeletal Disease

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Strain injury/chronic pain of the upper back or cervical spine	☐	☐	☐
Strain injury/chronic pain/sciatica of the lower back	☐	☐	☐
Strain injury/chronic pain of the limbs (arms, legs)	☐	☐	☐
Rheumatoid arthritis	☐	☐	☐

*** 3. Circulatory Disease**

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Blood pressure disease	☐	☐	☐
Coronary artery disease, heart failure	☐	☐	☐
Transient ischaemic attack (TIA)	☐	☐	☐
Long-term or recurring heart arrhythmia (e.g. atrial fibrillation)	☐	☐	☐

*** 4. Respiratory Disease**

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Chronic respiratory infections (colds, sinusitis, tonsillitis, bronchitis)	☐	☐	☐
Chronic obstructive pulmonary disease	☐	☐	☐
Chronic bronchitis	☐	☐	☐
Bronchial asthma	☐	☐	☐
Sleep apnea	☐	☐	☐

*** 5. Mental health disorder**

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Clinical depression	☐	☐	☐
Mild depression, anxiety	☐	☐	☐
Other mental health disorder	☐	☐	☐

*** 6. Neurological and sensory disease**

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Hearing loss	☐	☐	☐
Eye disease (other than refractive correction)	☐	☐	☐
Neurological disease (neuralgia, migraine)	☐	☐	☐
Epilepsy	☐	☐	☐

* 7. Gastrointestinal disease

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Gallstones, gallbladder disease	☐	☐	☐
Chronic liver disease, hepatitis	☐	☐	☐
Gastritis or duodenitis, gastric or intestinal ulcer, catarrh	☐	☐	☐
Digestive disorder (e.g. irritable bowel syndrome)	☐	☐	☐

* 8. Genitourinary disease

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Recurring or chronic urinary tract infection	☐	☐	☐
Kidney disease	☐	☐	☐

* 9. Skin disease

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Allergic rash	☐	☐	☐
Other rash	☐	☐	☐

* 10. Tumour

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Benign tumour	☐	☐	☐
Malignant tumour (cancer)	☐	☐	☐

* 11. Metabolic diseases

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Obesity (body mass index of 30 or more)	☐	☐	☐
Diabetes	☐	☐	☐
Thyroid disease	☐	☐	☐
Lipoidosis, e.g. high cholesterol	☐	☐	☐
Metabolic syndrome	☐	☐	☐

* 12. Blood disease

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
Anemia	☐	☐	☐

* 13. Other condition or illness?

	Yes (diagnosed by a doctor)	Yes (my own opinion)	No
	☐	☐	☐

*** 4. Estimated effects of illnesses or injuries on work**

Do your illnesses or injuries have an effect on your current work?
Choose the option that best describes your situation.

- ☐ No effect at all/no illnesses
- ☐ I can perform at work, but it causes symptoms
- ☐ I **sometimes** have to reduce the pace of my work or change the way I work
- ☐ I **often** have to reduce the pace of my work or change the way I work
- ☐ Due to my illness, I feel I am able to manage only part time work
- ☐ I feel I am completely incapable of working

*** 5. Absence from work due to illness**

How many **full days** have you been absent from your work due to your health condition (treatment or examination of your illness/health) during the past year (12 months)?

- ☐ Not at all
- ☐ 9 days at most
- ☐ 10 to 24 days
- ☐ 25 to 99 days
- ☐ 100 to 365 days

*** 6. Own estimation of work ability two years from now**

In terms of your health, do you feel that you will be able to work in your current profession **two years from now**?

- ☐ I am quite sure
- ☐ I am not sure
- ☐ It is unlikely

*** 7. Psychological resources**

a) Have you been able to enjoy your normal daily activities lately?

- ☐ Often
- ☐ Fairly often
- ☐ Now and then
- ☐ Fairly rarely
- ☐ Never

*** b) Have you been energetic and alert lately?**

- ☐ Always
- ☐ Fairly often
- ☐ Now and then
- ☐ Fairly rarely
- ☐ Never

*** c) Have you lately been feeling hopeful about the future?**

- ☐ Constantly
- ☐ Fairly often
- ☐ Now and then
- ☐ Fairly rarely
- ☐ Never

* 8. Questions related to impediments

Do the following things have an effect on your ability to cope or manage at work? The answers will help to give an overview of how you are feeling overall and of the factors you feel are important in regard of your work ability.

