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Walden University
2020

Abstract

The Relationship Between Practice Environment, Role Overload and Job Satisfaction of Nurses in Canada

by

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

Walden University

March 2020

Abstract

The shortage of nurses is a global phenomenon. The problem is particularly pronounced in rural areas and contributes to the health disparities experienced in the healthcare sector. Many factors had been shown to adversely impact the recruitment and retention of nurses, most especially in the rural areas. No study has examined how some factors such as the practice environment variation; geographical locations; and role overload impact job satisfaction of nurses. The Herzberg two-factor theory, with constructs of *Motivation* and *Hygiene* factors guided the study. In this quantitative, cross-sectional study, correlational approach was used to examine the association between the independent and dependent. The 2005 National Survey of the Work and Health of Nurses was analyzed to understand the perceptions of nurses in Canada regarding practice environment, role overload and job satisfaction. With a sample size of 1,363 nurses, using logistic regression analyses and chi-square of difference, the results showed that role overload, social support, and decision authority accounted for 20-26.9% of the variance in job satisfaction and were significant negative predictors of job satisfaction. The findings showed that greater percentage of the older nurses were satisfied with their jobs compared to younger nurses and that many of the nurses working in other setting were satisfied with their jobs. This study has implications for social change: The rural nursing shortage in Canada may be adequately addressed if hospital administrators, nursing directors and managers would empower nurses, improve their working conditions and workplace environment, and ensure manageable workload while the larger community/society supports creating a positive work environment for the Canadian rural nursing workforce.

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Doctor of Philosophy

Public Health (Community Health Track II)

Walden University

March 2020

Dedication

It is my pleasure to dedicate this study to healthcare providers, especially nurses who because of their passion for humanity, live and work in rural and geographically isolated locations across the globe. I also dedicate this dissertation to my wife (Iyabo) and our children (Emmanuel, Eunice, Favour and Louise) for not deserting me in the wilderness of dissertation. I also dedicate this study to my first grandchild-Lade for being a blessing to the family.

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Disclaimer: Although the research and analysis are based on data from Statistics Canada, the opinions expressed do not represent the views of Statistics Canada or the Canadian Research Data Centre Network (CRDCN).

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Chapter 1: Introduction to the Study

Introduction

The nursing shortage is a worldwide phenomenon with multiple root causes and significant implications for public health. The term describes an imbalance in the ratio of care providers to care receivers. On a global level, nursing shortages have been linked to underlying causes including an aging workforce, inadequate financial incentives, long working hours, and heavy workloads (Buchan, Twigg, Dussault, Duffield, & Stone, 2014; MacLean et al., 2014). In Canada, as with the rest of the world, the shortage of nurses is especially pronounced in rural areas; the rural nursing shortage is one factor that has been associated with the worldwide health disparities experienced by residents of rural areas (Bolin et al., 2015; Harris et al., 2016; MacLean et al., 2014). Because the practice settings of rural nursing may be characterized by factors that adversely impact the practice environment, it is important to examine the relationship between the nursing practice environment and retention factors in rural areas (Bragg & Bonner, 2014).

Job satisfaction has been described as the degree to which individuals like (satisfaction) or dislike (dissatisfaction) their jobs (Spector, 1997). Researchers have claimed that job satisfaction is a multidimensional phenomenon. For instance, employees may more or less feel satisfied with certain aspects of their jobs, such as good pay, regular promotions, career development opportunities, and good retirement packages (Smith & Hulin, 1997). It has been postulated that job satisfaction correlates with general well-being and life satisfaction (Erdogan, 1994). Thus, individuals who are satisfied with their lives are likely to be satisfied with their work and vice versa.

Conversely, nurses working under conditions of heavy work-demand and lengthy shifts are at risk of physical injury, emotional fatigue, and stress-related illnesses—all of which may decrease retention (Bragg & Bonner, 2014; Giarelli, Denigris, Fisher, Maley, & Nolan, 2016; MacLean et al., 2014). Dissatisfaction results when workers are displeased with their assigned tasks, are unsure of their rights, and are working in unsafe workplace environments, when workers do not have decision-making authority, when co-workers are not cooperative and when supervisors are not according them due respect(Clark, 1997).

Studies confirm that there is correlation between job satisfaction and somatic features of emotional and psychological symptoms, such as anxiety, neurosis, depression and phobias (Jex & Gudanowski, 2010; Barlings & Burns, 2009). Similarly, a satisfying job would promote workers ‘physiological, safety and security needs (Erdogan, 1994) and thus improve their work performance, reduce absenteeism and quit rates (Robbins, 1998). Further, dissatisfied workers will not hesitate to separate themselves from the organization (Raziq & Maulabakhsh, 2015).

Previous studies on workplace health have reported some causal relationships between the retention of nurse and job satisfaction. Therefore, addressing workplace conditions—such as work stress, role overload, and inadequate support networks—could reduce the risk of burnout and enhance job satisfaction and mental well-being in a way that could promote the retention of nurses (Alshmemri, Shahwan-Aki & Maude, 2017; Damji, Levnajic, Skrt, & Suklan, 2015; Olatunde & Odusanya, 2015; Zhang et al., 2014). The idea is that exploring the role of these important variables in relation to the nursing practice

environment of nurses working in rural Canada is vital to ameliorating the shortage of nurses.

This study focused on workplace health promotion and used Herzberg's two-factor theory to examine the interrelated sociocultural elements of the workplace environment. It sought to identify workplace environment factors that contribute to satisfaction and dissatisfaction among nurses and thereby could affect positive and sustainable social change. Therefore, the findings are expected to contribute to identifying adverse aspects of organizational culture that impact the recruitment, retention, and job satisfaction of nurses. Findings from this study may inspire nurses, nurse managers, and unions to make changes to support and improve workplace culture—changes that could influence the recruitment and retention of experienced workers. Such changes could positively impact nurses' mental health and ultimately enhance the recruitment and retention of nurses in rural and remote areas.

Background

The shortage of nurses and other health care professionals in rural areas contributes to an overall deficiency in access to health care among rural residents (Bolin et al., 2015; Hauenstein et al., 2014; Marcin, Shaikh, & Steinhorn, 2015). The short supply of nurses in rural areas often becomes even more pronounced with increasing remoteness, putting residents of such areas at further disadvantage (Russell et al., 2013). Access to primary care was cited as a top priority by health care stakeholders who responded to surveys on rural health issues in the United States (Bolin et al., 2015).

The shortage of nurses and other health providers in rural areas have been linked with widespread health disparities for rural citizens (Hauenstein et al., 2014). For example, people living in rural areas are more likely to experience obesity, which places them at higher risk of a range of related illnesses, such as stroke, heart disease, and diabetes (Pitts et al., 2013). Compared with their nonrural counterparts, residents of rural communities have higher incidence of cancer and they also experience higher cancer mortality (Harris et al., 2016; Pedro & Schmiege, 2014). Cancer survivors in rural areas were found to experience overall poorer health than their urban counterparts, and to experience a higher prevalence non-cancer comorbid conditions (Weaver et al., 2013). People living in rural areas are also more likely to develop multiple chronic conditions, which can then have adverse implications for mental health (Harris et al., 2016).

