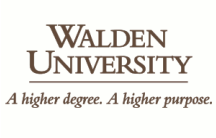

2018

Job Satisfaction and the Effects and Influences on Nurse Retention

Burke N. Kline
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral study by

Burke Kline

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Robert Hoye, Committee Chairperson, Health Sciences Faculty
Dr. Cynthia Newell, Committee Member, Health Sciences Faculty
Dr. Joseph Robare, University Reviewer, Health Sciences Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2017

Abstract

Job Satisfaction and the Effects and Influences on Nurse Retention

by

Burke N. Kline

MHA, Bellevue University, 2015

BS, Bellevue University, 2013

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

Walden University

December, 2017

Abstract

Researchers have predicted that by 2020 the United States will experience a severe shortage of registered nurses. The purpose of this correlation study, using the National Sample Survey of Registered Nurses 2008, was to investigate the relationship between nurse job satisfaction and its effect on nurse retention nationwide. Secondary data sets from the 2008 National Sample Survey of Registered Nurses and examining relationships between the variable of nurse retention and job satisfaction. Bivariate (correlation coefficient, chi squares, and simple linear regression) and multivariate (logistic regression) analyses identified and connected associations and examined measurement levels between the dependent and independent variables, including correlation coefficient (*r*), alpha values, and confidence intervals. Significant inverse relationships, although weak, were found between nurses' age and their job satisfaction level and between the numbers of years since nurses graduated from an initial RN education program and their job satisfaction. In addition, there was a statistically significant relationship between the nurses' highest education level and their job satisfaction. The ordinal regression results showed nurses' age, education, and years practicing since earning the RN were significant predictors of job satisfaction, although other factors might explain changes in satisfaction levels. This study will help bring social change to the health care industry by increasing understanding of what many nurses believe to be important within the nursing field, which could help health care facilities retain qualified nurses. Specifically, the results could help community hospital leaders find innovative ways to support nurses and increase nurse retention in small rural hospitals.

Job Satisfaction and the Effects and Influences on Nurse Retention

by

Burke N. Kline

MHA, Bellevue University, 2015

BS, Bellevue University, 2013

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

Walden University

December, 2017

Dedication

This work is dedicated to God, who gave me the strength, determination, support and focus to achieve my academic goals and who at the time of my career confusion expressly asked me to return to school to learn and improve myself and afford the opportunity to provide more for my family. I would also like to dedicate this work to Penny Shaffer, a dear friend that helped me tremendously along my academic journey. I would also like dedicate this work to my family, my wife Andrea, daughters Ellie and Katelyn and to my Father and Mother for all their support during this long and tenuis journey.

Acknowledgments

I must first and foremost thank God who gave me the marching orders to do this program, opened the way, guided me through, empowered me with health and wisdom to execute it, and saw me through the entire process in record time.

To my wife, Andrea Kline, whose devotion and support has made it possible for me to complete this amazing process. I will forever be grateful. Also, thank you for standing by me and believing in my ability not only to start but to complete this process. My wonderful children – Ellie Kline and Katelyn Kline – who were exceptional inspiration. I made a vow never to fail you nor be a bad example in academics, and life. Thank you for being there for me.

To my father Todd Kline and my mother Ruth Kline, whose words of wisdom and support carried me through difficult and confusing times, which kept me grounded, centered and focused when the I lost sight of my end goals. Thank you for all of your support.

To my dear friend Penny Shaffer, who has spent hours working with me throughout my entire college academic career. Your support and words of encouragement helped push me to where I am today. Thank you so much.

My chair Dr. Robert Hoye went out of his way to ensure that I succeeded in this process. Your guidance was second to none. Committee member Dr Cynthia Newell added exceptional values to the entire process. Thank you.

Finally, I wish to thank all my lecturers in all courses in the DHA program. You all worked in tandem to make me what I am today. You have all over the past 26 months

remolded my thoughts, beliefs, and values. You have changed my understanding of the health care practices and shaped my views about current and future health care administration issues.

You have also added great values to me as a person. For all these and much more, I am very grateful.

Table of Contents

List of Tables

List of Figures

Section 1: Foundation of the Study and Literature Review

Introduction

Nurses have a difficult job, tending each day to challenging patients while working long hours with insufficient staffing. After working in the field for many years and having reached the point of burnout, many nurses are thick-skinned, unfriendly, and unsure if they should have entered into this challenging career. In the face of high attrition, health care administrators are left wondering how to increase nurse job satisfaction retention.

Problem Statement

Researchers have estimated that, by 2020, approximately 400,000 nursing positions will be unfilled (MacKusick & Minick, 2010), doubling the number of vacant positions since the 1960s (Haair, Salisbury, Johannson, & Redfern-Vance, 2014; Upenieks, 2013). Upenieks (2013) reported that a nursing shortage negatively affects the quality of health care delivery. As such, to prevent a decrease in the quality of care caused by the nursing shortage, health care administrators need to further examine how to improve nurses' job satisfaction. This study was designed to identify ways to improve nurse job satisfaction and help administrators understand factors that lead to staffing shortages. The research could contribute to a higher quality of care for patients as well as a properly staffed primary care workforce (Carter & Tourangeau, 2012). By ignoring the nursing shortage and not finding ways to keep existing nurses in the field, health care leaders may be unable to maintain or improve the delivery of service (Randolph, Price, &

Collins, 2012). Improving job satisfaction and retention could help administrators improve nurse job satisfaction in health care organizations.

Purpose of the Study

The purpose of this quantitative correlation study was to investigate the relationship between nurse job satisfaction and nurse retention. Higher job satisfaction can contribute to nurse retention; conversely, lower levels of job satisfaction can lead to increased attrition (Boudreau, 2010). A review the literature uncovered few recent studies assessing the relationship between nurse job satisfaction and nurse retention in this country.

Research Questions

To conduct a quantitative study, researchers must identify specific parameters for data collection before initiating the research (Creswell, 2009). Research questions are an integral part of the research process and determine the parameters that guide the study (Creswell, 2009). For this quantitative correlational study, the research questions were as follows:

RQ1: Are there significant relationships between nurse job satisfaction and the demographic variables of nurse's age, education, and years practicing?

RQ2: Are nurse's gender, age, education, and years practicing significant predictors of nurse job satisfaction?

Many nurses have worked in the nursing field for 10 or fewer years, while many others may have been in the nursing field for 20 years or longer (Bormann, & Abrahamson, 2014). Identifying whether there is a relationship between retention and the

demographics of the nurses could help community hospital leaders to find innovative ways to support nurses and increase nurse retention in small rural hospitals. Many hospitals, particularly in rural areas, could face revenue loss or closure when low staffing levels lead to fewer patients (Bormann & Abrahamson, 2014). The problem manifests in low Hospital Consumer Assessment of Health Care Providers and Systems (HCAHPS) scores and reduced reimbursements from the Centers for Medicare and Medicaid (CMS; McLaughlin & Olson, 2012). Nurse job satisfaction is critical in nurse retention. If nurses perceive they are overworked or think that the environment has changed too much to keep up with new techniques, they may begin to feel burned out. Some female nurses may treat male nurses differently, leading to male nurses' discomfort and thoughts of finding a new profession (Bormann & Abrahamson, 2014). All these factors need to be examined to find a root cause for the nurse shortage (Zhu, 2013).

Hypotheses

Guided by the research questions, a quantitative study is designed to test hypotheses (Creswell, 2009). In this study, each set of hypotheses was tested to examine the relationship between nurse job satisfaction and several demographic variables of nurses: age, education level, and number of years in nursing practice. The null and alternate hypotheses research questions follow:

H_a1: A significant relationship exists between age and nurses' job satisfaction.

H_01: No significant relationship exists between age and nurses' job satisfaction.

H_a2: A significant relationship exists between education and nurses' job satisfaction.

$H_0$2: No significant relationship exists between education and nurses' job satisfaction.

H_a3: A significant relationship exists between years practicing as a nurse and nurse job satisfaction.

$H_0$3: No significant relationship exists between years practicing as a nurse and nurse job satisfaction.

Theoretical Foundation for the Study

Executive leaders in the health care industry are responsible for finding resources and knowledge to improve employee motivation, job satisfaction, and retention (Zhu, 2013). Nurses and nursing staff, a critical part of health care delivery, have the highest number of unoccupied positions, creating a potentially large threat to the quality of health care delivery (Tillott, Walsh, & Moxham, 2013). Although many theoretical models might be considered appropriate for exploring job satisfaction, motivation theory (Herzberg & Snyderman, 1959) best supported this quantitative correlation study.

To help prevent attrition and improve retention, health care leaders must know the factors that affect job satisfaction and the direct link between job satisfaction and nurse retention. Scholars have found several factors that contribute to job satisfaction and the individual or collective effect of those factors on employee retention (Al-Hussami, 2008; Val Palumbo, McIntosh, Rambur, & Naud, 2009). Herzberg and Snyderman (1959) conducted multiple studies to determine factors in work environments that cause job satisfaction or dissatisfaction among employees. Motivation theory centers on intrinsic and extrinsic factors that impact job satisfaction and dissatisfaction (Herzberg &

Snyderman, 1959). Herzberg (1968) believed that extrinsic physiological needs could be met by employee wages, relationships, and the amount of supervision given to employees. Herzberg later suggested that intrinsic psychological needs promote motivation and are directly related to an employee's sense of achievement, recognition, personal growth and development, and career advancement.

Nature of the Study

A quantitative research design for this study was appropriate. Quantitative research is guided by research questions, hypotheses, and objectives (Creswell, 2009). I used secondary data from the National Sample Survey of Registered Nurses 2008 (NSSRN, 2008) to conduct a cross-sectional designed analysis to examine the participants' past experiences, backgrounds, and attitudes. Cross-sectional designs are an attempt to find relationships between variables (Frankfort-Nachmias & Nachmias, 2008) to identify any relationship between both independent and dependent variables. These variables were age, education level, and number of years in nursing practice. Participants' answers to a Likert-style (Creswell, 2009) questionnaire were analyzed and interpreted to measure the relationships between identified variables (Creswell, 2009).

Literature Search Strategy

The following databases found in the Walden University Library were searched: PubMed, CINAHL Plus with Full Text, MEDLINE with Full Text, Inter-university Consortium for Political and Social Research (ICPSR), Dissertations & Theses, Dissertations & Theses at Walden University, ProQuest Central, Scholar Google, Google and PubMed.

The following key terms were used for the search: *job satisfaction, nurse retention, nursing shortage, reasons nurses are leaving health care, nurse job incentives, nursing labor demands and hospital work environments,* and *job dissatisfaction*. Although the search for literature was open-ended, I focused most of my attention on peer-reviewed primary publications from an 8-year parameter (2008 to 2016). I also reviewed a small selection of doctoral capstones from the Walden University Library.

Framework of the Literature Search

Of particular relevance to this study was how job satisfaction affects nurse retention, measured by several criteria: tenure as a nurse, a nurse's age, and management characteristics. A search of the literature revealed the need for additional research on this topic based on gaps on the subject and weaknesses in the findings.

Literature Related to Methodology

A quantitative cross-sectional design was undertaken in this research. According to Creswell (2009), "Survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population" (p. 149). The decision to sample this population of interest with secondary data was appropriate because cost, time, and access to all members of the population would not have been possible. Cross-sectional design is common with research surveys (Creswell, 2009). In cross-sectional research designs, researchers ask a set of questions to a random sample of participants. These questions typically include questions about the participants' past experiences, backgrounds, and attitudes to find relationships between variables (Frankfort-Nachmias & Nachmias, 2008).

Literature Review Related to Key Variables and Concepts

Managerial Leadership Behaviors

The leadership styles and practices of nurse supervisors must be monitored to improve patient care and increase the retention of newly graduated nurses in the face of a national nursing shortage. Transformational leadership practices might lead to a high quality of care and reduce the intention for nurses to quit their current health care organization (Coomber, & Barriball, 2007). Conversely, abusive leadership practices (bullying, out-grouping, and favoritism) can result in a poorer quality of care for patients and increased intention to quit the nursing profession and, in some cases, the health care field altogether (Lavoie-Tremblay, Fernet, Lavigne, & Austin, 2016). Effective leadership styles among nurse managers have been associated with staff nurse job satisfaction and retention, although both transformational and transactional leadership styles have been described as effective leadership styles (Kleinman, 2004). Kleinman (2004) examined managers' and their staff nurses' perceptions of managerial leadership behaviors associated with staff nurse turnover and nurse manager leadership behaviors. Kleinman conducted a descriptive, correlational study of 79 staff nurses and 10 nurse managers at a 465-bed community hospital in the northeastern United States. Participants completed the 45-item Multifactor Leadership Questionnaire, which measures 12 dimensions of leadership style. Kleinman concluded that many leadership styles and factors contribute to nurse communication and job satisfaction.