	Does not occur/does not have an effect	Has some effect	Has a significant effect	Cannot say
a) Health-related problems	☐	☐	☐	☐
b) Capacity-related problems	☐	☐	☐	☐
c) Competence-related problems	☐	☐	☐	☐
d) Problems related to the physical load of the work	☐	☐	☐	☐
e) Problems in the work environment	☐	☐	☐	☐
f) Problems related to the functionality of the work community	☐	☐	☐	☐
g) Problems related to the mental load of the work	☐	☐	☐	☐
h) Decrease in motivation to work	☐	☐	☐	☐
i) Problems outside of work (with family, finances and the like)	☐	☐	☐	☐

Thank You

Thank you for participating in this research project. Your feedback is vital to exploring the workplace conditions for Nurse Managers.

This research study is being conducted as part of the requirements for a doctoral dissertation and has been reviewed by and in accordance with the University of Texas Medical Branch Institutional Review Board procedures for research involving human subjects. The contact number for this board is (409) 266-9475.

If you have questions about this research study, please contact Sarah E A Woolsey, RN, BA, BSN at sewoolsey@utmb.edu or (830) 481-7718.

Oops!

An answer you provided has indicated that you do not meet the inclusion criteria for this study. Thank you for your participation. Please exit the survey by closing your browser.

This research study has been reviewed by and in accordance with the University of Texas Medical Branch Institutional Review Board procedures for research involving human subjects. The contact number for this board is (409) 266-9475.

This research is for scholarly purposes only. If you have questions about this research study, please contact Sarah E A Woolsey, RN, BSN at sewoolsey@utmb.edu or (830) 481-7718

Appendix B: Recruitment Items

Study Description

Hello!

As a nurse leader, I have been very concerned about the issues of job related stress and work ability in nurse managers who work in acute care hospitals in the United States. We know that nursing is a highly stressful profession. Sometimes this stress can affect how long someone will be able to work in a specific role and/or their work ability in general.

So I chose to study this as my dissertation project. My research looks at what parts of the job might be creating stress for nurse managers; and will help to identify if nurse managers as a group are more likely to leave the profession of nursing, retire early, or be at risk for disability. The information from this research is a start in understanding more about nurse managers and gaining evidence for work re-design, developing interventions to improve the working world of nurse managers, and promote healthy workplaces.

If you are a nurse manager working in an acute care hospital in the United States with more than 25 beds, you are eligible to participate. Your input is of critical importance. Participation is through a completely anonymous survey. You can take it online or request a paper survey to fill out and return by mail. The link to the survey is below. Feel free to check it out. Completing the survey will only take 15-20 minutes.

This research study has been reviewed by and in accordance with the University of Texas Medical Branch Institutional Review Board procedures for research involving human subjects. The contact number for this board is (409) 266-9475. Should you have any questions about the study, please feel free to contact me directly at sewoolse@utmb.edu or Phone: (830) 481-7718.

And thank you ahead of time for your time and consideration!

STUDY LINK: <https://www.surveymonkey.com/r/nursemanagerstudy>

Sincerely,

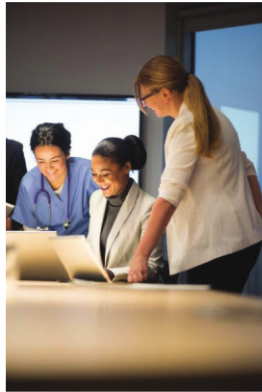
Sarah Woolsey

Sarah E. A. Woolsey, RN, BA, BSN
Doctoral Nursing Student
The University of Texas Medical Branch
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ARE YOU A NURSE MANAGER?

Consider participating in a research study on *Occupational Health: Exploring Job Stress and Work Ability in Nurse Managers*.



This research study will explore those parts of the job that may be creating stress for nurse managers and help to identify if nurse managers as a group are more likely to leave the profession of nursing, retire early, or be at risk for disability. Results of this study will provide needed quantitative data about nurse managers in the United States and aid in guiding evidenced-based practice, training, and work re-design to support nurse managers in succeeding in this challenging role. The information from this research is a start in understanding more about nurse managers and gaining evidence for work re-design and developing interventions to improve the working world of nurse managers and promote healthy workplaces.

<https://www.surveymonkey.com/r/nursemanagerstudy>

This research study is being conducted as part of the requirements for a doctoral dissertation and has been reviewed by and in accordance with the University of Texas Medical Branch Institutional Review Board procedures for research involving human subjects. The contact number for this board is 409) 266-9475. If you have questions about this research study, please contact Sarah E A Woolsey, RN, BSN at sewoolse@utmb.edu or (830) 481-7718.