Although health care access incorporates multiple factors (e.g., distance to medical clinics, insurance coverage), one aspect of health care access emerges from the number of healthcare professionals available to work in the area (Belasco et al., 2014; Rolfe et al., 2017). Further, the unavailability of health professionals in rural areas has been linked to nurses feeling dissatisfied with the nature of their jobs (Canadas-De la Fuente et al., 2015; Deravin et al., 2017; Giarelli et al., 2016). The profession is stressful for several reasons: patient care, decision-making, managing the unending change in healthcare systems, having to witness other humans suffering, long working hours, staffing and relationships with co-workers (Sharma, et al., 2014).

Similarly, Belasco et al. (2014) found that lower levels of health care access were experienced in rural regions of the United States, and that lower health care access was

associated with higher prevalence of risky health behaviors (e.g., smoking) and higher cancer mortality rates. Indicating the seriousness of rural health disparities, the findings of recent research on life expectancy across rural and nonrural areas of the United States revealed that life expectancy is negatively associated with rurality (Singh & Siahpush, 2014). As the public health framework prioritizes issues of social justice in relation to health, the disparate health experiences of rural citizens throughout the world is recognized as an ongoing injustice that deserves attention from public health researchers and practitioners (Commission on Social Determinants of Health, 2008; Sabo et al., 2015).

The Nursing Practice Environment

In assessing the factors that are associated with the rural nursing shortage, it is important to consider the ingredients of the nurse's workplace practice environment, role overload, and job satisfaction (Bragg & Bonner, 2014; Lake, 2002; Nardi & Gyurko, 2013; Van Bogaert et al. 2014). A commonly used representation of the nursing practice environment was pioneered by Lake (2002), along with a related instrument, the Practice Environment Scale—Nursing Work Index (PES-NWI). In Lake's (2002) construction, five dimensions are evaluated: nurse participation in hospital affairs; nursing foundations for quality of care; nurse manager ability, leadership, and support of nurses; staffing and resource adequacy; and collegial nurse—physician relations. Subsequent research has revealed that the nursing practice environment can impact recruitment, retention, well-being, and productivity (Hayes, Douglas, & Bonner, 2015; Kenny & Allenby, 2013; Thian, Kannusamy, He, & Klainin-Yobas, 2015).

Because the rural nursing environment may be adversely impacted by factors such as inadequate budgets, understaffing, and professional isolation (Bragg & Bonner, 2015), it is possible that nurses working in rural environments experience poorer quality of the nursing practice environment. Additionally, experiences of role overload, inadequate support systems, and lack of decision-making authority have been associated with environmental factors for nurses and may have implications for their recruitment and retention (Olatunde & Odusanya, 2015; Zhang et al., 2014). It is important to understand the role of nurses in order to appreciate the impact of role overload on their experience of job dissatisfaction and decision to stay or quit their jobs compounding the scarcity of rural nurses. The role of nurses is layered with physically demanding labor, having to witness human suffering, uneasy patterns of work hours, and feelings of powerlessness, all of which compound their stress levels and induce burnout (Hoboubi, Choobineh, Ghanavati, Keshvarzi & Husseini, 2016).

The concept of role overload refers to a work situation of conflict between the expectations of the employer (inter-sender) and the ability and capability of the employee (role person). At this juncture, the focal person (employee) is unable to complete the tasks expected by the role sender (employer). The occurrence of such incongruous expectations and deliverables puts enormous pressure on the employees, such that the employee's inability to meet the employer's demand or expectation of the role would negatively impact the employee's job satisfaction (Rosenthal, 1964). In this scenario, the employee experiences role conflict because of incompatible role expectations. Role overload becomes inevitable when demands on time, capabilities, and other resources related to the

expected role are not adequately provided (Mursali, Basuki & Dharmono, 2009; Clegg, 2001; Voydanoff, 2002).

Job satisfaction refers to an individual employee's personal orientation and emotions toward the role that the she or he performs at a workplace (Vroom, 1964). It is the general expression of positive attitude an employee develops and puts towards job and workplace environment. In other words, this positive attitude or motivation is internally generated; it shows the level of enthusiasm emanating from specific values and beliefs that the employee constructs from his or her own world based on perceptions of the work environment. Job satisfaction motivates employees and encourages them to improve their work performance. According to Spielgler (1938), job satisfaction is the harmonious interaction of the psychological, physiological, and physical workplace environmental elements that make employees feel satisfied or happy with their careers. Conversely, employees become dissatisfied in a work environment where they lack physical? safety, job security, good relations with co-workers, recognition for outstanding performance, leadership support, and autonomy (Spector, 1997). In such environments, employees are stressed, they are likely to experience workplace-induced burnout and have tendency to abandon their jobs (Hasan, Jie, & Bidin, 2017; Hashim, 2015), which further increases turnover rates. Given the unique challenges associated with nursing in rural areas, additional research is needed to understand factors in the rural nursing environment that are contributing to nursing shortage (AbuAlRub, El-Jardali, Jamal, & Al-Rub, 2016). This is strongly true of the rural Canadian context (Nowrouzi et al., 2015). Therefore, the aims of the study were (a) to contribute to the gap in understanding of factors associated with

the Canadian rural nursing shortage, (b) to address the research gap on nursing practice environment in relation to role overload and job satisfaction for the Canadian healthcare industry, and (c) to help raise health managers' awareness of the influence of job challenge and responsibility on workforce motivation, recruitment, and retention.

Problem Statement

The global shortage of experienced nursing staff has become a grave issue, especially in geographically isolated areas. Like the rest of the world, Canada contends with nursing staff shortages that have created gaps in access to health care (Buchan, Twigg, Dussault, Duffield, & Stone, 2014; MacLean et al., 2014). Although the shortage of nurses exists on a global basis, this deficiency is pronounced in rural areas (Bolin et al., 2015; MacLean et al., 2014). The inadequate supply of nurses in rural areas in Canada and around the world is one contributor to the many health disparities experienced by rural citizens (Harris et al., 2016; Weaver, Geiger, Lu, & Case, 2013). As the public health framework prioritizes issues of social justice in relation to health, the disparate health experiences of rural citizens throughout the world is recognized as an ongoing injustice that deserves attention from public health researchers and practitioners (Commission on Social Determinants of Health, 2008; Sabo et al., 2015).

In examining the potential causes of the rural nursing shortage, the nature of the workplace should be considered (Bragg & Bonner, 2015). Studies have revealed that the workplace can significantly affect one's health and well-being (World Health Organization, 2010). Workplace conditions—equality or inequality, justice or injustice, healthy or unhealthy practices—are key factors that contribute to the health and well-being

of workers (Harris, 2010; Marmot, 2004). Characteristics of the rural nursing environment—such as short staffing, inadequate budgets, and professional isolation—can adversely impact the nursing practice environment (Bragg & Bonner, 2015; Hegney, Eley, Osseiran-Moisson, & Francis, 2015).