Nurse Autonomy

Varjus, Leino-Kilpi, and Suominen (2011) examined the perceptions of staff nurses regarding autonomy, task orientation, and work pressure to better understand influences on workforce burnout and turnover. Nurses with less experience perceived their level of autonomy as higher than more experienced nurses in terms of freedom to make decisions and use of initiative and independent functioning; they also perceived task orientation as higher in terms of work-oriented attitudes, and work completion by each nurse was viewed as a higher priority than experience. Kutne-Lee, Wu, Sloane, and Aiken (2013) noted that one way to alleviate nursing shortages is promoting organizational efforts that might improve nurse recruitment and retention. Cross-sectional studies have shown that the quality of the nurse work environment is associated with nurse outcomes related to retention (Creswell, 2009).

Nurse turnover directly affects the morale of those remaining within the environment and often causes a domino effect among the staff (Bae, Mark, & Fried, 2010; De Gieter, Hofmans, & Pepermans, 2011). Bae et al. (2010) explored how nurse turnover affects workgroup processes throughout an organization and how it directly affects nurse turnover and influences patient health outcomes. Nurses who are not happy or satisfied with their work environment often exhibit a higher turnover and an increased attribution rate (Esnard, Bordel, & Somat, 2013). When turnover is high, organizations often work shorthanded, and remaining nurses must then fill positions and work in unfamiliar areas, which can negatively affect the nursing team dynamics. Staff morale

and team efficiency declines, as do the patient experience and positive patient health outcomes (Esnard et al., 2013).

Stress and Burnout

Milliken, Clements, and Tillman (2007) examined how employee stress and burnout commonly lead to myriad health-related problems that result in significant organizational consequences. The future of the profession, and more imminently, patient care and the health of nurses, may be significantly affected by high levels of stress and burnout, which contribute to organizational problems, burnout, and attrition (Milliken et al., 2007).

Financial Burdens

From a cost perspective, nurse turnover can add a financial burden to an organization because of a loss in productivity, the cost of retraining new nurses, and organizational inefficiencies (Park & Jones, 2010), including the quality of care provided. Retraining, recruitment, labor contracts, and employee overtime can be expensive to an organization and can have a negative impact of the organization's ability to meet its operational budgets. Nurse turnover costs approximately $88,000 per nurse (Park & Jones, 2010), and organizations spend approximately $300,000 annually for every 1% increase in nurse turnover (Jones, 2008). Arnold (2012) found the cost to hire a new graduate registered nurse (RN) in 2011 was $96,595.

Patient Quality of Care

As noted earlier, nurse turnover can directly affect quality of care to patients to include values and expectations of care to patients, which can have a negative impact on

hospitals revenue (Martin, 2015). If a hospital has negative patient health outcomes, the hospital will receive lower reimbursement payments or no reimbursement payments at all, which may affect certain service-line stabilities. Hospitals that have an increased level of transparency give customers the ability to shop for their hospital of choice after comparing a hospital's quality of care outcome data (Hayes, Bonner, & Pryor, 2010). Hospitals with poor quality outcomes may receive a lower reimbursement rate and experience the loss of patients who shop for health care based on quality data.

Negative Staff Interaction and Relationships

A collaborative working relationship between nurse and physicians is a critical dynamic that can directly influence nurse job satisfaction and the quality of care given to patients. If a nurse is uncomfortable working with a physician or hesitates to ask a physician for clarification, the working relationship suffers, along with the quality of care provided by the nurse (Abbott, De La Garza, Krantz, & Mahvi, 2011). The nurse has a responsibility to the patient to be their advocate and to ensure that a patient has a positive health outcome (Abbott et al., 2011). A physician with disruptive behavior, a demeaning view of nurses, and poor communication skills can leave the nurse with negative feelings about a patient care issue. The result is lower morale and dissatisfaction in the nurse's work environment (Abbott et al., 2011). In contrast, positive nurse-physician relationships increase the nurse's job satisfaction and willingness to stay within an organization. Certain variables such as time exposure to residents and working in certain high acuity areas are associated with negative emotions and adversely affect nursing satisfaction. This is particularly true among less-experienced nurses (Kutne-Lee et al.,

2013). Laschinger, Wong, and Grau (2013) argued that burnout is an intermediate response to negative working conditions and a precursor of job dissatisfaction leading to turnover. According to their model, increasingly heavy workloads, lack of control over work duties, inadequate rewards and recognition by management, and poor working relationships with fellow staff members often lead to a state of emotional exhaustion, frequently viewed as the culprit for nurse burnout.

Nurse Retirement

Val Palumbo et al. (2009) examined how the expected retirement of thousands of nurses will push the RN workforce below the projected need by 2020. The challenges of managing a nursing workforce with the majority of nurses over 45 years of age require new strategies to recruit and retain older nurses, particularly in rural areas (Lu, H., While, & Barribal, 2005). Val Palumbo et al. explored rural RNs' perceptions of intent to stay in their current position with their organization. The authors mailed a survey to investigate perceptions of nurses in 12 health care institutions (four hospitals, seven home health agencies, and one nursing home serving a small rural state). The results indicated that although there were similarities across age cohorts, crucial differences could be addressed to create career-span sensitive policies and practices (Val Palumbo et al., 2009). The Val Palumbo et al. study provided an indicator of progress in addressing older nurse recruitment and retention and offered guidance for differentiating policies and practices for younger and older nurses.

As noted above, an aging nurse workforce suggests the need to fill many nursing positions over the next decade. McIntosh, Rambur, Val Palumbo, and Mongeon (2003)

examined characteristics of nurses who stayed beyond the traditional retirement age of 62, with a goal of providing an empirical base for retention activities aimed at this age cohort. Primarily because of low salary and dissatisfaction with job assignment, nurses under age 40 were most likely to indicate that they intended to leave within 12 months (27.1%) than those older than 40 years of age. Those over the age of 61 were the most stable age cohort, with 70% of those between 66 and 70 and 60% of the nurses older than 71 reporting that because of employer benefits they did not plan to leave their positions (McIntosh et al., 2003). Dotson, Dave, Cazier, and Spaulding (2014) suggested that health care reform, an aging and retiring workforce, and the changing national economy will continue to increase demand for RNs, particularly in light of mandates from the CMS and Affordable Care Act. Because a half million nurses are forecasted to retire by 2020 (MacKusick & Minick, 2010), retaining this remaining workforce is needed to ensure success of individual health care organizations and the industry as a whole.

Halfer (2011) reviewed several studies of possible improvements in job satisfaction and retention after structured mentoring programs were implemented for new graduate nurses. Despite successful transition programs, turnover for nurses after 1 to 3 years of organizational tenure remained high. Younger nurses, those who did not feel part of the work team, and those who thought they did not fit in well with the hospital were more likely to leave the organization earlier in their nursing career (Halfer, 2011). Studying factors that contribute to retention and supporting careers beyond the first year of practice may have a significant effect on improving retention.

Definition of Terms

In this study, terms were defined as follows:

Baby boomers: The population born between 1945 and 1960 (Weston, 2006).

Job satisfaction: "An emotional-affective response to a job or specific aspects of a job" (Spector, 1985, p. 695).

Nursing: "The protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities and populations" (American Nurses Association [ANA], 2004, p. 7).

Pay: The exchange of money for services delivered or work completed (Spector, 1985).

Quality: A term referring to six aims for health care improvement: safe, effective, patient-centered, timely, efficient, and equitable (Institute of Medicine, 2001).

Registered nurse (RN): A person practicing nursing after passing the licensure examination who has received a license by a governing state board of nursing according to the licensing state's Nurse Practice Act (ANA, 2004).

Assumptions

This study was based on several assumptions:

- The NSSRN (2008) was a valid and reliable cross-sectional study carried out using a probability sample technique.
- Data entry was conducted in the most efficient and effective manner with minimal errors.

- Any missing data occurred in a random manner, and thus their absence did not bias the NSSRN study, even if a list or case of data using a deletion technique was used in data management (Langkamp, Lehme, & Lemeshow, 2010).
- Participants in this study answered all questions truthfully concerning the various variables used in the study.
- The expected dependent and independent variables were contained in the secondary dataset identified for this study.
- The dataset holders willingly released the dataset for this analysis upon request.
- The dataset had enough cases and variables for unbiased study of the variables of interest.

Limitations

These limitations are hereby acknowledged:

- This study was a secondary data analysis; thus, certain variables that may have added value to this study were not included in the dataset.
- Missing data may have affected the inference drawn from this study, and I could not modify the dataset to ensure no missing data.
- This dataset was collected on March 10, 2008, more than 9 years prior to this study.
- The quality of the dataset was dependent on the research and field workers who collected the primary data, the statisticians and data clerks who inputted

the data into system, and the capacity of the staff who watched over the dataset.

Scope and Delimitations

This study was based on the 2008 NSSRN study, which examined different variables that could influence nurse job satisfaction. I had no primary data collection or contact with the participants in the study.

The delimitations of the study follow:

- This study was delimited to a cross-sectional retrospective descriptive study. There were neither control groups for comparison nor interventions for temporal analysis.
- The data analyzed in this study were purely secondary without any opportunity for primary data collection. Thus, only variables available in the dataset were analyzed.
- The study was delimited to the variables present in the dataset selected for this study.
- The study was delimited by the number of questions (68) in the data collection tool as well as the sample size. A total of 55,171 RNs were sampled for the NSSRN 2008 survey, of whom 870 were determined to be ineligible because they no longer had an active RN license. Completed surveys totaled 33,549, yielding a response rate of 62.4%.
- The study was also delimited to the information collected by the data collectors at the time of the study.

Significance of the Study and Potential for Social Change

The study was designed to examine the relationship between nurses' demographics and their retention, which, in turn, could shed light on the overall nursing shortage. Specifically, the results could help community hospital leaders find innovative ways to support nurses and increase nurse retention in small rural hospitals. Rural hospitals, specifically, face closure when staffing levels influence reduced patient volumes, loss of revenue, low scores, and reduced reimbursements from the CMS (McLaughlin & Olson, 2012). Nurses' job satisfaction is a critical factor in nurse retention. By addressing the causes of nurses' exit from their profession, hospitals and clinics can create new on-boarding programs and policies that could help to retain future nurses and reduce occupational stress and nurse attrition, resulting in cost containment and reduced labor shortages in rural hospitals.

Nurses are the frontline workers in the health care industry and tend to work long hours in stressful areas of medicine. In the face of increasing demands, hospitals have been directly affected by a shortage of nurses, and those who remain tend to be unhappy and overworked nurses because of the lack of support and the long hours worked with improper staffing ratios (MacKusick & Minick, 2010). This affects both patient care quality and patient satisfaction, resulting in lowered revenue due to nonreturning patients and lowered HCAHPS scores that directly reflect CMS reimbursements to hospitals.

Smaller rural hospitals struggle to maintain revenue levels to sustain the operation of the rural hospital, which can affect the employees, patients, and community (Haair et

al., 2014). This study promotes social change by addressing hospital sustainability caused by lower patient volumes related to nursing issues and lower CMS reimbursements.

Summary and Conclusion

In this chapter, I presented an overview of the empirical literature associated with job satisfaction and its relationship to nurse retention. The topics I reviewed included nurse tenure, individual nurse age, management styles, and other external factors. In addition, the chapter included the purpose of the study, the nature of the study, the research questions and hypothesis, a detailed literature review, limitations of the study, delimitations, and assumption. This chapter ended with a description of the study's potential impact on positive social change.

Chapter 2 focuses on the methodology. The population is described, the dataset is discussed, data management processes are further explained, and ethical issues and threats to validity are addressed.

Section 2: Research Design and Data Collection

Introduction

In this chapter, I explain how I conducted the study, specifically the design, secondary data management processes, sampling techniques, ethical considerations, and threats to validity.

Research Design and Rationale

To avoid duplication and save time, I conducted a retrospective cross-sectional descriptive inquiry (Creswell, 2009; Ghauri & Gronhaug, 2010). I also avoided ethical concerns typically associated with primary data collection, including clients' confidentiality (Yiannakoulias, 2011). I considered conducting a mixed-methods study to augment the previously collected survey; however, this quantitative methodology was deemed appropriate because of the original survey design and data collection method.