<https://www.linkedin.com/in/saraheawoolsey>

January 1, 2016
Sarah E. A. Woolsey, RN, BA, BSN
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Dear Nursing Leader,

I am writing to invite you and your facility to participate in a research study that will benefit nursing science's knowledge about nurse managers and their state of job stress and work ability. This study is part of my doctoral research and will only be used for scholarly purposes.

The title of the study is *Occupational Health: Exploring Job Stress and Work Ability in Nurse Managers*. Results of this study will provide needed quantitative data about nurse managers in the United States and aid in guiding evidenced-based practice, training, and work re-design to support nurse managers in succeeding in this challenging role. To reach the greatest number of nurse managers, I have chosen to work through existing nurse managers to spread the word about the study rather than using a generic mailing list.

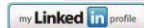
I am asking you to please consider sharing information on how to participate with nurse managers who work in your hospital system per your institutional guidelines and those you may be connected with through your personal network. I have included a flyer and a study description with the study link for easy distribution/posting.

This research study has been reviewed by and in accordance with the University of Texas Medical Branch Institutional Review Board procedures for research involving human subjects. The contact number for this board is (409) 266-9475. Should anyone have any questions about the study, they are invited to contact me directly at sewoolse@utmb.edu or Phone: (830) 481-7718.

Please accept my thanks for assisting me with this important scholarly work.

Sincerely,

Sarah E. A. Woolsey, RN, BA, BSN
Doctoral Nursing Candidate
The University of Texas Medical Branch
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Email: sewoolse@utmb.edu Phone: (830) 481-7718



Announcement 1

ARE YOU A NURSE MANAGER?

Consider participating in a dissertation research study on *Occupational Health: Exploring Job Stress and Work Ability in Nurse Managers!*

<https://www.surveymonkey.com/r/nursemanagerstudy>

Results of this study will provide needed quantitative data about nurse managers' job stress and work ability in the United States and aid in guiding evidenced-based practice, training, and work re-design to support nurse managers in succeeding in this challenging role. Participation is through a brief anonymous online survey.

If you have questions about this research study, please contact Sarah E A Woolsey, RN, BSN at sewoolsey@utmb.edu or (830) 481-7718

<https://www.linkedin.com/in/saraheawoolsey>

This research study has been reviewed by and in accordance with the University of Texas Medical Branch Institutional Review Board procedures for research involving human subjects. The contact number for this board is 409) 266-9475.

Announcement 2



Are you a NURSE MANAGER? Can you spare a few moments to take my survey?

Please take the survey titled "Occupational Health: Exploring Job Stress and Work Ability in Nurse Managers ". Your feedback is important! Results of this study will provide needed quantitative data about nurse managers' job stress and work ability in the United States and aid in guiding evidenced-based practice, training, and work re-design to support nurse managers in succeeding in this challenging role. Participation is through a brief anonymous online survey. If you have questions about this research study, please contact Sarah E A Woolsey, RN, BSN at sewoolsey@utmb.edu or (830) 481-7718. This research study has been reviewed by and in accordance with the University of Texas Medical Branch Institutional Review Board procedures for research involving human subjects. The contact number for this board is 409) 266-9475.

<https://www.surveymonkey.com/r/nursemanagerstudy>

Announcement 3

Are you a Nurse Manager?

My dissertation research study is on Nurse Managers in the United States.

Please consider participating in my study:

Occupational Health: Exploring Job Stress and Work Ability in Nurse Managers!

Visit the study link: <https://www.surveymonkey.com/r/nursemanagerstudy>

If you have questions about this research study, please contact Sarah E A Woolsey, RN, BSN at sewoolsey@utmb.edu or (830) 481-7718

<https://www.linkedin.com/in/saraheawoolsey>. This research study has been reviewed by and in accordance with the University of Texas Medical Branch Institutional Review Board procedures for research involving human subjects. The contact number for this board is 409) 266-9475.

Association of Nurse Executives Display Ad Announcement

ARE YOU A NURSE MANAGER?