The nursing practice environment can impact recruitment, retention, well-being, and productivity (Hayes et al., 2015; Kenny & Allenby, 2013; Thian et al., 2015). However, additional research is needed to determine (a) the factors that underlie the rural nursing shortage (AbuAlRub et al., 2016) and (b) the relationships between nursing practice environment, role overload, and job satisfaction in nurses have not been extensively investigated. Examining the relationships between workplace environment, role overload, and job satisfaction from a solid theoretical or conceptual foundation is key to future studies on mitigating factors.

Furthermore, there is a general lack of published research in which Canadian rural nursing environments are examined (Nowrouzi et al., 2015). It is expected that this study will contribute to the evidence and enhance understanding of the factors that contribute to role overload and job satisfaction among nurses working in socially, culturally, and geographically isolated communities (Cosgrave, Hussain, & Maple, 2015). Findings from this study may help to reduce nurse turnover in rural areas of Canada.

Purpose of the Study

The purpose of this cross-sectional study was to examine the association between nursing practice environment, role overload, and job satisfaction among nurses in various clinical settings—hospital, long-term care (LTC) facility, community health facility (CHF)

and others—across geographical locations in Canada. This study used the National Survey of the Work and Health of Nurses (NSWHN; Statistics Canada, 2008) to compare the perceptions of nurses in rural and urban Canadian locations on practice environment, role overload, and job satisfaction. The study used Herzberg's two-factor theory to explore the relationships among the variables, controlling for sociodemographic factors such as age and years working in an organization or facility.

Research Questions and Hypotheses

This study was guided by the following research question:

RQ: Is there any association between job satisfaction, nursing practice environment work settings—(hospital, LTC facility, CHF, other) and role overload; age, or years working with organization, among nurses in Canada?

H01: There is no association between job satisfaction, nursing practice environment (work settings—hospital, LTC, CHF, other) and role overload; age or years working with the organization, among nurses in Canada.

Ha1: There is association between job satisfaction, nursing practice environment (work settings—hospital, LTC, CHF, other) and role overload; age or years working with organization, among nurses in Canada.

Theoretical Framework for the Study

Herzberg's Two-Factor Theory

Frederick Herzberg's two-factor theory of motivation, designed in 1959, was selected for this study. Herzberg based the theory on his analysis of the personal opinions of his population of 200 American engineers and accountants on their feelings about their

work environments. He focused on the attitudes and performance levels of the workers using his concepts of *motivation* and *hygiene* factors (Robbins, 2009). Herzberg described motivational factors as intrinsic and capable of increasing workers' job satisfaction, while *hygiene* was described as extrinsic and capable of preventing job dissatisfaction of workers (Herzberg, 1976). Herzberg used the term '*hygiene*' as a 'medical term' to connote those factors that 'remove or prevent hazards from a workplace environment' (Duttweiler, 1986, p. 371). The hygiene environment cannot motivate employees but can prevent them from becoming discontent about their workplace (Herzberg, 1976). According to Herzberg, an organization should focus on both factors to enhance employees' job satisfaction, job performance, and the overall organizational productivity (Yusoff, Kian, & Idris, 2013)

Herzberg's two-factor theory is appropriate for this study on the practice environments, role overload, and job satisfaction of nurses. For instance, using the two-factor framework would enable me to identify which factor is motivational or hygienic and to examine the impact of a factor in the selected population (Bohm, 2012). Job satisfaction is a concept that captures the general positive expression or attitudes that workers develop and demonstrate towards their jobs (Olatunde & Odusanya, 2015: Spector, 1997) . Workers' attitudes toward their jobs can be negative or positive, and attitudes are developed over time. Many factors interact to facilitate developing the attitude workers display about their jobs, including social, environmental and personality traits (Man, Modrak, Dima, & Pachura, 2011). In other words, the positive and/or negative attitude that workers display toward their jobs and workplace is a product of a series of interactions between personal, environmental, and social factors.

Herzberg's two-factor theory on work motivation is preferred because of the perceived relationship between attitude and the concept of job satisfaction as applicable to this project. Herzberg asserts that satisfaction and dissatisfaction are two different phenomena that operate on a distinct continuum and that they are not opposites of each other. He explains that workers' levels of motivation about their jobs can cause satisfaction or no satisfaction (Herzberg, 1976). Herzberg used his concepts of motivation factors (satisfiers, which are intrinsic) and hygiene factors (dissatisfiers, which are extrinsic) to explain satisfaction and no satisfaction. He claims that the presence of motivators can induce satisfaction, but when absent would cause no satisfaction. Conversely, hygiene factors, when absent, can cause dissatisfaction, but when present, can cause no dissatisfaction. This means that the two factors have strong impact on job satisfaction and employee recruitment and retention.

Based on the perceived relationships between the current study on practice environments, role overload, and job satisfaction and the Herzberg two-factor theory, it is predicted that the independent variables (nursing practice environments, role overload), as measured by the PES-NWI, would predict the dependent variable (higher level of job satisfaction), as measured by the Minnesota Satisfaction Questionnaire (MSQ). The MSQ is a 5-point Likert scale with scores of; 1 = very dissatisfied, 2 = dissatisfied, 3 = neither satisfied nor dissatisfied, 4 = satisfied and 5 = very dissatisfied with their jobs. Herzberg's theory of motivation reveals the impact of both the intrinsic and extrinsic factors of workplace environment on employee job satisfaction, retention, and turnover. If motivation

and hygiene factors of the workplace environment successfully predict job satisfaction among nurses, strategies may be developed to enhance recruitment and retention of nurses.

Nature of the Study

This cross-sectional study used secondary analysis of an existing dataset to explore the nature of the relationships among three variables of registered nurses: nursing practice environment, role overload, and job satisfaction. The correlational approach was deemed appropriate for this study because it would help to examine the direction and strength of the relationships between variables, as opposed to determining causality (Hanrahan et al., 2010). Findings from a correlational study can help estimate the prevalence of a health issue and can predict events from existing data, thereby serving to formulate preventive interventions (Curtis, Comiskey, & Dempsey, 2015). Understanding the relationships among the study variables was critical to creating a healthy workplace environment (Biggio, & Cortese, 2013; Peterson & Wilson 2002), which ultimately impacts nursing recruitment and retention—both of which are especially important during this time of global nursing shortages (Redknap et al., 2015).

This study used secondary data from the NSWHN (Statistics Canada, 2008). Apart from the time and financial benefits, the NSWHN offered a large sample with high-quality data on workplace health and well-being among nurses. The data were collected and maintained by Statistics Canada (2008) in partnership with the Institute for Health Information and Health Canada. The objectives of the survey were threefold: providing information on the health of Canadian nurses, determining the relationship between the nurses' health and their work environment, and comparing nurses' health to that of the rest

of the Canadian population. The NSWHN covered topics such as nurses' credentials, work history, working conditions, job satisfaction, employer-supported programs, quality of nursing care, nurses' perception of their own physical and mental health and substance use. and the Nursing Work Index (NWI).

Descriptive analyses were conducted, including frequencies for categorical data and means or for continuous data, in order to describe the sample population of nurses in the study. Pearson bivariate correlations were performed to determine whether an association exists between nurse practice environment, role overload, and job satisfaction. To examine effect modification by the listed socio-demographic variables, multivariable analyses were performed to describe the data, using multiple regression.