Methodology

Secondary Dataset Management

I used the ICPSR database and the Data.gov website to locate the NSSRN (2008) dataset. These data are publicly accessible and can be used without formal written permission. Researchers using the ICPSR database must read and agree to follow all terms and conditions associated with the datasets before entrance to the database is granted. Written consent was provided by the Health Resources and Services Administration to use all data for this study with few limitations (Appendix A). Figure 1 shows the data management process.

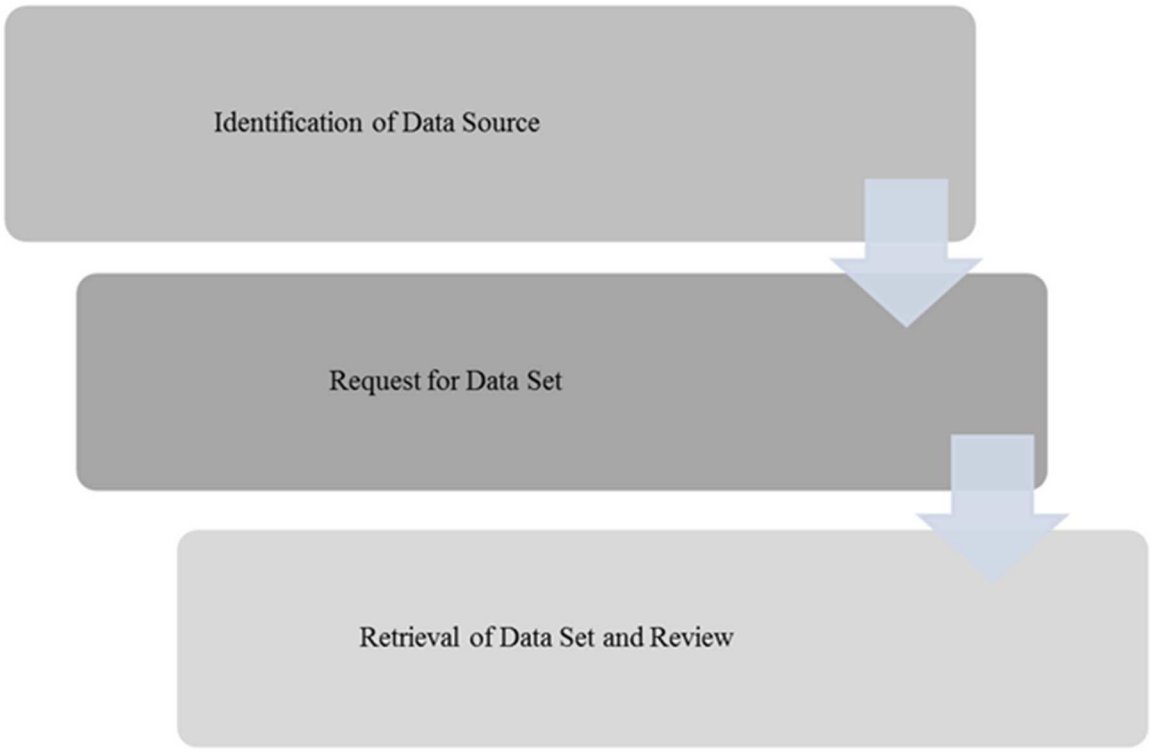

Figure 1. Data management process.

Sampling and Sampling Procedure

The data were compiled from a modified dataset that lent itself to stratified systematic sampling techniques, with multiple strata developed for age level, dual license, and employment commuting effects. The samples were selected by the NSSRN (2008) survey from then-current licensure lists in each state. Sampling weights for each state were calculated and added to the record of each nurse in the respective data files, with adjustments made in these weights for nurses who had multiple licenses. Although some nurses were sampled in sequential surveys, this was a cross-sectional set of survey response files, and no attempt was made to track the same nurse's career over time.

Inclusion and Exclusion Criteria

All participants in this data collection process were RNs from all 50 states from varying sized hospitals and medical centers. The primary data collectors wanted a broad selection encompassing RNs from different geographic areas and organizational sizes.

Data Collection Tools

The NSSRN (2008) survey is the largest survey of RNs in the United States. The survey was sent to a small percentage of the actively licensed RNs in each state. Nurses were asked to report on their education, employment, intentions regarding nursing work, and demographics. These data were used to assess the status and trends in the United States nursing workforce. The survey questionnaire for 2008 was revised from the 2004 questionnaire to address then-current issues. The multimedia data collection included Internet, paper, and nonresponse follow-up by telephone.

Quality Assurance and Control

To ensure the highest quality, the data were analyzed using SPSS, version 21. Initially descriptive analyses were conducted to verify any missing data, outliers, and consistency of the dataset.

Sample and Population Size

A total population of 55,171 RNs was sampled for the NSSRN 2008 survey, of whom 870 were determined to be ineligible because they no longer had an active RN license. Of the 55,171 RNs, a sample size of 33,549 reflected a response rate of 62.4%.

The 2008 NSSRN sample design was based on independent systematic random samples selected from state-based strata, with equal probability of selection within each

stratum. An equal probability systematic random sample can be thought of as randomly selecting a record from the beginning of a list with probability 1/*n* and then every *n*th record after that until all records on the list have had a chance of being selected. The 2008 NSSRN sample design was straightforward to implement and eliminate the clustering that could contribute undesirable variability to survey estimates, particularly for survey results associated with race/ethnicity.

Each state (and the District of Columbia) maintains a list of actively licensed RNs. These state lists were used to draw a probability sample of RNs for the NSSRN from among those RNs who were licensed as of the end of 2007 or early 2008. Nurses appearing in the listings of licensed RNs for more than one state had multiple chances of selection for the 2008 NSSRN. To avoid duplication, multistate strata were formed for several groups of states where interstate commuting was expected to be sizeable. Probability matching was used to form such strata so that only a single record for those RNs appeared in the listing for the multistate stratum. The final sample size was expected to yield sufficient completed surveys to support stable state, regional, and national estimates. Data were collected on the RN population who were actively licensed as of March 10, 2008.

Justification for the Effect Size, Alpha Level, and Power Level Chosen

Because this was a stratified multistage cluster study, the minimum effect size was chosen to allow for best external validity. The alpha level of 0.5 was chosen to reduce Type 1 error while the power level of 80 reduced Type 2 error. A nonresponse/attrition factor of 10% was added to account for nonresponse/attrition of

selected nurses. These figures were chosen for better external validity and improved outcomes from generalization of the study findings. The sample size of 33,549 nurses used in this study was far higher than the calculated sample size using the above parameters.

Operationalization

Nurse retention was the dependent variable in this study. Any nurse who did not have an active RN license was disqualified (e.g., licensed practical nurses, or an RN with an expired nursing license). The NSSRN (2008) survey consisted of 68 questions sent throughout to varying health care facilities throughout the country to study aspects of nursing. I examined 27 of the 68 questions that aligned with nurse retention and job satisfaction. The 27 questions were numbered 1 through 18, 43, 42, 44, 56, 58, 62, 64, 65, and 68.

The key independent variables were age, highest level of education, years of service, intent to remain in nursing, and overall job satisfaction. Based on these variables, the reported retention and burnout rates would indicate a correlation and effects on nurse retention.

Data Collection Technique

The dataset was collected over a period of 30 to 33 months from March 2008 to May 2011, taking 3 years to gather the survey data from 2008. The data collection for the NSSRN occurs every 4 years. The 2008 NSSRN employed a multimode approach to data collection. Using contact information contained in state licensing records, sampled RNs were first notified of the study via a letter mailed through the U.S. Postal Service. The

letter invited RNs to complete a survey via the Web. Shortly after the Web invitation was sent, paper surveys were also sent via postal mail. Finally, RNs who did not respond were contacted by telephone and expedited mail.

Proposed Data Analysis Plan

As shown in Figure 2, I conducted a simple descriptive analysis. Bivariate (correlation coefficient, chi square, and simple linear regression) and multivariate (logistic regression) analyses identified and connected associations and measurement levels between the dependent and independent variables (Green & Salkind, 2014). I calculated correlation coefficient *r*, alpha values, and confidence intervals. Finally, I conducted a multiple logistic and linear regression analysis to reduce statistical errors (Hall, 2015).

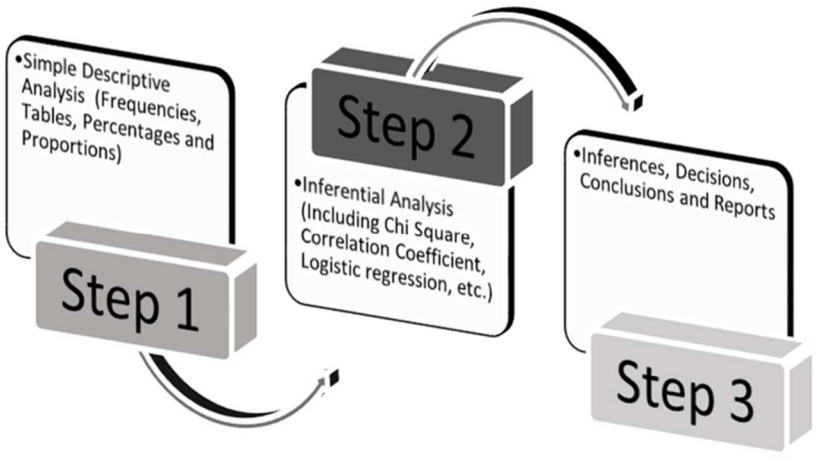

Figure 2. Data analysis process.

Research Questions and Hypotheses

RQ: Are there significant relationships between nurse job satisfaction and the demographic variables of nurse's age, education, and years practicing?

RQ2: Are nurse's gender, age, education, and years practicing significant predictors of nurse job satisfaction?

H_a1: There is no significant relationship between age and nurses' job satisfaction

$H_0 1$: There is a significant relationship between age and nurses' job satisfaction.

H_a2: There is no significant relationship between education and nurses' job satisfaction.

$H_0 2$: There is a significant relationship between education and nurses' job satisfaction.

H_a3: There is no significant relationship between years practicing as a nurse and nurse job satisfaction.

$H_0 3$: There is a significant relationship between years practicing as a nurse and nurse job satisfaction.

Threat to Validity

Although the NSSRN 2008 dataset has been validated several times, a few threats to content and construct validity persisted. One limitation was the limited number of variables available for this analysis, and any absence of essential variables, such as missing data, inherent bias, and unaccounted errors in the data collection processes. To reduce these threats, these data were revalidated using SPSS, which has a preloaded set of validating rules. Internal validity was not a problem. The data included the geographic

location of the national survey and the restrictions placed on the RNs who qualified for the survey.

Response rates are often used to help assess the quality or unbiasedness of survey results. The 2008 NSSRN unweighted response rate was 62.412%, with a weighted response rate of 61.48%. Weighted response rates account for sample design and probabilities of selection, adjusting for the fact that some states and strata were represented disproportionately in the sample. The weighted response rate for this survey can be interpreted as an estimate of the expected propensity to respond, RN randomly selected from among all RNs currently licensed in the nation.

Ethical Considerations

This study entailed an analysis of a secondary dataset examining key variables collected in the 2008 NSSRN survey. I had no direct contact with participants in this study, and all participants were anonymous. IRB approval was obtained for this study from Walden University on July 25, 2017, with the approval number of 07-25-17-0631582.

Summary

In this chapter, I elaborated on the research design (cross-sectional, retrospective, quantitative approach of inquiry) and the rationale and methodology of the study. Sampling and sampling procedures, secondary data management techniques, and instructional and operationalization of the constructs were described. I operationalized the variables by describing the dependent and independent variables and their means of

measurement, data collection and management techniques, and data analysis plan. I also explained the threats to validity and ethical considerations of this study.

In Chapter 3, I present the results. The time frame of data collection is further described, along with response rates and descriptive demographics characteristics of the sample, and univariate, bivariate, and multivariate analyses.

Section 3: Presentation of the Results and Findings

Introduction

The purpose of this quantitative correlational research design was to investigate the relationship between nurse job satisfaction and nurse retention. Higher job satisfaction can contribute to nurse retention, and lower levels of job satisfaction can lead to increased attrition (Boudreau, 2012). The dataset was collected over a period of 30 to 33 months from March 2008 to May 2011, taking 3 years to gather the survey data from 2008. The data collection for the NSSRN occurs every 4 years with a response rate of 62.4%. A review the literature uncovered few recent studies assessing the relationship in the United States between nurse job satisfaction and nurse retention.