Consider participating in a dissertation research study on *Occupational Health: Exploring Job Stress and Work Ability in Nurse*

Managers! <https://www.surveymonkey.com/r/nursemanagerstudy>. Results of this study will provide needed quantitative data about nurse managers' job stress and work ability in the United States and aid in guiding evidenced-based practice, training, and work re-design to support nurse managers in succeeding in this challenging role. Participation is through a brief anonymous online survey. If you have questions about this research study, please contact Sarah E A Woolsey, RN, BSN at sewoolsey@utmb.edu or (830) 481-7718

<https://www.linkedin.com/in/saraheawoolsey> This research study has been reviewed by and in accordance with the University of Texas Medical Branch Institutional Review Board procedures for research involving human subjects. The contact number for this board is 409) 266-9475.

Appendix C: NSI Factors with Subscales

1. Managing the Workload 1(MW1) – Changed to Time Demands and Trivial Tasks (TDT)
 - Trivial tasks interfere with my professional role
 - I spend my time “fighting fires” rather than working to a plan
 - I have too little time to do what is expected of me
 - The demands of others for my time at work are in conflict
 - Time pressures and deadlines
2. Managing the Workload 2 (MW2) – Change to Prioritizing Resources and Workload (PRW)
 - My nursing and administrative roles conflict
 - Administration* expects me to interrupt my work for new priorities
 - Fluctuations in workload
 - Shortage of essential resources
 - Declining priorities
3. Organizational Support and Involvement (OSI)
 - Administration* misunderstands the real needs of my department
 - I only get feedback when my performance is unsatisfactory
 - Relationships with superiors
 - Decisions or changes which affect me, are made “above” without my knowledge or involvement
 - Lack of support from senior staff
4. Dealing with Patients and Relatives (DPR)
 - Dealing with relatives
 - Involvement with life and death situations
 - Difficult patients
 - Bereavement counseling
 - Difficulty in dealing with aggressive people
5. Home/Work Conflict (HWC)
 - I need to absent myself from work to cope with domestic problems
 - Domestic family demands inhibit promotion
 - My superiors do not appreciate my home pressures
 - Over-emotional involvement
 - Job versus home demands
6. Confidence and Competence in Role (CCR)
 - Lack of specialized training for present tasks
 - Coping with new technology
 - Tasks outside my competence
 - Uncertainty about the degree or area of my responsibility
 - Bringing about change in staff/organization

*Word changed from “management” to administration for this study (Harris, 1989)

Appendix D: Summary of English Peer Reviewed Research Articles Using the Nurse Stress Index

Year Published	n	Reliability (Alpha)						Title	Location	Type: Comments
		MW1	MW2	OSI	DPR	HWC	CCR			
2011	235	0.823	only used 5 subscales	0.738	0.717	0.726	0.648	<i>Stressors in nurses working in intensive care units</i>	Portugal	Descriptive: ICU nurses. NSI translated to Portuguese. Sample was all nurses working in an ICU (not specific to those with some management responsibility).
2006	454	Cronbach's Alpha reported as 0.92. Individual scale alpha scores were not reported.						<i>Testing the relationship between job stress and satisfaction in correctional nurses</i>	USA	Correlational: Conducted in USA. A replication of an earlier study. Used "sums" of each scale in NSI to produce a "stress score."
2001	72	Cronbach's Alpha not reported						<i>Self-reported stress and its effects on nurses</i>	Ireland	Descriptive/ Correlational: NSI developed in England NHS. This study conducted in the NHS in Belfast. Author argues that all nurses have "managerial" roles due to changes in NHS, & therefore NSI is applicable to the sample.
2000	129	0.81 – Reported for entire scale, not individual items. Unable to determine which sub-scale of the original NSI was used in this study.						<i>Nursing stress: the effects of coping strategies and job satisfaction in a sample of Australian nurses.</i>	Australia	Descriptive/ Correlational: Author's state they used the "Job Satisfaction Scale" (JSS) from NSI. This scale title is not found in the NSI (1988) literature review for this paper. Authors also state they changed the Likert scale by removing "undecided."
1996	34	Not Reported						<i>Stress in nursing and patients' satisfaction with health care</i>	UK	Correlational: Author's include the JSS as sub-scale #7 from NSI. No JSS sub-scale was found in the resources reviewed for this paper. Author's compared their data to Hingley et al., 1988 norms to conclude their sample had significantly more stress.