Definitions

Nursing practice environment refers to the workplace culture, opportunities for personal and professional development, and communication and collaboration with nursing leadership (Canadian Nurses Association, 2010). The Practice Environment Scale-Nurse Work Index by Lake (2002) was used to measure practice environment.

Role overload was defined as a work situation in which employees feel they have more responsibilities than what the available time, capabilities and other resources can achieve (Rizzo, House & Lirtzman, 1970). Role overload was measured by using the Role Overload Scale (ROS) designed by Reilly (1982).

Job satisfaction was defined as a collection of positive and pleasurable attitude and feelings employees have towards their jobs (George et al. 2008). It was measured by using the Minnesota Satisfaction Questionnaire (MSQ) (short version).

Assumptions

This study was based on three assumptions: (a) participants in the NSWHN answered all questions truthfully, (b) the survey instruments reliably measured the constructs under consideration, and (c) the respondents were independent of each other in their responses.

Scope and Delimitations

This study was delimited to nurses currently practicing (not in retirement) and working in Canada in order to derive evaluations of nursing practice environments as they currently exist in various clinical settings (hospital, LTC facility, CHF, other) across rural and urban Canada. Including retired nurses might have resulted in findings that do not reflect the current realities nurses practicing in rural versus urban areas. Delimiting this study to only Canadian nurses was done to address the inadequate research studies that explored shortage of nurses in rural Canada (Nowrouzi et al., 2015). Although the rural nursing shortage is a worldwide phenomenon, differences may be observed across cultures. Limiting participants to only Canadian nurses ensured a more focused examination of their working conditions and related outcomes, especially as related to recruitment and retention.

Limitations

Because this study followed a cross-sectional design, it was impossible to draw conclusions about causal relationships between the variables examined. This means that the findings of this study could be interpreted in terms of how different clinical settings in rural versus urban Canada affect the nursing practice environment differently. Also, it was not possible to determine from this study's findings whether different qualities of nursing

practice environments caused different levels of job satisfaction and role overload in nurses. Finally, because this study included nurses exclusively from Canada, it cannot be assumed that findings would be generalizable to other countries or cultures.

Significance of the Study

The study examined the relationship between practice environment, role overload, and job dissatisfaction among nurses practicing across Canada. It was warranted by the global shortages of nurses (Cottini & Lucifora, 2010), especially in rural and isolated clinical settings in Canada, a situation that is predicted to get worse if efforts are not taken to curb shortages (Harwood, Ridley, Wilson, & Laschinger, 2010). Indeed, the inequitable distribution of healthcare professionals has been recognized as a global issue (Wilson, Couper, De Vries, Reid, & Fish, 2009). The ripple effects of the shortage could be worse in rural and isolated communities because residents there are likely to be poorer, sicker, less educated, and have restricted access to quality healthcare services (Redknap, Twigg, Rock, & Towell, 2015; Wilson et al., 2010). Thus, the higher demand for health needs in rural and isolated communities with lower access to preventive and curative services could create an imbalance similar to Hart's (1971) *inverse care law*, which states that people with greatest health needs have the worst access to quality healthcare.

Summary

The rural nursing shortage has been associated with health disparities in rural residents, representing a worldwide public health concern. As with the rest of the world, Canada's rural areas have a shortage of nurses, although the reasons for this shortage have not been thoroughly investigated. As the public health framework emphasizes issues of

health-related social injustice, examining the factors associated with the rural nursing shortage in Canada represents an important public health priority.

To address this need, the purpose of this cross-sectional study was to examine the association between nursing practice environment, role overload, and job dissatisfaction among nurses across geographical locations in Canada. This study used the NSWHN (Statistics Canada, 2008) to compare the perceptions of the nurses in all Canadian locations on practice environment, role overload, and job dissatisfaction. Components of the Herzberg's two-factor theory were used to analyze the complex relationships between workplace environment and workers dissatisfaction. This study's findings could be helpful in addressing the underlying causes of the rural nursing shortage in Canada, thereby addressing the ongoing health disparities of the country's rural population.

Chapter 2 provides a comprehensive review and analysis of the relevant research literature, while Chapter 3 presents the methods used to run the study. Chapter 4 presents the results of the analysis of the survey data used while Chapter 5 contains the discussion of findings of the study, recommendations, study limitations, implications for social change and the conclusion.

Chapter 2: Literature Review

Introduction

The global shortage of experienced nursing staff has become a grave issue, especially in rural or geographically isolated areas. Like the rest of the world, Canada contends with nursing staff shortages that have created gaps in access to health care (Buchan, Twigg, Dussault, Duffield, & Stone, 2014; MacLean et al., 2014). Although the shortage of nurses exists on a global basis, this shortage is pronounced in rural areas (Bolin et al., 2015; MacLean et al., 2014). The shortage of nurses in rural areas in Canada and around the world is one contributor to the many health disparities experienced by rural citizens (Harris et al., 2016; Weaver, Geiger, Lu, & Case, 2013). In examining the potential causes of the rural nursing shortage, the nature of the workplace culture should be considered (Bragg & Bonner, 2015). Studies have revealed that the workplace culture of satisfaction (autonomy, good relations with colleagues, adequate resources) or dissatisfaction (such as lack of management support) can significantly affect people's perception of job satisfaction as well as the recruitment and retention of experienced workers (Delgado, Roche, Fethney, & Foster, 2019; Fahy& Moran, 2018; Gabrielsson, Savenstedt & Olsson, 2016; McTiernan& McDonald, 2015; Olatunde & Odusanya, 2015). Workplace conditions—equality or inequality, justice or injustice, healthy or unhealthy practices—are key factors contributing to the health and well-being of workers (Harris, 2010; Marmot, 2004) and they can impact the availability of quality health professionals (Delgado et al. 2019; Hayes et al., 2015; Kenny & Allenby, 2013; Thian et al., 2015).

Characteristics of the rural nursing environment, such as short staffing, inadequate budgets, and professional isolation, could adversely impact the nursing practice environment (Bragg & Bonner, 2015; Hegney, Eley, Osseiran-Moisson, & Francis, 2015). The nursing practice environment can impact recruitment, retention, well-being, and productivity (Hayes et al., 2015; Kenny & Allenby, 2013; Thian et al., 2015). However, additional research is needed to determine (a) the factors underlying the rural nursing shortage (AbuAlRub et al.,2016), and (b) the relationships between nursing practice environment, role overload, and job dissatisfaction with respect to nursing shortages in Canada. Furthermore, there is a paucity of published research in which Canadian rural nurses are examined (Nowrouzi et al., 2015). To address this gap in the literature, the purpose of this cross-sectional study was to examine the association between nursing practice environment and role overload and job dissatisfaction among nurses across geographical locations in Canada. This study used the NSWHN (Statistics Canada, 2008) to compare the perceptions of nurses, in various Canadian locations, about practice environment, role overload and job dissatisfaction.

In this chapter, I review the research literature on this study's topic. In the next section, I discuss the search strategy and the specific outcomes of the search. Next, the theoretical framework is explained in greater detail, and a rationale for its use in this study is provided. In subsequent sections, the research themes are discussed: (a) public health implications of the nursing shortage, (b) nursing practice environment, (c) nursing role overload, and (d) nursing and job dissatisfaction. The chapter concludes with a discussion of the gaps in the literature and a summary of key points.