Descriptive Statistics

The independent variables of nurses' education level before becoming an RN and their gender are shown in Tables 1 and 2. Table 2 shows that most respondent nurses (93%) were female.

Table 1

Frequency of Highest Education Before RN

	Frequency	Percent	Valid Percent	Cumulative Percent
No Degree	26304	78.9	78.9	78.9
Associates in Nursing	2988	9.0	9.0	87.8
Bachelor's	3509	10.5	10.5	98.3
Master's	461	1.4	1.4	99.7
Doctorate	56	0.2	0.2	99.9
Other Degree (Post-Master's Certificate)	34	0.1	0.1	100.0
Total	33352	100.0	100.0	

Table 2

Gender of Nurses

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	2348	7.0	7.0	7.0
Female	31004	93.0	93.0	100.0
Total	33352	100.0	100.0	

Some nurse respondents had an associate's degree (9.0%) or bachelor's degree (10.5%) before becoming an RN. More than three fourths (78%) of nurse respondents had no degree prior to earning their RN (78.9%). The pie chart in Figure 3 displays these results.

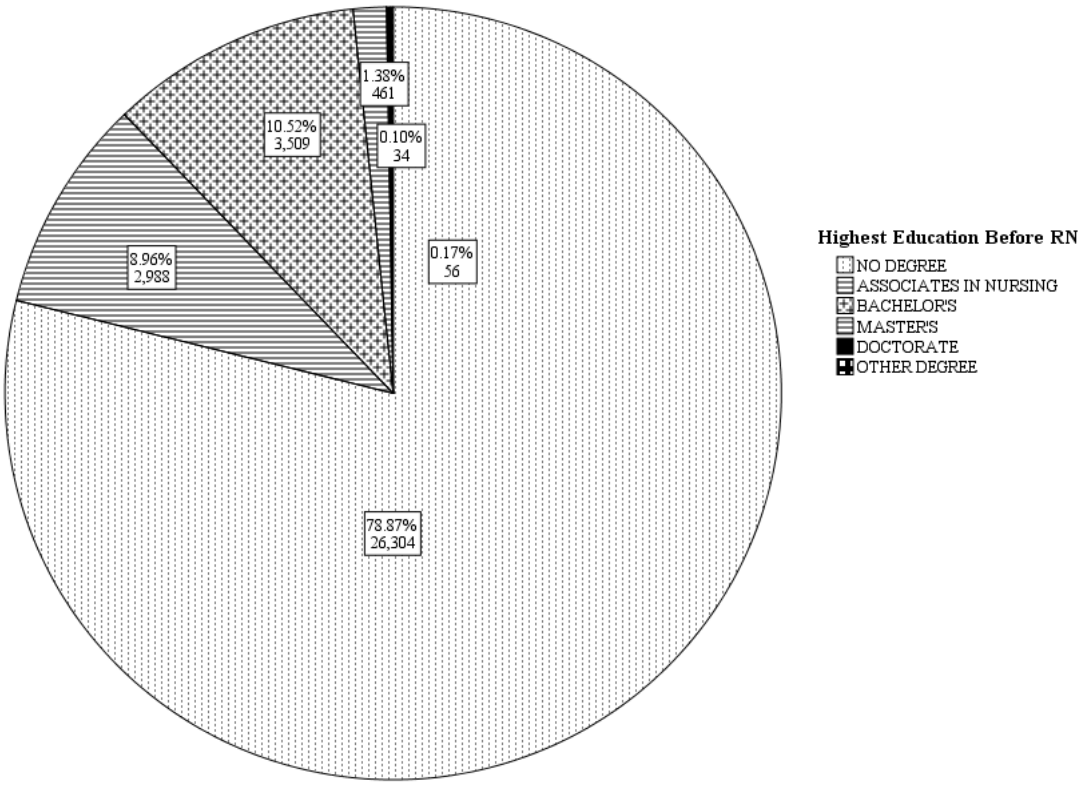

Figure 3. Pie chart of highest education earned before the RN.

Descriptive statistics for the number of years since the nurses graduated from the initial RN education program appear in Table 3. The mean number of years since graduation was 20.3 years (*SD* = 13.11 years). The distribution was slightly skewed to the right (skewness = 0.336). The data were significantly spread with a range of 70 years. The boxplot in Figure 4 shows several outliers and that the distribution was nonnormal.

Table 3

Years Since Graduated From Initial RN Education Program

Statistic		Value
N	Valid	33352
	Missing	0
Mean		20.2754
Median		20.0000
Std. Deviation		13.10743
Skewness		0.336
Range		70.00
Minimum		0.00
Maximum		70.00

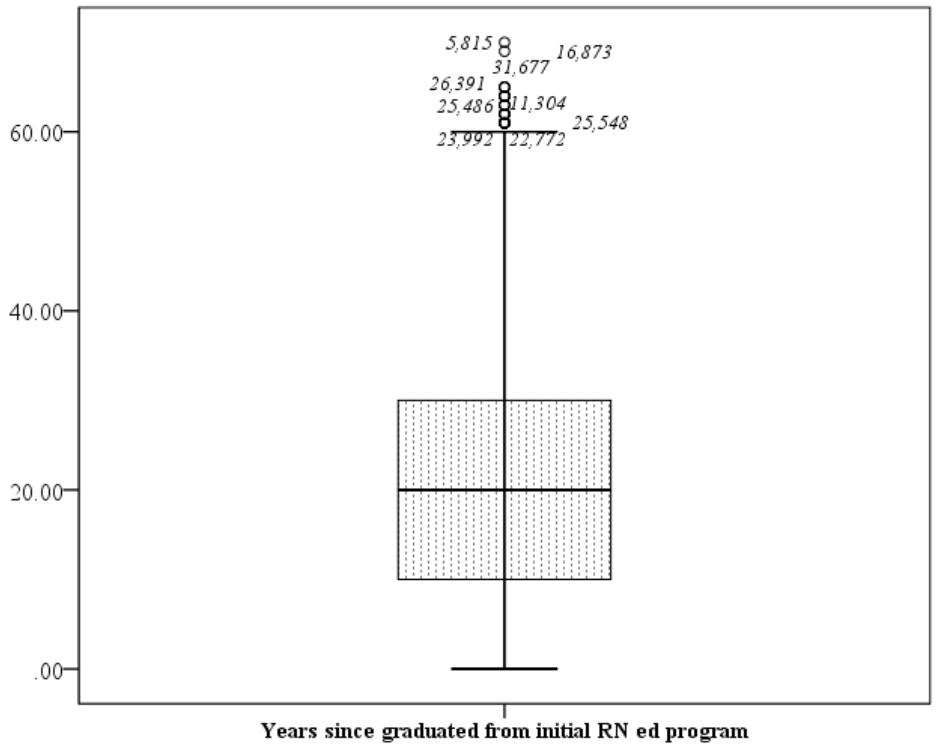

Figure 4. Boxplot of number of years since RN education.

The distribution of nurse age in 2007 was slightly skewed to the left (skewness = -0.106). The average nurse age (M = 47.9) and standard deviation (SD = 11.93) indicated much spread in respondent age data (see Table 4). A boxplot shows that the distribution as not normal, with several outliers (see Figure 5).

Table 4

Age of RN in 2007

Statistic		Value
N	Valid	33352
	Missing	0
Mean		47.9045
Median		49.0000
Std. Deviation		11.93156
Skewness		-0.106
Range		73.00
Minimum		19.00
Maximum		92.00

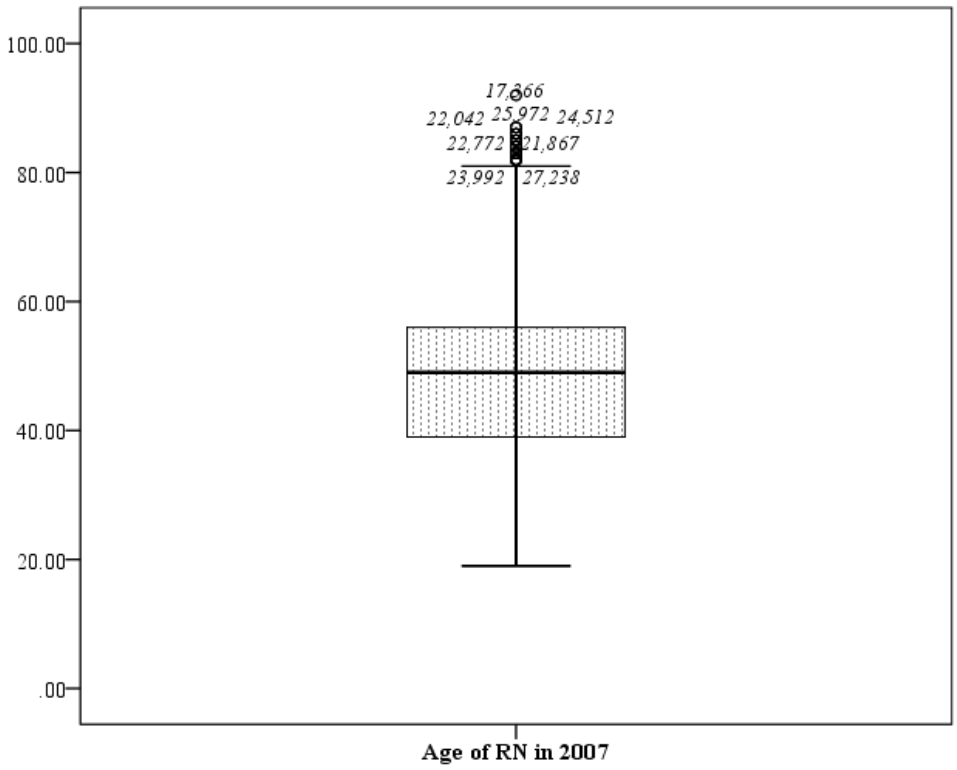

Figure 5. Boxplot for age of nurse in 2007.

The frequency table for dependent variable nurse job satisfaction is indicated in Table 5. Only 11.5% of RNs were dissatisfied with their principal/most recent position. The majority (50.1%) were only moderately satisfied. The frequency distribution is displayed in Figure 6.

Table 5

Nurse Satisfaction With Principal/Most Recent RN Job

		Frequency	Percent	Valid Percent	Cumulative Percent
	Extremely satisfied	10152	30.4	30.7	30.7
	Moderately satisfied	16589	49.7	50.1	80.8
	Neither satisfied nor dissatisfied	2561	7.7	7.7	88.5
	Moderately dissatisfied	2877	8.6	8.7	97.2
	Extremely dissatisfied	914	2.7	2.8	100.0
	Total	33093	99.2	100.0	
Missing	Neither currently nor previously employed	259	0.8		
	Total	33352	100.0		

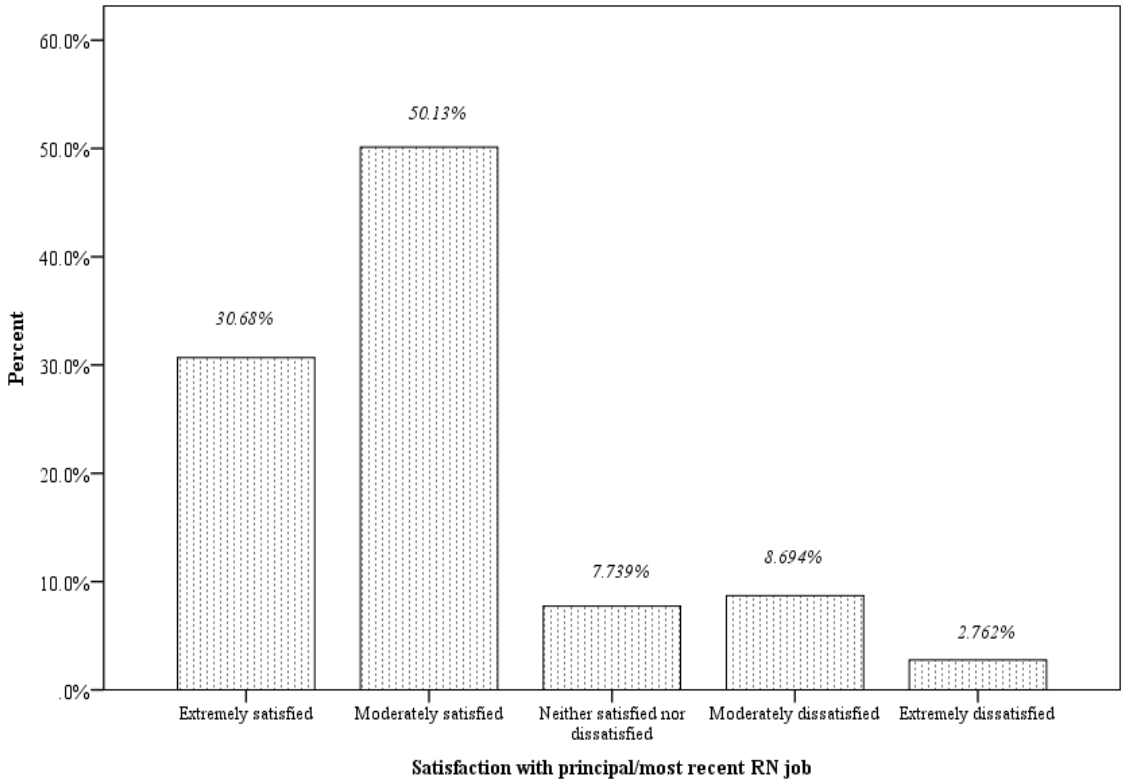

Figure 6. Bar graph of job satisfaction.