Year Published	<i>n</i>	Reliability (Alpha)						Title	Location	Type: Comments
		MW1	MW2	OSI	DPR	HWC	CCR			
1992	149	N/A; See comments						<i>Nurses Enrolled in a Stop Smoking Program: The Role of Occupational Stress</i>	USA	Was not using NSI developed by Hingley et al., 1988.
1989	470*	0.7795	0.6964	0.8200	0.7618	0.6832	0.6784	<i>The Nurse Stress Index</i>	UK	assumed these alpha figures are a re-analysis using only 30 items from the 55 item Stage 2 survey of 470 nurses. Article by one of the NSI developers on how the instrument was developed. *Author does not state if the final short form was re-administered, so it is assumed these alpha figures are a re-analysis using only 30 items from the 55 item <i>Stage 2</i> survey of 470 nurses.

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Vita

CURRICULUM VITAE

NAME: Sarah Elizabeth Allmond Woolsey

DATE: 7/7/2016

**PRESENT POSITION AND
ADDRESS:**

Nursing Professional Development Specialist II
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3615 19th Street
Lubbock, Texas 79410

BIOGRAPHICAL: Ms. Woolsey was born on September 24, 1965 in Galveston, Texas and was licensed as a registered nurse by the State of Texas on January 30, 1996. She has held positions in clinical practice, as well as consulting, supervisory, clinical instructor, and nurse educator roles.

EDUCATION:

B.A. in Humanities, August 1987, The University of Houston at
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Diploma in Nursing, December 1995, Baptist Memorial Hospital
School of Professional Nursing, San Antonio, Texas

B.S.N., August 2008, The University of Texas Medical Branch
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Doctoral Candidate (PhD) in Nursing, The University of Texas
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**PROFESSIONAL
AND TEACHING
EXPERIENCE:**

Surgical Services – Nursing Professional Development
Specialist II
11/2014 to present

Surgical Services – Staff Nurse RN II
08/2014 to 11/2014

Clinical Instructor UTMB SON Adult II Clinical and
Health Assessment Lab
Spring Semester 2014

RN II – PRN, Seton Family of Hospitals
Emergency Department: 6/26/2011 to 7/13/2013

Project Coordinator, RN, Lead, Seton Family of Hospitals
2/7/2010 to 6/25/2011

Clinical Nursing Supervisor, Seton Family of Hospitals
Acute Care: 4/2007 to 2/2010
Other Roles: Staff RN; Medical Surgical and Emergency
Nursing, Nurse Educator, Infection Control & Occupational
Health Nurse
12/2004 to 4/2007

Registered Nurse Seton Premiere Staffing
Seton Family of Hospitals, Austin, Texas
Operating Room and Emergency Department
10/2001 to 7/2004

Registered Nurse and Registered Nurse First Assistant
Guadalupe Regional Medical Center, Seguin, Texas
Specialty: PeriOperative Nursing
7/1996 to 12/2001

RESEARCH ACTIVITIES:

Doctoral Dissertation

Title- *Occupational Health: Exploring Job Stress and Work Ability in Nurse Managers*

Areas of Research Interest

- Health Systems
 - Nursing Practice Workforce
 - Occupational Health
- Health Care Quality, Reliability, and Safety

COMMITTEE RESPONSIBILITIES:

A. State/Regional

- Texas Nurses Association Region 5
Board of Directors: Secretary
April 2010 to May 2012
- Texas Nurses Association Region 5 Scholarship Committee
2010, 2011, & Chair of Committee 2012

B. UTMB

- Graduate School of Biomedical Science: Graduate Student Organization
Nursing Student Representative 2009-2010

MEMBERSHIP IN
PROFESSIONAL SOCIETIES:

- American Nurses Association
- Texas Nurses Association
- Graduate Nursing Student Academy:
AACN
- Sigma Theta Tau Nursing Honor Society
- Association of periOperative Room Nurses

HONORS:

- Texas Team Nurses on Board – 2015
Selected as a member of the Texas Team
Nurses on Board West Texas Region cohort
<http://www.txactioncoalition.org/>
- Association of periOperative Registered Nurses Foundation – 2015
Stryker Professional Education Grant Award
- Kempner Fellowship Award – 2010
Doctoral Scholarship Committee
The University of Texas Medical Branch
- Nursing Endowment Scholarship – 2007
Seton Family of Hospitals

INVITED PARTICIPANT AT SYMPOSIA AND CONFERENCES:

- Seton Family of Hospitals Nursing Symposium – April 2009
Transforming Care at the Bedside: Panel Member

POSTER PRESENTATIONS:

- National Student Research Forum – April 2016
Occupational Health: Exploring Job Stress and Work Ability in Nurse Managers