Literature Search Strategy

To obtain studies for this chapter, a search of several databases was conducted using relevant search terms and prioritizing literature published within the last 5 years. The following databases were searched: PsycINFO, Health Source: Nursing/Academic Edition, Academic Search Premier, Psychology and Behavioral Sciences Collection, JSTOR, and Google Scholar. The following search terms were used individually and in combination; *nursing practice environment, role overload, job satisfaction, nurses, nursing, rural nurses, rural nursing shortage, nursing shortage, patient outcomes, nurse performance,* and *rural health disparities*. As an example of a combination, *nursing practice environment* and *rural nurses* yielded 76 articles drawn from peer-reviewed sources, of which 71 (93%) were published between 2014 and 2019, and 5 (7%) were published before 2013.

Theoretical Framework

Herzberg's Two-Factor Theory

Frederick Herzberg's two-factor theory of motivation designed in 1959 was selected for this study. Herzberg based theory on his analysis of the personal opinions of his population of two hundred Americans engineers and accountants on their feelings towards their working environments. He focused on the working attitudes and performance levels of the workers using his concepts of *motivation* and *hygiene* factors (Robbins, & Judge, 2009). Herzberg described motivational factors as intrinsic which is capable of increasing workers job satisfaction, while hygiene was described as the extrinsic and capable of preventing job dissatisfaction among workers. According to Herzberg,

organization should focus on both factors to enhance employee's job satisfaction experience, job performance and general organizational productivity (Yusoff, Kian, & Idris. 2013).

Herzberg's two-factor theory is appropriate for the current study on practice environments, role overload and job satisfaction. Job satisfaction is a concept that captures the general positive expression or attitudes workers build and demonstrate towards their jobs. Workers attitudes to their jobs can be negative or positive and they are built over time. Many factors including social, environmental and personality traits do interact to facilitate building the attitude workers display about their jobs (Man, Modrak, Dima, & Pachura, 2011). In other words, the positive and or negative attitudes workers display towards their jobs and workplace is a product of series of interactions between personal, environmental and social factors.

Herzberg's two-factor theory on work motivation is preferred because of the relationship between attitude and the concept of job satisfaction as applicable to this project. Herzberg asserts that satisfaction and dissatisfaction are two different phenomena that operate on a distinct continuum and that they are not opposites of each other. He further explains that the levels of motivation workers have about their jobs can cause satisfaction or no satisfaction (Herzberg, 1976). Herzberg used his concepts of motivation (satisfiers or intrinsic) and hygiene (dissatisfiers, extrinsic) factors to explain satisfaction and no satisfaction. He explains that the presence of motivators can induce satisfaction but causes no satisfaction when absent. Conversely, hygiene factors, when absent can cause

dissatisfaction but no dissatisfaction when present, meaning that the two factors have tangible amount of strengths.

Based on the perceived relationships between the current study on practice environments, role overload and job satisfaction and the Herzberg two-factor theory, the researcher predicted that the independent variables (nursing practice environments, role overload), as measured by PES-NWI would predict the dependent variable (job satisfaction) as measured by the MSQ. Herzberg's theory of motivation reveals the impacts of both the intrinsic and extrinsic factors of workplace environment on employee job satisfaction, retention and turnover. If motivation and hygiene factors of the workplace environment successfully predict job satisfaction among the nurses, then strategies to enhance recruitment and retention of nurses may be developed.

Motivation is vital to human attitude, behavior and work performance. The levels of motivation a worker has and exert at the workplace can impact the team and the entire organizational performance (Project Management Institute, 2008). This assertion indicates that the overall organizational success depends on the team's levels of commitment and it is a product of their motivational levels. Therefore, organizations should endeavor to have a clear understanding of the similarities and dissimilarities of employees' motivators, make each employee feel satisfied and fulfilled to enhance their organizational commitment (Yosoff, Kian, & Idris, 2013).

The Herzberg's two factor theory of motivation and hygiene focuses on organizational accomplishments. He hypothesized that certain factors were responsible for workers' positive attitudes while other group of factors were responsible for workers'

negative attitudes. Herzberg worked to identify which factors in a workplace caused employees satisfaction and which ones were causing dissatisfaction. Herzberg opines that both satisfaction and dissatisfaction emanated from two distinct factors. He named his first factor motivator (satisfiers) such as achievements, recognitions, awards, work performed, responsibilities, advancements, growth and promotions. Herzberg's second factor is hygiene (dissatisfiers) and these include organizational policies, supervision, working conditions, interpersonal relationships, salaries, statuses, job security and personal lifestyles (Herzberg, Mousner, & Snyderman, 1959).

Herzberg coined his metaphorical term *hygiene* to denote a medical concept of removing or preventing hazards from a work environment. In his view, Herzberg argues that human environment could be a source of pains, that meeting the workplace hygiene-needs is related to avoidance of pain or discomfort posed by a work environment, and that effects of hygiene improvement are temporary (Herzberg, 1976; Duttweiler, 1986). Motivation on the other hand is tantamount to personal growth, that sources of motivators are limited, motivators have lasting effects, are additive in nature, have no-escalating zero-point, and they provide solutions to motivation needs (Herzberg, 1976).

Basically, *hygiene* factors such as company policies, supervisions, interpersonal relationships, and job security cannot motivate workers. However, the *hygienic* workplace environment can prevent discontentment or a feeling of job dissatisfaction. It is also important to note that hygiene alone cannot guarantee absence of dissatisfaction (Yusoff et a., 2013). In other words, a positive and lasting contentment would require some level of psychological growth and development before it could be strong enough to motivate

workers to join an organization and to remain committed.

Dealing with hygiene factors might be easier. For example, to measure, control and manipulate hygiene factors are much easier than measuring, controlling and manipulating motivators (Herzberg, 1976). The author adds that motivating factors are complex, subjective and very elusive in nature. Herzberg explains that the complex nature of motivators could contribute to why employers do concentrate on hygiene factors at the expense of the motivators. When management neglects motivating factors, workers tend to seek more of the hygiene factors some time more than what the management could provide (Hamner & Organ, 1978), leading to profound negative impact on motivation. To properly manage hygiene effects and benefit from the application of the Herzberg two- factor theory, Herzberg recommends that organizations should clearly identify type of hygiene needs, apply hygiene for hygiene purposes only, use when it hurts, and keep its utilization simple (Herzberg, 1976).

Herzberg two-factor theory is useful at evaluating employee's levels of satisfaction with their jobs. The understanding of the two factors (motivation and hygiene) and their appropriate application by organizational leadership would reduce employee dissatisfaction (Belias, Koustelios, Sdrollias, & Koutiva, 2013). When organizational leaderships provide a rewarding workplace environment, employees motivation and level of commitment would increase (Barrick, Thurgood, Smith & Courtright, 2015). In other words, employee satisfaction and commitment to their jobs would influence turnover rates. This theory makes measuring the relationship between job satisfaction and workers' intention to leave their jobs easier.