Of the total 33,352 respondents, 4,119 nurses decided not to continue as an RN. As shown in Table 6, the primary reasons included personal (32.7%), work stress (18.7%), scheduling (15.8%), inadequate staffing (13.4%), burnout (13.1%), physical demands (12.7%), and disability (11.7%).

Table 6

Reasons Respondent No Longer an RN

Reason	Yes (%)	No (%)
Personal	32.7	67.3
Work Stress	18.7	81.3
Scheduling	15.8	84.2
Inadequate Staffing	13.4	86.6
Burnout	13.1	86.9
Physical Demands	12.7	87.3
Disability	11.7	88.3
Low Salary	9.9	90.1
Out-of-Date Skills	9.9	90.1
Career Change	9.3	90.7
Illness	7.9	92.1
Lack of Collaboration	6.5	93.5
Liability Concerns	6.3	93.7
Travel Demands	3.9	96.1
Lack of Good Leadership	3.8	96.2
Returned to School	3.7	96.3
Difficulty Finding Position	3.4	96.6
Volunteering as RN	3.4	96.6
Cannot be Professional	3.2	96.8
Other Reason	0.5	99.5

Hypothesis Testing and Data Analysis Results

Research Question 1

RQ1: Are there significant relationships between nurse job satisfaction and the demographic variables of nurse's age, education, and years practicing?

$H_0$1a: There is no significant relationship between age and nurses' job satisfaction.

H_a1a: There is a significant relationship between age and nurses' job satisfaction.

$H_0$1b: There is no significant relationship between education and nurses' job satisfaction.

H_a1b: There is a significant relationship between education and nurses' job satisfaction.

$H_0$1c: There is no significant relationship between years practicing as a nurse and nurse job satisfaction.

H_a1c: There is a significant relationship between years practicing as a nurse and nurse job satisfaction.

The first hypothesis tested whether there was a statistically significant relationship between the nurse's job satisfaction and age, education level before the RN, and years practicing as an RN. Table 7 shows that the assumption of normality failed for both nurse's age and years since graduating from an RN program. Therefore, both variables are considered ordinal for the purposes of analysis.

Table 7

Tests of Normality of Nurse's Age and Years since Graduating from RN Program

	Kolmogorov-Smirnov[a]		
	Statistic	*df*	Sig.
Age of RN in 2007	0.059	33352	0.000
Years since graduated from initial RN education program	0.075	33352	0.000

a. Lilliefors significance correction

The hypotheses were tested with a Spearman's rho (ρ) correlation for the ordinal pairs (see Table 7 tests of normality) of age with job satisfaction and years practicing as an RN with job satisfaction. A crosstabulation with chi-square (χ^2) measure of association was used for testing the relationship between education level and job satisfaction.

The results of the nonparametric correlations between nurse's age and years as an RN with job satisfaction are provided in Table 8.

Table 8

Nonparametric Correlation: Nurse's Age and Years as an RN by Job Satisfaction

			Satisfaction with principal/most recent RN job
Spearman's ρ	Age of RN in 2007	Correlation Coefficient	-0.112**
		Sig. (2-tailed)	0.000
		N	33093
	Years since graduated from initial RN education program	Correlation Coefficient	-0.126**
		Sig. (2-tailed)	0.000
		N	33093

The null hypothesis was rejected. There was a statistically significant relationship between nurses' age and their job satisfaction level [$\rho(33093) = -0.112$, $p < 0.01$]. The

relationship was considered significant but weak ($\rho = -0.112$) and signified that as nurses' age increased, their satisfaction in the job decreased. Likewise, from Table 8, the null hypothesis was rejected and alternate accepted that the number of years since nurses graduated from an initial RN education program and their job satisfaction were significantly related [$\rho(33093) = -0.126$, $p < 0.01$]. The relationship was weak ($\rho = -0.126$), and as the number of years graduating from the RN program increased, their job satisfaction as an RN decreased.

To test the last pair of variable relationships, a cross tabulation with measures of association were conducted for the RNs' highest education level prior to their RN with job satisfaction (Tables 9 through 11).

Table 9

*Crosstabulation of Highest Education Before RN * Satisfaction With Principal/Most Recent RN Job*

Highest Education Before RN		Satisfaction with Principal/Most Recent RN Job					
		Extremely satisfied	Moderately satisfied	Neither satisfied nor dissatisfied	Moderately dissatisfied	Extremely dissatisfied	Total
No Degree	Count	8147	13035	2001	2229	681	26093
	% within Education	31.2	50.0%	7.7%	8.5%	2.6%	100.0%
	% within Satisfactic	80.3	78.6%	78.1%	77.5%	74.5%	78.8%
	% of Tota	24.6	39.4%	6.0%	6.7%	2.1%	78.8%
Associates in Nursing	Count	8	1513	268	266	90	2967
	% within Education	28.0	51.0%	9.0%	9.0%	3.0%	100.0%
	% within Satisfactic	8.2	9.1%	10.5%	9.2%	9.8%	9.0%
	% of Tota	2.5	4.6%	0.8%	0.8%	0.3%	9.0%
Bachelor's	Count	9	1793	253	332	126	3485
	% within Education	28.1	51.4%	7.3%	9.5%	3.6%	100.0%
	% within Satisfactic	9.7	10.8%	9.9%	11.5%	13.8%	10.5%
	% of Tota	3.0	5.4%	0.8%	1.0%	0.4%	10.5%

(table continues)

Highest Education Before RN		Satisfaction with Principal/Most Recent RN Job					
		Extremely satisfied	Moderately satisfied	Neither satisfied nor dissatisfied	Moderately dissatisfied	Extremely dissatisfied	Total
Master's	Count	168	204	31	40	15	458
	% within Education	36.7%	44.5%	6.8%	8.7%	3.3%	100.0%
	% within Satisfaction	1.7%	1.2%	1.2%	1.4%	1.6%	1.4%
	% of Total	0.5%	0.6%	0.1%	0.1%	0.0%	1.4%
Doctorate	Count	18	29	6	2	1	56
	% within Education	32.1%	51.8%	10.7%	3.6%	1.8%	100.0%
	% within Satisfaction	0.2%	0.2%	0.2%	0.1%	0.1%	0.2%
	% of Total	0.1%	0.1%	0.0%	0.0%	0.0%	0.2%
Other Degree	Count	8	15	2	8	1	34
	% within Education	23.5%	44.1%	5.9%	23.5%	2.9%	100.0%
	% within Satisfaction	0.1%	0.1%	0.1%	0.3%	0.1%	0.1%
	% of Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Total	Count	10152	16589	2561	2877	914	33093
	% within Education	30.7%	50.1%	7.7%	8.7%	2.8%	100.0%
	% within Satisfaction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	30.7%	50.1%	7.7%	8.7%	2.8%	100.0%

Table 10

*Chi-Square Tests: Highest Education Before RN * Job Satisfaction as RN*

	Value	*df*	Asymptotic Significance (2-sided)
Pearson Chi-Square	63.571[a]	20	.000
Likelihood Ratio	60.317	20	.000
Linear-by-Linear Association	16.987	1	.000
N of Valid Cases	33093		

a. Six cells (20.0%) have expected count less than 5. The minimum expected count is 0.94.

Table 11

*Symmetric Measures: Highest Education Before RN * Job Satisfaction as RN*

		Value	Asymp-totic Standard-ized Error[a]	Approx-imate T^b	Approx-imate Significance
Ordinal by ordinal	Kendall's tau-b	.023	.005	4.547	.000
	Kendall's tau-c	.014	.003	4.547	.000
	Gamma	.047	.010	4.547	.000
N of Valid Cases		33093			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Gamma is a proportional reduction in error (PRE) measure and denotes the level of improvement in predicting the dependent variable that can be attributed to knowing a case's value on the independent variable (McKelvey, & Zavoina, 1975). A value of 0.047 for gamma in Table 11 (with job satisfaction dependent) indicates that the prediction of nurse job satisfaction is improved by only 4.7% by knowing the nurse's highest education before becoming an RN.

The null hypothesis was rejected and alternate hypothesis accepted. There was a statistically significant relationship between the nurse's highest education level and her or his job satisfaction [$\chi^2(20) = 63.571$, $p < 0.01$].

Research Question 2

RQ2: Are nurse's gender, age, education, and years practicing significant predictors of nurse job satisfaction?

$H_0$2: Nurse's gender, age, education, and years practicing are not significant predictors of nurse job satisfaction.

H_a2: Nurse's gender, age, education, and years practicing are significant predictors of nurse job satisfaction.

The use of multiple regression, with ordinary least squares models, on Likert-type variables is questionable, and it is not appropriate when the better alternative is ordinal logistic models (McKelvey, & Zavoina, 1975). Osborne (2015) stated,

> Simplistic analyses that some authors resort to (i.e., analysis of variance analyses, rather than multinomial logistic regression) are limited, in that they have difficult assumptions to meet and cannot provide the same level of inference. They cannot, for example, easily compare several predictor variables and determine which is the most influential on the outcome. (p. 415)

In the case of ordinal measured dependent variables, OLS multiple regression fails to model the predictive relationship. The actual relationship is assumed to be described using the linear model, and that the "failure of the regression model to describe the observed data are due to the inherent loss of information that is introduced when the continuous dependent variable is measured by gross techniques which lump together and identify various portions of the scale" (Osborne, 2015, p. 415). The outcome is that there is a correlation between error and regressor when regression is applied to the observed data. This introduces a bias to the value of *p,* which depends on how the independent variable is distributed. In some cases, this bias may have the undesirable effect of causing regression analysis to underestimate severely the relative effect of certain variables

(McKelvey & Zavoina, 1975, p. 119). In addition, although ordinal data might indicate that there is a definite relationship between the independent and dependent variables, there does not seem to be any possible linear model, which could have generated the data and maintained an error term with mean zero and constant variance. “The least squares line will likely have positive errors for small X and negative errors for large X, so it will not do” (McKelvey & Zavoina, 1975, p. 105).

Ordinal regression is used with ordinal dependent (response) variables, where the independents may be categorical factors or continuous covariates. Ordinal regression models are sometimes called cumulative logic models. Ordinal regression typically uses the logit link function, though other link functions are available. Ordinal regression with a logit link is also called a proportional odds model, since the parameters (regression coefficients) of the independent variable are independent of the levels (categories) of the ordinal dependent variable, and because these coefficients may be converted to odds ratios, as in logistic regression (Garson, 2014). The Statistical Package for Social Sciences (SPSS) ordinal regression procedure, or PLUM (polytomous universal model), is an extension of the general linear model to ordinal categorical data. The researcher can specify five link functions as well as scaling parameters (Norusis, 2012).

Menard (2010) discussed several types of ordinal logit models. Menard cautioned researchers, because addition, subtraction, multiplication, and division are required to calculate the variance of a variable, the variance of the ordinal variable is arbitrary, and the meaning of explained variance in an ordinal dependent variable is unclear in the ordinary least squares regression context. (p. 196)

An extension of the binary logistic regression model is the ordered logit, or proportional odds model. This model is designed ordinal (ordered, ranked) variables, such as the Likert-type dependent variables in this study. These variables hold to the definition of ordinal variables, where there is rank ordering; however, there is not a consistent interval between groups (Osborne, 2015, p. 407). "In the social sciences, one of the most common applications of this model should be analysis of Likert- type scales" (Osborne, 2015, p. 407). Although these scales are often treated as ordinal variables, researchers cannot determine the distance between *strongly disagree* and *agree*, and whether that distance is the same as between *neutral* and *agree*.

The "ordinal logistic regression model conducts a series of cumulative binary logistic regressions comparing all groups below a particular threshold with all groups above a threshold" (Osborne, 2015, p. 408). For example, the first binary comparison would be Group 1 (*extremely dissatisfied*) with all other groups (2, 3, 4, and 5). The next comparison would be Groups 1 and 2 (*extremely dissatisfied* and *moderately dissatisfied*) versus all other groups (3, 4, and 5). This continues until all groups have been compared. Therefore, ordinal logistic regression provides estimates for the effect that each of the independent variables has on the dependent variable. The assumption is that some continuous latent variable supports the ordinal variable in the model, so the results are one set of parameter estimates that indicates the effect of each independent predictor variable on the dependent variable. The ordinal logistic regression is designed to create

> a single estimate that predicts the probability of being in the next higher group as a function of a change in the independent variables regardless of which group

> transition we are talking about. The ordinal logistic regression model is attempting to model the latent underlying continuous variable rather than a variable that has a series of groups or transitions. (Osborne, 2015, p. 409)

Other assumptions are that the dependent variable is ordered (i.e., ordinal) and the relationship of each independent predictor variable remains constant across all comparisons for the dependent variable. This latter assumption in the ordinal logistics regression model is called the "proportional odds" assumption, which means that the effects of all independent variables are the same regardless of what two groups (strongly agree, agree, neutral, disagree, strongly disagree) are being compared. In SPSS, this assumption is tested using the "test of parallel lines." Osborne (2015) cautioned that a problem with test of parallel lines is that "it is very sensitive, especially in large samples where there are several predictors in the model" (p. 409). Thus, examining the effects of the binary comparisons, mentioned previously, are averaged to estimate one parameter for each independent variable. If the assumptions hold, the next step is an evaluation of statistics for the fit of the ordinal regression model, those tests that determine if adding variables significantly improve model fit, and an output table of the estimates for model parameter estimates. The improved model fit is determined by the significance related to the value of -2 times the log-likelihood. The comparisons are not between one group and another group, but rather between cumulative groups of groups. The value of the intercept for any given group is the logit (log of the odds) compared with all other groups when the predictors are estimated at some level of the Likert-type scale. A table is provided that includes the conversion of the logits to probabilities. "Goodness of fit of the

ordinal logistic regression model can be assessed with the same GM and fit statistics (Pearson, deviance) that are used for dichotomous and nominal polytomous dependent variables" (Menard, 2010, p. 207). These statistics are printed out as part of the IBM SPSS output in ordinal logistic regression routines.

"Maximum likelihood methods will be used to obtain estimators of the population parameters of the model" (McKelvey & Zavoina, 1975, p. 107). One of the advantages of using maximum likelihood estimates are their statistical properties. Under general conditions, "the estimates are consistent and asymptotically efficient, and their asymptotic sampling distribution is known. Also, hypotheses can be tested either using this sampling distribution or using the likelihood ratio" (McKelvey & Zavoina, 1975, p. 109).

Several statistics can be used to measure the overall fit of the model. The most useful of these is the estimated pseudo R^2, which gives an estimate of the R^2 of the underlying regression model. This is equivalent to the R^2, or coefficient of determination in regression analysis and has a similar interpretation, namely, it measures the portion of the original variance of the dependent variable explained (McKelvey & Zavoina, 1975, p. 111).

The output for an ordinal regression includes an initial table of the marginal percentages for each level of each variable, both independent variables and the dependent variable. The next table produced is the results from the likelihood ratio test between the researcher-specified model (a final model of -2 times the maximum likelihood) and a null model with only the intercept (McKelvey, & Zavoina, 1975). The final model provides a

value for a Wald χ^2 statistic, degrees of freedom, p level of significance, and a 95% confidence interval. If the level of significance is less than 0.05, then the final researcher model is a "good fit" to the data (Garson, 2014). The table that specifies the deviance level should be nonsignificant ($p > 0.05$) to indicate that the model is a "good fit." The ordinal regression does not specify an R^2 value, but a table is provided with pseudo-R^2 values. However, these 51 and 61 must not be interpreted in terms of a change in variance as the value of R^2. The higher the value of the Nagelkerke R^2 value, the better the predictive capacity of the model (Garson, 2014).

The output from the ordinal logit model yields an estimate of each level of the independent variables included in the model and the dependent variable. Those levels of the independent variable with a p value less than 0.05 are statistically significant predictors of the dependent variable. The test of parallel lines, using χ^2, is also provided to determine whether the assumption that the slopes of the independent predictors are the same for each of the levels of the dependent variable. If the significance level (p) is greater than 0.05 for this test, the assumption holds.

The link function specifies what transformation is applied to the dependent variable (that is, to the cumulative probabilities of the ordinal categories). By default, ordinal regression models use the logit link function. That is, ordinal regression by default is a form of logit regression model, specifically a "cumulative logit model."

While model fit statistics, parameter estimates, and the test of parallel lines are of greatest interest, other output options include iteration history, correlation and covariance

of estimates, and outputting to file for each case the predicted category of the dependent variable, response probabilities, the log-likelihood, and more.

For the ordinal regression model, the dependent variable was satisfaction with principal/most recent RN job, the independent categorical factors are gender and highest education before becoming an RN (see Table 12), and Table 13 displays the covariate variables (interval measured) that were nurse's age and years since becoming an RN.

Table 12

Categorical Variables in the Ordinal Regression Model with Job Satisfaction as Dependent

		n	Marginal Percentage
Satisfaction with principal /most recent RN job	Extremely satisfied	10152	30.7%
	Moderately satisfied	16589	50.1%
	Neither satisfied nor dissatisfied	2561	7.7%
	Moderately dissatisfied	2877	8.7%
	Extremely dissatisfied	914	2.8%
Highest Education Before RN	No Degree	26093	78.8%
	Associates in Nursing	2967	9.0%
	Bachelor's	3485	10.5%
	Master's	458	1.4%
	Doctorate	56	0.2%
	Other Degree	34	0.1%
Gender	Male	2341	7.1%
	Female	30752	92.9%
Valid		33093	100.0%
Missing		259	
Total		33352	

Table 13

Continuous Covariate Variables in Ordinal Regression Model

Covariate	*N*	Minimum	Maximum	*M*	*SD*
Years since graduating from initial RN education program	33093	0.00	70.00	20.1844	13.04696
Age of RN in 2007	33093	19.00	92.00	47.8182	11.87988

Table 14 shows the ordinal regression model fit results between the null model with only an intercept and the final model. The statistically significant chi-square statistic [$\chi^2(8) = 587.7$, $p < 0.01$] indicates that the final model gives a significant improvement over the null model with intercept-only. This result denoted that the model yielded better predictions as compared to only using the marginal probabilities for the outcome categories of job satisfaction.

Table 14

Ordinal Regression Model Fit Results: Null Model and Final Model

Model	-2 Log Likelihood	χ^2	*df*	Sig.
Null- Intercept Only	27913.148			
Final	27325.448	587.700	8	0.000

Link function: Logit.

Table 15 shows the output for the Goodness-of-Fit for the final model. Table 16 includes a Pearson's χ^2 for the model (as well as another χ^2 based on the deviance). Both statistics tested whether the observed data were consistent with the fitted final model. The assumption was that the fit was good. If this assumption held (i.e., if the *p* value was large), then the nurses' data and the ordinal regression model predictions were similar; therefore, the final model would be deemed a good model. However, if the assumption

did not hold, then the model would not fit the data well. The results for the analysis suggested the model was a good fit.

Table 15

Ordinal Regression: Goodness of Fit for Final Modela

	Value	*df*	Value/*df*
Deviance	16555.537	19932	0.831
Scaled deviance	16555.537	19932	
Pearson chi-Square	21430.052	19932	1.075
Scaled Pearson chi-Square	21430.052	19932	
Log likelihood[b]	-13662.724		
Akaike's information criterion (AIC)	27349.448		
Finite sample corrected AIC (AICC)	27349.458		
Bayesian information criterion (BIC)	27450.333		
Consistent AIC (CAIC)	27462.333		

Dependent variable: Satisfaction with principal/most recent RN job
Model: (Threshold), Highest Education Before RN, Q62, YR_SINCE, AGEa
a. Information criteria are in smaller-is-better form.
b. The full log likelihood function is displayed and used in computing information criteria.

From Table 16, the pseudo R^2 values (i.e., Nagelkerke = 1.9%) indicated that independent predictors of nurse's age, highest education before the RN, nurse's gender, and years since the RN explained a relatively small proportion of the variation between students in their attainment, but it did not negate a statistically significant model fit.

Table 16

Ordinal Regression: Pseudo R2 Statistics

Pseudo R-square Measure	Value
Cox and Snell	0.018
Nagelkerke	0.019
McFadden	0.007

Link function: Logit.

Under Location in Table 17, the "estimate" values are the ordered log-odds (logit) regression coefficients. Standard interpretation of the ordered logit coefficient is that for a one-unit increase in the predictor, the response variable level is expected to change by its respective regression coefficient in the ordered log-odds scale while the other variables in the model are held constant. Interpretation of the ordered logit estimates is not dependent on the ancillary parameters; the ancillary parameters are used to differentiate the adjacent levels of the response variable. However, since the ordered logit model estimates one equation over all levels of the outcome variable, a concern is whether the one-equation model was valid or if a more flexible model was required. The odds ratios of the predictors were calculated, using IBM SPSS, by exponentiating the estimate.

Table 17

Ordinal Regression with Job Satisfaction Dependent: Model Parameter Estimates

							95% Confidence Interval	
		Estimate	Std. Error	Wald	*df*	Sig.	Lower Bound	Upper Bound
Threshold	[Job Satisfaction = 1.00] [b]	-1.943	0.326	35.517	1	0.000	-2.582	-1.304
	[Job Satisfaction = 2.00]	0.343	0.326	1.107	1	0.293	-0.296	0.982
	[Job Satisfaction = 3.00]	0.954	0.326	8.556	1	0.003	0.315	1.592
	[Job Satisfaction = 4.00]	2.472	0.327	57.072	1	0.000	1.830	3.113
Location	[Highest Education = No Degree]	-0.597	0.321	3.457	1	0.063	-1.226	0.032
	[Highest Education = Assoc. Nursing]	-0.580	0.323	3.236	1	0.072	-1.213	0.052
	[Highest Education = Bachelor's]	-0.596	0.322	3.414	1	0.065	-1.228	0.036
	[Highest Education = Master's]	-0.806	0.333	5.866	1	0.015	-1.458	-0.154
	[Highest Education = Doctorate]	-0.810	0.409	3.927	1	0.048	-1.611	-0.009
	[Highest Education = Other]	0[a]	.	.	0	.	.	.
	[Male = 1.00]	0.021	0.041	0.258	1	0.612	-0.060	0.101
	[Female = 2.00]	0[a]	.	.	0	.	.	.
	Age of Nurse	-0.004	0.002	7.836	1	0.005	-0.007	-0.001
	Yrs. Since an RN	-0.016	0.001	123.486	1	0.000	-0.019	-0.013

Link function: Logit.
a. This parameter is set to zero because it is redundant.
b. Job Satisfaction: 1 = extremely dissatisfied; 2 = moderately dissatisfied; 3 = neither satisfied nor dissatisfied; 4 = moderately satisfied.

The parameter estimates (Table 18) is the core of the output, which describes the relationship between the explanatory variables and the level of nurse's job satisfaction. Normally, the threshold coefficients are not interpreted individually and represent the intercepts, specifically the point (in terms of a logit) where nurses might be predicted into

the higher levels of job satisfaction. The odds of being a job satisfaction level of 4 or lower is just the complement of the odds of being at a job satisfaction of Level 5, and so on. Greater levels of education before the RN can be attributed with higher levels of dissatisfaction as evidenced by the location estimate of -0.806 for a master's degree (p = 0.015) and an estimate of -0.810 for a doctorate (p = 0.048). Further, the older the nurse and the more years since earning the RN, the higher the dissatisfaction with her or his job.