According to Herzberg's two-factor theory, the assumption that a robust pay package is the principal source of employee job satisfaction is inadequate. Herzberg et al. (1959) disproved the assumption based on the findings of their study on determinants of job satisfaction among the 200 American engineers and accountants. The authors reported that job satisfaction has a dual nature of both job satisfaction and job dissatisfaction (House & Wigdor, 1967) and that both factors influence employees' feelings of job satisfaction (Alam & Shahi, 2015).

The Herzberg's theory of motivation and hygiene has been found to be highly effective at analyzing job satisfaction and has been successfully used in many motivational studies across disciplines including health organizations (Alshmemri Shahwan-Aki & Maude, 2017; and banking institutions (Hasan, Jie & Bidin, 2017). For example, in their study on job satisfaction and dissatisfaction among university teachers in Malaysia, Islam and Ali (2013) applied the motivating—*hygiene* theory to examine factors that enhance job satisfaction. The authors reported that personal achievements, adequate recognition, work itself, assigned responsibility, promotion and advancements, when provided make employees feel satisfied (Damij et al. 2015; Islam & Ali, 2013; Yusoff et al. 2013).

Conversely, and in the same study conducted by Islam and Ali in 2013, the university policies, salary package and opportunity for growth were found to be dissatisfiers with negative impact on the workers. Further, the authors classified supervisions, interpersonal relationships, and working conditions as extrinsic factors that also influence the workers level of job satisfaction. Among other hygiene factors, Islam and Ali (2013) reported that interpersonal relationships guarantee a better experience of

job satisfaction. Similarly, Flores and Subervi (2013) studied job satisfaction among the U.S. Latino journalists. The authors reported that to keep employee satisfied with their jobs and reduce turnover rates, organizational leadership should invest on the need for growth and personal advancement of their employees.

Lumadi (2014) used Herzberg's theory of motivation and hygiene to determine factors that keep lecturers focused on a piece of their tasks—curriculum designing. The author reported that job security, training, job responsibility, and participation in curriculum transformation activity influenced job satisfaction experience of the employees. Concluding the study, Lumadi (2014) asserted that actively involving employee in decision-making process amounts to empowering them and a condition that can positively influence their intention not to leave the organization.

While examining factors responsible for making workers perform exceptionally well, Njanja, Maina, Kibet and Njagi (2013) used Herzberg's two-factors theory to explore the impact of intrinsic motivational factors on job satisfaction. Njanja et al. (2013) acknowledge the psychological rewards intrinsic factors such as personal recognition, responsibility and active participation in decision-making activities contribute to job satisfaction experience of the workers. According to Herzberg, the presence of such intrinsic motivators in a worker's work-life balance could motivate employee while their absence does not mean the employee must feel dissatisfied with their jobs (Herzberg et al. 1959; Herzberg, 1966). This assertion does not mean that extrinsic factors are not valuable to job satisfaction, but internal motivators exert greater influence on worker retention (Zopiatis, Constanti, and Theocharous (2014). Based on this argument, Brevis and Vrba

(2014); Haque, Haque, & Islam, (2014) advocate for application of internal motivators to ensure employees develop positive attitudes towards their jobs.

Review of Relevant Literature

To convey the importance of the rural nursing shortage as a public health concern, this section of the chapter begins with a discussion of the implications of the nursing shortage in a global sense. However, because this study is focused on rural nursing shortages, most of this discussion will pertain to specific factors associated with this shortage and the known health disparities that exist in rural areas. The next major section outlines the nursing practice environment, provides an explanation of the construct and related findings. The following section addresses role overload among nurses, with a specific focus on role overload in relation to aspects of the nursing practice environment. The final major section describes job dissatisfaction in nurses and discuss its potential implications for the nursing shortage.

Public Health Implications of the Nursing Shortage

The nursing shortage is a worldwide phenomenon with multiple root causes and significant implications for public health. On a global level, nursing shortages have been linked to underlying causes including an aging workforce, inadequate financial incentives, long working hours, and heavy workloads (Buchan, Twigg, Dussault, Duffield, & Stone, 2014; MacLean et al., 2014). An aging population also increases the demand for health services, compounding the nursing shortage (Buchan et al., 2014; Rowe et al., 2016). Furthermore, various countries have been affected differently by factors such as the economic crisis, nurse migration, and workforce planning (Buchan et al., 2014; Jones &

Sherwood, 2014). Additionally, in countries such as the United States, the level of interest in nursing among students has created a demand that educational institutions cannot currently meet due to shortages in faculty as well as clinical placement availability (MacLean et al., 2014).

Baseline shortages of nurses along with poor retention rates create conditions that jeopardize the health of the populations. Insufficient nurse staffing levels may result in inadequate access to care for individuals in a community, which has been associated with health outcomes such as increased incidence of cancer and multiple chronic conditions, as well as higher frequencies of unhealthy or risky behavior (Belasco, Gong, Pence, & Wilkes, 2014). In nursing environments that are understaffed, nurses may be overworked and overstressed, which can decrease the quality of care they provide to patients (Humphries, Morgan, Conry, McGowan, & Montgomery, 2014).

Nurses working in conditions of heavy demand coupled with lengthy shifts are at risk of physical injury, emotional fatigue, and stress-related illnesses, all of which may decrease retention (Bragg & Bonner, 2014; Giarelli, Denigris, Fisher, Maley, & Nolan, 2016; MacLean et al., 2014). Furthermore, poor retention has itself been associated with poorer quality of nursing care and correspondingly worsened patient health outcomes (Bragg & Bonner, 2014). For these reasons, researchers have identified attraction and retention of nurses as a key priority for supporting the increasing need for quality healthcare on a worldwide basis (Rowe et al., 2016).

Rural nursing shortage

Although the shortage of nurses exists on a global basis, this shortage is particularly pronounced in rural areas (Bolin et al., 2015; MacLean et al., 2014). The search for underlying causes of the rural nursing shortage has revealed that one of the contributing factors to this situation is the uneven distribution of nurses across urban versus rural regions (MacLean et al., 2014). Specifically, about 55% of the world's population lives in urban areas, over 60% of the world's nurses reside in urban regions; this results in insufficient application pools for nursing positions in rural areas (MacLean et al., 2014). The lack of qualified applicants for nursing positions in rural regions is compounded by the increasing need for nursing services due to an increased proportion of aging adults in rural areas (Bratt, Baernholdt, & Pruszynski, 2014).

Working in healthcare settings in rural areas can also create a specific set of challenges due to the remote or isolated nature of these work settings (Cosgrave, Hussain, & Maple, 2015; Kenny & Allenby, 2013). Because of the shorter available supply of nurses in rural areas, those who do work in such settings may be assigned a wider range of responsibilities that require that they manage multiple roles and develop more diverse skill sets compared with their urban counterparts (Kenny & Allenby, 2013). Rural nursing often involves a higher level of independence, which may create a sense of job autonomy that some nurses find satisfying (Bratt et al., 2014).