Table 18

Ordinal Regression Proportional Odds Test of Parallel Lines

Model	-2 Log Likelihood	Chi-Square	*df*	Sig.
Null Hypothesis	27325.448			
General	27055.400	270.048	24	0.000

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

A 1-year increase in the nurse's age results in her or his log-ordered job satisfaction being decreased by 0.004 units, while the other predictors are held constant. Similarly, increasing the years since graduating with the RN yielded decreased log-ordered job satisfaction by 0.016 units. The ordered logit for males being in a higher job satisfaction category was 0.021 more than females when the other variables in the model were held constant. Earning a graduate degree resulted in greater dissatisfaction with their job as an RN than lesser degrees. The ordered logit for nurses with a master's degree had a lower level of job dissatisfaction 0.806 more than other nurses when the

other variables in the model were held constant. Likewise, nurses with a doctorate had lower job dissatisfaction levels that were 0.810 more than others.

Another assumption for the ordinal regression model fit is that the slope coefficients in the model are the same across response categories (and lines of the same slope are parallel). Since the ordered logit model estimates one equation over all levels of the response variable (as compared to the multinomial logit model, which models, with extremely dissatisfied as the referent level, an equation for moderately dissatisfied with high dissatisfied, neither satisfied nor dissatisfied with extremely dissatisfied, moderately satisfied with extremely dissatisfied, and extremely satisfied with extremely dissatisfied), the test for proportional odds tests whether our one-equation model is valid. To reject the null hypothesis based on the significance of the chi-square statistic, leads to a conclusion that ordered logit coefficients were not equal across the levels of job satisfaction, and a less restrictive model would be fit (i.e., multinomial logit model). For this ordinal regression model, the proportional odds assumption appears to have held because the results (see Table 18) was statistically significant [$\chi^2(24) = 270.048$, $p < 0.01$].

Tables 19 and 20 show the cumulative proportion at each threshold and, by subtraction, the predicted probability of being at any specific level. There were four possible outcomes (Level 1 to Level 4). These estimates were used to explore the predicted probabilities in relation to the explanatory variables. For example, the cumulative percentage probability for moderate satisfaction with the job, or job satisfaction = 4, would be the sum of extreme dissatisfaction (job satisfaction = 1) + moderate dissatisfaction (job satisfaction = 2) + neither satisfaction nor dissatisfaction

(job satisfaction = 3) + moderate satisfaction (job satisfaction = 4). At the cumulative probabilities at job satisfaction = 5, the cumulative result is 1.00.

Table 19

Ordinal Regression Cumulative Predicted Probability for Job Satisfaction by Nurse Gender

Gender		Predicted Category Value	Cumulative Predicted Probability for [Job Satisfaction=1]	Cumulative Predicted Probability for [Job Satisfaction=2]	Cumulative Predicted Probability for [Job Satisfaction=3]	Cumulative Predicted Probability for [Job Satisfaction=4]
Male	*M*	2.0000	0.284	0.792	0.875	0.970
	SD	0.000	0.042	0.033	0.022	0.006
	n	2348	2348	2348	2348	2348
Female	*M*	1.988	0.310	0.811	0.887	0.973
	SD	0.107	0.055	0.038	0.025	0.007
	N	31004	31004	31004	31004	31004
Total	*M*	1.989	0.308	0.809	0.886	0.972
	SD	0.103	0.054	0.038	0.025	0.007
	n	33352	33352	33352	33352	33352

Table 20

Ordinal Regression Cumulative Predicted Probability for Job Satisfaction by Nurses' Highest Education Level Before Becoming an RN

Highest Education Before RN		Predicted Category Value	Cumulative Predicted Probability for [Job Satisfaction =1]	Cumulative Predicted Probability for [Job Satisfaction =2]	Cumulative Predicted Probability for [Job Satisfaction =3]	Cumulative Predicted Probability for [Job Satisfaction =4]
No Degree	*M*	1.988	0.316	0.813	0.889	0.973
	SD	0.108	0.055	0.038	0.025	0.007
	n	26304	26304	26304	26304	26304
Associates in Nursing	*M*	1.999	0.282	0.791	0.874	0.969
	SD	.0317	0.042	0.033	0.022	0.006
	n	2988	2988	2988	2988	2988
Bachelor's	*M*	1.998	0.284	0.792	0.875	0.970
	SD	0.041	0.044	0.033	0.022	0.006
	n	3509	3509	3509	3509	3509
Master's	*M*	1.931	0.347	0.836	0.903	0.977
	SD	0.254	0.055	0.0312	0.020	0.005
	n	461	461	461	461	461
Doctorate	*M*	1.893	0.340	0.830	0.890	0.976
	SD	0.312	0.061	0.035	0.022	0.006
	n	56	56	56	56	56
Other Degree	*M*	2.000	0.201	0.706	0.814	0.952
	SD	0.000	0.044	0.051	0.037	0.011
	n	34	34	34	34	34
Total	*M*	1.989	0.308	0.809	0.886	0.972
	SD	0.103	0.054	0.038	0.025	0.007
	n	33352	33352	33352	33352	33352

Summary

In this section, I presented the results of the re-analysis of the NSSRN 2008 survey, the largest survey of RNs in the United States. A total population of 55,171 RNs were sampled for the NSSRN 2008 survey, of whom 870 were determined to be ineligible because they no longer had an active RN license. The response rate was 62.4%. I used a bivariate (correlation coefficient, chi squares, and simple linear regression) and multivariate (logistic regression) analysis to identify and connect associations and examine measurement levels between the dependent and independent variables. The analysis has revealed that the null hypothesis was rejected and alternate hypothesis accepted that there was a statistically significant relationship between the nurses' highest education level and their job satisfaction [$\chi 2(20) = 63.571$, $p < 0.01$]. The analysis also revealed that the null hypothesis was rejected and alternate hypothesis accepted that there was a statistically significant relationship between nurses' age and their job satisfaction level [$\rho(33093) = - 0.112$, $p < 0.01$]. The analysis also showed that the ordered logit for males being in a higher job satisfaction category was 0.021 more than females when the other variables in the model were held constant. Earning a graduate degree resulted in greater dissatisfaction with their job as an RN than lower academic degrees. The ordered logit for nurses with a master's degree had a lower level of job dissatisfaction 0.806 more than other nurses when the other variables in the model were held constant. In the final section, I discuss these findings in relation to similar studies. In addition, I propose a functional theory and possible strategies that, if applied and implemented, could help reduce nurse burnout and job dissatisfaction.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

Job satisfaction is an important facet of job retention in nursing, evidenced by the growing nationwide shortage of nurses plaguing the United States and other countries (Arnold, 2012). The purpose of this quantitative correlational research design was to investigate the relationship between nurse job satisfaction and nurse retention.

Concise Summary of Results

The purpose of this quantitative correlation study was to investigate the relationship between nurse job satisfaction and nurse retention. Higher job satisfaction can contribute to nurse retention; conversely, lower levels of job satisfaction can lead to increased attrition (Boudreau, 2012). I used secondary data from the NSSRN (2008) to conduct a cross-sectional designed analysis to examine the participants' past experiences, backgrounds, and attitudes. Cross-sectional designs allow researchers to attempt to find relationships between variables (Frankfort-Nachmias & Nachmias, 2008) to identify any relationship between both independent and dependent variables. The variables in the current study were age, education level, and number of years in nursing practice. A total population of 55,171 RNs was sampled for the NSSRN 2008 survey. Of the 55,171 RNs surveyed and responding, 33,549 valid responses were used, yielding a response rate of 62.4%. The research questions and hypotheses related to the relationship between job satisfaction and nurse's age, education, and years practicing as an RN, and the predictive relationship using ordinal regression with job satisfaction as the dependent variable and nurse's age, education, and years practicing as the predictor independent variables.

Significant inverse relationships, although weak, were found between nurses' age and their job satisfaction level and between the number of years since nurses graduated from an initial RN education program and their job satisfaction. In addition, there was a statistically significant relationship between the nurses' highest education level and their job satisfaction. The ordinal regression results showed nurses' age, education, and years practicing since earning the RN were significant predictors of job satisfaction, although other factors might explain changes in satisfaction levels.

Interpretation of Findings

This section includes an interpretation of the results found from the correlation analysis and ordinal regression used to test the hypotheses.

Nurses' Age Factors

For the first set of hypotheses, the null hypothesis was rejected as there was a statistically significant relationship between nurses' age and their job satisfaction level [$\rho(33093) = -0.112$, $p < 0.01$]. However, this relationship was weak ($\rho = -0.112$) and signified that as nurses' age increased, their satisfaction in the job decreased. Next, the null hypothesis was rejected as the number of years since the nurses graduated from an initial RN education program and their job satisfaction was significantly related [$\rho(33093) = -0.126$, $p < 0.01$]. This relationship was also discovered to be weak ($\rho = -0.126$), and as the number of years graduating from the RN program increased, their job satisfaction as RNs decreased.

Nurses' Education Level Factors

The next hypothesis test required a crosstabulation with a chi-square statistic. In this test, the null hypothesis was rejected as there was a statistically significant relationship between the nurses' highest education level and their job satisfaction [$\chi^2(20) = 63.571$, $p < 0.01$]. A value of 0.047 for gamma indicated that the prediction of nurse job satisfaction was improved by only 4.7% by knowing the nurses' highest education before becoming an RN.

The last research question and sets of hypotheses required the production of an ordinal regression model. The ordinal regression model fit compared a null model, with only an intercept, and the final model with the two predictors. The statistically significant chi-square statistic [$\chi^2(8) = 587.7$, $p < 0.01$] indicated that the final model gave a significant improvement over the null model with intercept-only. This result denoted that the model yielded better predictions compared to using only the marginal probabilities for the outcome categories of job satisfaction. A Pearson's chi-square statistic for the model (as well as another chi-square statistic based on the deviance) tested whether the observed data were consistent with the fitted final model. The assumption was that the fit was good. If this assumption held (i.e., if the *p*-value was large), then the nurses' data and the ordinal regression model predictions would be similar; therefore, the final model would be deemed a good model. However, if the assumption had not held, then the model would not have fit the data well. The results for this analysis suggested the model was a good fit. Next, the pseudo R^2 values (i.e., Nagelkerke = 1.9%) indicated that independent predictors of nurses' age, highest education before the RN, gender, and years since the

RN graduated explained a relatively small proportion of the variation (1.9%) between students in their attainment.

Greater levels of education before the RN can be attributed with higher levels of dissatisfaction as evidenced by the location estimate of -0.806 for a master's degree ($p = 0.015$) and an estimate of -0.810 for a doctorate ($p = 0.048$). Further, the older the nurse and the more years since earning the RN, the higher the dissatisfaction with the job.

A 1-year increase in nurses' age resulted in their log-ordered job satisfaction being decreased by 0.004 units while the other predictors held constant. Similarly, increasing the years since graduating with the RN yielded decreased log-ordered job satisfaction by 0.016 units.

Gender and Education Level Factors

The ordered logit for male participants being in a higher job satisfaction category was 0.021 more than female participants when the other variables in the model were held constant. Earning a graduate degree resulted in greater dissatisfaction with their job as an RN than lower academic degrees. The ordered logit for nurses with a master's degree had a lower level of job dissatisfaction, 0.806 more than other nurses when the other variables in the model were held constant. Likewise, nurses with a doctorate had lower job dissatisfaction levels that were 0.810 more than others.

Analysis and Interpretation of the Findings in the Context of Herzberg

Herzberg (1968) presented a theory of how environmental and personal factors influence job satisfaction and personal achievement. Herzberg suggested that psychological (intrinsic) needs promote motivation and are directly related to an

employee's sense of achievement, recognition, personal growth and development, career advancement, and education levels. In this secondary data analysis, there was a statistically significant relationship between nurses' highest education level and their job satisfaction. The ordinal regression results showed that nurses' age, education, and years practicing since earning the RN were significant predictors of job satisfaction, although other factors might explain great change in satisfaction levels. Thus, the results of this study supported the hypotheses that there was a statistically significant relationship between the nurses' highest education level and their job satisfaction, that there was a statistically significant relationship between nurses' age and their job satisfaction level, and that male participants being in a higher job satisfaction category was 0.021 more than female participants when the other variables in the model were held constant.

Limitations of the Study

Although this was a secondary data analysis, the dataset was previously validated, and over the years the NSSRN studies have been found to be trustworthy, reliable, and valid in describing national indices. Participation bias was a limitation of the current research study because participants were volunteers and differences could be presented between the responders and nonrespondents (Leedy & Ormrod, 2010).

Recommendations

This secondary data analysis was not designed to explore all factors that might lead to lead job satisfaction among nurses in the United States. Nurses and key stakeholders were not interviewed using a tailored data collection tool. In-depth

interviews and focus group discussions were not conducted to identify the root cause of job satisfaction among nurses.

To this end, a study involving both quantitative and qualitative data is recommended. Although such research may be expensive and time consuming, it would likely better identify the root causes of job satisfaction and dissatisfaction among nurses.

Implications for Professional Practice and Social Change

The current study has shown that the education level, age, and gender do play a role in job satisfaction among nurses in the United States.

Professional Practice

This study showed that secondary data analysis is a cost- and time-effective approach that can provide relevant information for decision making at all levels within a short time. Only three relevant national data sets are available. Because only the NSSRN, which is published every 4 years, allows public access, researchers face the challenge of analyzing the most current data.

The NSSRN 2008 could be reanalyzed for new insights into various issues relating to health. Several other variables could be reanalyzed to lead to other insights on improving job satisfaction among nurses in the United States.

Positive Social Change

From an administration level, this study has generated information that showed that everyone—nurses, doctors, and administrators—has an important role to play toward reducing nurses' desire to leave the medical field. To increase job satisfaction and nurse retention, new forms of onboarding should be designed with support mechanisms in place

to help nurses feel valued and achieve personal goals. Nurses should be given innovative ways to earn higher education degrees, manage stress, and increase the value of work-life balance within the health care environment. Such changes could reduce the nursing shortage and improve quality of care to patients.

Conclusion

Results showed associations between (a) education levels and nurses' job satisfaction, (b) nurses' age and their job satisfaction, and (c) nurses' gender and job satisfaction. Addressing these three factors could reduce the overall rate of nurse dissatisfaction that is contributing to the nursing shortage. In turn, community hospital leaders could find new ways to support nurses and increase nurse retention in hospitals. Rural hospitals, specifically, face closure when staffing levels influence reduced patient volumes, loss of revenue, low HCAHPS scores, and reduced reimbursements from the CMS (McLaughlin & Olson, 2012). Based on this study and related research, new on-boarding programs and occupational stress relief programs, could lead to reduced nurse attrition, resulting in cost containment and reduced labor shortages in rural hospitals and urban hospitals alike.

References

Abbott, D., De La Garza, M., Krantz, S., & Mahvi, D. (2011). The impact of physician-nurse interactions on nurse satisfaction. *Journal of Surgical Research, 165*, 203. doi:10.1016/j.jss.2010.11.588

Al-Hussami, M. (2008). A study of nurses' job satisfaction: The relationship to organizational commitment, perceived organizational support, transactional leadership, transformational leadership, and level of education. *European Journal of Scientific Research, 22,* 286-295. Retrieved from http://www.europeanjournalofscientificresearch.com/

American Nurses Association. (2004). *Nursing: Scope and standards of practice*. Washington, DC: Author.

Arnold, E. (2012). Better retention through nursing theory. *Nursing Management, 36*(4), 16-18.

Bae, S., Mark, B., & Fried, B. (2010). Impact of nursing unit turnover on patient outcomes in hospitals. *Journal of Nursing Scholarship, 42*(1), 40-49.

Boamah, S. A., & Laschinger, H. (2016). The influence of areas of work life fit and work life interference on burnout and turnover intentions among new graduate nurses. *Journal of Nursing Management, 24*(2), E164-E174. doi:10.1111/jonm.12318

Bormann, L., & Abrahamson, K. (2014). Do staff nurse perception of nurse leadership behaviors influence staff nurse job satisfaction? The case of a hospital applying for magnet designation. *Journal of Nursing Administration, 44*(4), 219-225.

doi:10.1097/NNA.00000000000000053

Boudreau, J. (2012). Retooling HR. *People and Strategy, 35*(2)*,* 9-34.

Carter, M. R., & Tourangeau, A. E. (2012). Staying in nursing: What factors determine whether nurses intend to remain employed? *Journal of Advanced Nursing, 68*(7)*,* 1589-1600.

Coomber, B., & Barriball, K. L. (2007). Impact of job satisfaction components on intent to leave and turnover for hospital-based nurses: A review of the research literature. *International Journal of Nursing Studies, 44,* 297-314. doi:10.1016/j.ijnurstu.2006.02.004

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

De Gieter, S., Hofmans, J., & Pepermans, R. (2011). Revisiting the impact of job satisfaction and organizational commitment on nurse turnover intention: an individual difference analysis. *International Journal of Nursing Studies, 48,* 1562-1569. doi:10.1016/j.ijnurstu.2011.06.007

Dotson, M. J., Dave, D. S., Cazier, J. A., & Spaulding, T. J. (2014). An empirical analysis of nurse retention. *Journal of Nursing Administration, 44*(2)*,* 111-116. doi:10.1097/NNA.0000000000000034

Esnard, C., Bordel, S., & Somat, A. (2013). Nurses faced with burnout: What causal attributions? *Pratiques Psychologiques, 19*(3)*,* 147-161.

Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences* (7th ed.). New York, NY: Worth.

Garson, G. D. (2014). *Ordinal regression*. Asheboro, NC: Statistics Associates.

Green, S. B., & Salkind, N. (2014). *Using SPSS for Windows and Macintosh* (7th ed.). Boston, MA: Pearson Learning Solutions.

Ghauri, P., & Gronhaug, K. (2010) *Research methods in business studies: A practical guide* (4th ed.), Englewood Cliffs, NJ: Prentice Hall.

Haair, D. C., Salisbury, H., Johannsson, M., & Redfern-Vance, N. (2014). Nurse staffing and the relationship to job satisfaction and retention. *Nursing Economics, 32*(3), 142-147.

Halfer, D. (2011). Job embeddedness factors and retention of nurses with 1 to 3 years of experience. *Journal of Continuing Education in Nursing, 42*(10), 468-476. doi:10.3929/00220124-20110601-02

Hayes, B., Bonner, A., & Pryor, J. (2010). Factors contributing to nurse job satisfaction in the acute hospital setting: a review of recent literature. *Journal of Nursing Management, 18,* 804-814. doi:10.1111/j.1365-2834.2010.01131.x

Herzberg, F. (1968). One more time: How do you motivate employees? *Business Review, 46*(1), 53-62.

Herzberg, F., & Snyderman, B. (1959). *The motivation of work*. New York, NY: Wiley.

Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academies Press.

Jones, C., & Gates, M. (2007). T. The costs and benefits of nurse turnover: A business case for nurse retention. *Online Journal of Issues Nursing. 12*(3).

Kleinman, C. (2004). The relationship between managerial leadership behaviors and

staff nurse retention. *Hospital Topics, 82*(4), 2-9.

Kutney-Lee, A., Wu, E. S., Sloane, D. M., & Aiken, L. H. (2013). Changes in hospital nurse work environments and nurse job outcomes: An analysis of panel data. *International Journal of Nursing Studies, 50*(2), 195-201.

Langkamp, D. L., Lehme, A., & Lemeshow, S. (2010). Techniques for handling missing data in secondary analyses of large surveys. *Academic Pediatrics, 10*(3), 205-210. doi:10.1016/j.acap.2010.01.005

Laschinger, H. S., Wong, C. A., & Grau, A. L. (2013). Authentic leadership, empowerment and burnout: a comparison in new graduates and experienced nurses. *Journal of Nursing Management, 21*(3), 541-552. doi:10.1111/j.1365-2834.2012.01375.x

Lavoie-Tremblay, M., Fernet, C., Lavigne, G. L., & Austin, S. (2016). Transformational and abusive leadership practices: impacts on novice nurses, quality of care and intention to leave. Journal Of Advanced Nursing, 72(3), 582-592. doi:10.1111/jan.12860

Leedy, P., & Ormrod, J. (2010*). Practice research: Planning and design* (9th ed.). Upper Saddle River, NJ: Pearson Education.

Likert, R. (1931). A technique for the measurement of attitudes. *Archives of Psychology, 22*(140), 1-55.

Lu, H., While, A. E., & Barribal, L. (2005). Job satisfaction among nurses: a literature review. *International Journal of Nursing Studies, 42*(2005), 211-227. doi:10.1016/j.ijnurstu.2004.09.003

Martin, C. J. (2015). The effects of nurse staffing on quality of care. *MEDSURG Nursing, 24*(2), 4-6

MacKusick, C. I., & Minick, P. (2010). Why are nurses leaving? Findings from an initial qualitative study on nursing attrition. *Medsurg Nursing, 19*(6), 335-40.

McIntosh, B., Rambur, B., Val Palumbo, M., & Mongeon, J. (2003). The older nurse: clues for retention. *Nursing & Health Policy Review, 2*(2), 61-77.

McKelvey, R., & Zavoina, W. (1975). A statistical model for the analysis of ordinal level dependent variables. *The Journal of Mathematical Sociology, 4*(1), 103-120.

McLaughlin, D. B., & Olson, J. R. (2012). *Health care operations management* (2nd ed.). Chicago, IL: Health Administration Press.

Menard, S. W. (2010). *Logistic regression: From introductory concepts to advanced concepts and applications.* Thousand Oaks, CA: Sage.

Milliken, T. F., Clements, P. T., & Tillman, H. J. (2007). The impact of stress management on nurse productivity and retention. *Nursing Economics, 25*(4), 203-210.

Norusis, M. J. (2012). *IBM SPSS Statistics: Advanced statistical procedures companion.* New York, NY: Prentice Hall.

Osborne, J. W. (2015). *Best practices in logistics regression*. Thousand Oaks, CA: Sage.

Park, M., & Jones, C. (2010). A retention strategy for newly graduated nurses: An integrative review of orientation programs. *Journal for Nurses in Staff Development, 26*, 142-149. 10.1097/NND.0b013e31819aa130

Randolph, G., L., Price, J. L., & Collins, J. R., (2012). The effects of burnout prevention

training on burnout symptoms in nurses. *The Journal of Continuing Education in Nursing, 17*(2), 43-49.

Spector, P. (1985). Measurements of human service staff satisfaction: Development of the job satisfaction survey. *American Journal of Community Psychology, 13*, 693-713.

Tillott, S., Walsh, K., & Moxham, L., (2013). Encouraging engagement at work to improve retention. *Nursing Management - UK, 19*(10), 27-31.

Upenieks, V. (2013). Recruitment and retention strategies: A magnet hospital prevention model. *Nursing Economics, 21*(1), 7-13, 23.

Val Palumbo, M., McIntosh, B., Rambur, B., & Naud, S. (2009). Retaining an aging nurse workforce: Perceptions of human resource practices. *Nursing Economics, 27*, 221-232.

Varjus, S., Leino-Kilpi, H., & Suominen, T. (2011). Professional autonomy of nurses in hospital settings - a review of the literature. *Scandinavian Journal of Caring Sciences, 25*(1), 201-207. doi:10.1111/j.1471-6712.2010.00819.x

Weston, M. (2006). Integrating generational perspectives in nursing. *Online Journal of Issues in Nursing, 11*(2). doi:10.3912/OJIN.Vol11No02Man01Yiannakoulias, N. (2011). Understanding identifiability in secondary health data. *Canadian Journal of Public Health, 102*(4), 291-293.

Zhu, Y. (2013). A review of job satisfaction. *Asian Social Science, 9*(1), 293-298.

Appendix A: Health Resources and Services Administration Authorization for Data Set Usage

On Fri, May 19, 2017 at 8:31 AM, ____ wrote:

Dear Mr. Kline,

For NSSRN Public Use Files (PUFs) that can be downloaded from https://datawarehouse.hrsa.gov/data/datadownload/nssrndownload.aspx, feel free to use it for your study. Note that NSSRN data made available to the public may not be used in any manner to identify individual respondents. See Attached.

T. Li

HRSA Representative

Email : XXXXX

About Public Use Files (PUFs)

NSSRN data made available to the public are to be used for research purposes only and may not be used in any manner to identify individual respondents. Most of the respondent information collected from the survey is made available as described below:

State-based Public Use Files – provide information on nurses without identifying the county and metropolitan areas in which they live or work – most users will prefer these files for national or state-level research. Data suppression rules prohibit the publication of information which may allow an individual to derive personally identifiable information about individuals in less-populated areas.

County Public Use Files – provide most, but not all, the same information on the nurse as the State Public Use Files. While the State Public Use Files contain little geographic information below the State level, the County Public Use Files identify the county and metropolitan areas in which the nurses live or work. Data suppression rules prohibit the publication of information which may allow an individual to derive personally identifiable information about individuals in less-populated areas.

The user may not merge the State and County data files into one aggregate database covering all attributes together with extensive geographic information. There are no common, unique identifiers for each surveyed nurse across these two database files.