In contrast to the potentially positive experience of autonomy associated with working in rural settings, however, working with lower levels of oversight might also be experienced as stressful for rural nurses (Ma, Yang, Tseng, & Wu, 2016). Nurses working in rural areas must often learn to operate effectively with less guidance and support

compared with their urban counterparts, leading to heightened stress (Bratt et al., 2014; Cosgrave et al., 2015; Kenny & Allenby, 2013). Lower salaries in rural areas may also hamper recruitment and retention of nurses in rural settings (AbuAlRub, El-Jardali, Jamal, & Al-Rub, 2016). Findings of a study of nurses working in rural areas of Jordan indicated that nurses in rural areas were less satisfied with their salaries compared with nurses in urban areas (AbuAlRub et al., 2016).

Nursing students from rural backgrounds have been found to be more likely to fill nursing positions in rural communities following graduation (Bigbee & Mixon, 2013). As a possible contributor to the shortage of nurses in rural areas, Bigbee and Mixon (2013) found that nursing program applicants from rural areas were less likely to be accepted when compared with applicants from urban areas. However, no difference was found between rural and urban students who were accepted to nursing programs, when these groups were compared on outcomes such as academic performance and retention (Bigbee & Mixon, 2013). In response to this problem, some nursing programs have modified their admissions practices to increase the successful recruitment of rural students into their programs (Grobler, Marais, & Mabunda, 2015). However, the effectiveness of such changes to admissions practices to address the rural nursing shortage remains unclear (Grobler et al., 2015).

In another comparison of urban and rural novice nurses, it was discovered that new nurses practicing in urban settings had received significantly more oversight from nurse preceptors compared with their rural counterparts (Bratt et al., 2014). This pattern is significant considering Yonge, Myrick, Ferguson, and Grundy's (2013) findings that

novice nurses experienced the preceptorship as vitally important as they transitioned into practice in rural settings. Yonge et al.'s (2013) photovoice exploration of the experiences of novice nurses in rural practice environments revealed that nurses often choose to work in rural areas out of feelings of community responsibility. It was therefore extremely valuable for these new nurses to receive an extended and consistent team-based preceptorship as they transitioned from their urban educational settings to rural nursing environments (Yonge et al., 2013).

Interventions to increase attraction and retention of rural nurses

Interventions to increase attraction and retention of nurses in rural healthcare settings have been attempted with varying levels of success (Grobler et al., 2015; Mbemba, Gagnon, Paré, & Côté, 2015). For example, the establishment of nursing schools that are in rural areas has been associated with a larger pool of qualified nurses in those areas (Grobler et al., 2015). In a similar vein, Hauenstein et al. (2014) proposed a model of nursing education that would prepare new nurses for the specific challenges associated with nursing practice in rural areas. One such program in Australia involved placement of nursing students in rural facilities, which provided them with specific training for the rural positions they intended to seek following graduation (Smith, Lloyd, Lobzin, Bartel, & Medlicott, 2015). Page et al. (2016) also described a rural camp program in Western Australia that was developed to provide students from various health and other disciplines the opportunities to obtain immersive learning in rural settings. Participants of the rural camp described by Page et al. (2016) reported generally favorable attitudes toward the experience; however, neither Hauenstein et al. (2014) nor Page et al. (2016) evaluated the

effects of these interventions on the actual placement of nurses in rural settings following graduation.

Financial incentives have also been used to attract nursing graduates to rural areas, such as scholarships and loan forgiveness programs (Grobler et al., 2015; Mbemba et al., 2013). In the systematic review conducted by Mbemba et al. (2013), the only two studies that presented significant findings supporting nurse attraction interventions were those that evaluated financial incentives programs. However, Grobler et al. (2015) did not find credible support for such incentives. In their systematic review of studies of interventions aimed at increasing attraction and retention of nurses to rural positions, Grobler et al. (2015) found an overall lack of well-designed studies to adequately examine the outcomes of such interventions. Therefore, the effectiveness of interventions to address the rural nursing shortage cannot be confidently asserted (Grobler et al., 2015).

To summarize, a global shortage of nurses has been thoroughly documented by researchers, and this shortage is even more pronounced in rural areas across the world (Buchan et al., 2014; MacLean et al., 2014). Disproportionate distribution of nurses across rural and urban is one identified underlying factor, although researchers have also documented certain specific features of the rural nursing environment that can be challenging for nurses (Bratt et al., 2014; Kenny & Allenby, 2013). Professional isolation and lower salaries were cited by some nurses as undesirable aspects of working in rural settings (AbuAlRub et al., 2016; Ma et al., 2016). To address these issues, different approaches have been attempted, included interventions and financial incentives (Grobler et al., 2015; Mbemba et al., 2013). However, the research base is yet undeveloped in

relation to effective remedies for the rural nursing shortage (Grobler et al., 2015). To return to the public health impact of the rural nursing shortage, the next section will explain rural health disparities and how they relate in part to shortages of nurses in rural areas.

Rural health disparities

Residents of rural areas experience health disparities across multiple domains (Harris et al., 2016; Weaver, Geiger, Lu, & Case, 2013). In the United States, people living in rural areas tend to be older and poorer than those living in nonrural areas, and they also engage in more risky health behaviors such as tobacco use and lack of exercise (Harris et al., 2016). People living in rural areas are also more likely to experience obesity, which places them at higher risk of a range of related illnesses, such as stroke, heart disease, and diabetes (Pitts et al., 2013). Compared with their non-rural counterparts, residents of rural communities have higher incidence of cancer, and also experience higher cancer mortality (Harris et al., 2016; Pedro & Schmiege, 2014). Cancer survivors in rural areas were found to experience overall poorer health than their urban counterparts, and to experience a higher prevalence non-cancer comorbid conditions (Weaver et al., 2013). People living in rural areas are also more likely to develop multiple chronic conditions, which can then have adverse implications for mental health (Harris et al., 2016).

Mental health disparities have also been observed in rural populations. Rural lung cancer survivors in the United States had significantly worse mental health outcomes compared with lung cancer survivors in urban areas (Andrykowski, Steffens, Bush, & Tucker, 2014; Weaver et al., 2013). Mental health outcomes that were measured included psychological distress (Weaver et al., 2013), along with anxiety, perceived stress, and

depression (Andrykowski et al., 2014). Furthermore, lung cancer survivors in urban areas had comparable mental health to healthy controls (Andrykowski et al., 2014). Rural residents in the United States are more likely to commit suicide than people living in urban or suburban areas, which also indicates poorer mental health outcomes for rural individuals (Harris et al., 2016). Women veterans who lived in rural areas also reported an unmet need for mental health services, citing a lack of service availability as a significant concern (Brooks, Dailey, Bair, & Shore, 2016).

The shortage of nurses and other health care professionals in rural areas contributes to an overall deficiency in access to care among rural residents (Bolin et al., 2015; Hauenstein et al., 2014; Marcin, Shaikh, & Steinhorn, 2015). The short supply of nurses in rural areas often becomes even more pronounced with increasing remoteness, further disadvantaging residents of such areas (Russell et al., 2013). In particular, access to primary care was cited as a top priority by health care stakeholders who responded to surveys regarding rural health issues in the United States (Bolin et al., 2015).

The lack of nurses and other medical providers in rural areas may also be associated with patterns of healthcare avoidance observed in rural residents (Spleen, Lengerich, Camacho, & Vanderpool, 2014). In a survey of 6,714 adults living in rural areas of the United States, Spleen et al., (2014) found that patterns of healthcare avoidance were significantly associated with factors including poor rapport with health provider and lack of regular provider. Although Spleen et al., (2014) could not conclusively link poor rapport with provider and lack of regular provider with the shortage of providers in rural areas, they did suggest the likelihood of this interpretation of their findings.

Although health care access incorporates multiple factors (i.e., distance to medical clinic, insurance coverage), one aspect of health care access emerges from the number of healthcare professionals in the area (Belasco et al., 2014; Rolfe et al., 2017). Indeed, Belasco et al. (2014) found that lower levels of health care access were experienced in rural regions of the United States, and that lower health care access was associated with higher prevalence of risky health behaviors (i.e., smoking) and higher cancer mortality rates. Indicating the seriousness of rural health disparities, the findings of recent research on life expectancy across rural and non-rural areas of the United States revealed that life expectancy is negatively associated with rurality (Singh & Siahpush, 2014). As the public health framework prioritizes issues of social justice in relation to health, the disparate health experiences of rural citizens throughout the world is recognized as an ongoing injustice that deserves attention from public health researchers and practitioners (Commission on Social Determinants of Health, 2008; Sabo et al., 2015). Examining factors associated with the nursing practice environment that might have relevance for attraction and retention of nurses in rural areas was the overall aim of the study, and the next section will introduce this examination through discussion of the nursing practice environment.

Nursing Practice Environment

The overarching aim of the study was to examine a set of factors that may have bearing on the nursing shortage, particularly in rural areas. Specifically of interest is the nursing practice environment in different clinical settings across rural and non-rural areas, and its relationships with individual level outcomes for nurses (role overload and job

satisfaction) that might have relevance for attraction and retention of nurses in rural areas (Hayes, Douglas, & Bonner, 2015; Kenny & Allenby, 2013; Thian, Kannusamy, He, & Klainin-Yobas, 2015). Before examining the research on these variables, it is important to define the nursing practice environment. The nursing practice environment is a multidimensional construct that reflects the nature of the working environment for nurses (Lake, 2002; Van Bogaert et al., 2014). A commonly used representation of the nursing practice environment was pioneered by Lake (2002), along with a related instrument, the Practice Environment Scale-Nursing Work Index (PES-NWI). The PES-NWI was developed through surveys of nurses working at magnet hospitals, which were so designated because of their patterns of attracting and retaining nursing staff despite the ongoing shortages of nurses (Lake, 2002).

The nursing practice environment reflects dimensions of the workplace that are desirable and have been tested in relation to a variety of outcomes (i.e., job satisfaction, retention) in the ensuing years (Hayes et al., 2015; Kenny & Allenby, 2013; Thian et al., 2015). The nursing practice environment has also been re-assessed and elaborated in the literature. For example, Bender and Feldman (2015) proposed that nursing practices and the practice environment are reciprocally influential, creating interdependencies between the actions of nurses and their experience of the resulting work environment. This proposition is consistent with the assumptions of this study's theoretical framework, Herzberg's two-factor theory (1959) which proposed that a workplace environment consists of both the intrinsic and extrinsic factors that impact employees job satisfaction and influence decision to stay or leave their jobs.

In Lake's (2002) construction of the nursing practice environment, five dimensions are evaluated: nurse participation in hospital affairs; nursing foundations for quality of care; nurse manager ability, leadership, and support of nurses; staffing and resource adequacy; and collegial nurse-physician relations. Nurse participation in hospital affairs refers to nurses' levels of involvement in hospital decision-making, nurses' opportunities for advancement, and management's responsiveness to nurse concerns. Nursing foundations for quality of care refers to the presence of high standards for care, adequate policy and planning around patient care, and sufficient quality assurance procedures. Nurse manager ability incorporates leadership abilities, training proficiency, and respect for nurses under the manager's supervision. Staffing and resource adequacy refer to the adequate availability of staff, resources, and services to carry out their jobs fully. Finally, collegial nurse-physician relationships refer to the quality of relationships as well as the level of cooperation and collaboration between nurses and physicians (Lake, 2002).

Although the study will use Lake's (2002) conceptualization of nursing practice environment, it is helpful to acknowledge and define other presentations of the construct in the literature. The PES-NWI was derived from the Nursing Work Index (NWI), which is another commonly used instrument in research on the nursing practice environment (Van Bogaert et al., 2014). The NWI presents the nursing work environment using a different set of dimensions, including organizational support and resources, nurse management style, and relationships between physicians and nurses (Van Bogaert et al., 2014). Specifically, desirable features of nursing practice environments under the NWI framework include nurse autonomy, decentralized or distributed leadership styles, sufficient staffing

and resource allocation, and hospital accountability for quality patient care (Lake, 2002; Van Bogaert, Kowalski, Weeks, Van heusden, & Clarke, 2013). The following sections will discuss research in which aspects of the nursing practice environment were examined in rural settings.

Practice environment and rural nurses

The nature of the nursing practice environment can have substantial effects on nurses' satisfaction and desire to remain in their jobs (Coetzee, Klopper, Ellis, & Aiken, 2013; Nowrouzi et al., 2015). The importance of a healthy nursing practice environment for rural nurses may have particular implications for the overall concern about nursing shortages in such areas, due to the nature of nurse population dispersal (Bragg & Bonner, 2015). Because the pool of available applicants for nursing positions in rural areas is smaller than in non-rural areas, it is vital that employers take measures to retain their current nursing staff (Bragg & Bonner, 2015).

The importance of nurse retention in rural areas was highlighted by the findings of a study by Bragg and Bonner (2015), who interviewed 12 nurses who had resigned from positions in rural hospitals. These nurses explained that resigning from a nursing position in a rural area where they had made their homes left them with few options for returning to nursing, because of the dispersed placement of hospitals in rural areas (Bragg & Bonner, 2015). In fact, none of the 12 nurses had returned to nursing positions at the time of their interviews with the researchers (Bragg & Bonner, 2015). In consistent findings, Lindovist, Alenius, Griffiths, Runesdotter, and Tishelman (2015) found that Swedish nurses working in rural hospitals who intended to leave their jobs within the next year were only half as

likely as urban nurses to seek out future work in another hospital. These findings illustrate the importance of nurse retention, especially in rural areas, and it also reveals how nurse resignations might exacerbate the nursing shortage (Bragg & Bonner, 2015; Lindovist et al., 2015).

Nursing foundations for quality of care. Under Lake's (2002) model of nursing practice environment, nursing foundations for quality of care refers to the hospital's maintenance of high standards for quality of patient care. The importance of this facet of the nursing practice environment for rural nurses was discovered in the research reviewed. For example, a survey of 1,608 nurses from both rural and non-rural areas of Australia indicated that nurses working in rural areas perceived the nursing foundations for quality of care significantly less favorably than their non-rural counterparts (Hegney, Eley, Osseiran-Moisson, & Francis, 2015). However, no differences existed between rural and urban nurse perceptions of the other four dimensions of the nursing practice environment (Hegney et al., 2015).

Adding texture to this finding, Bragg and Bonner (2014) conducted a qualitative study to explore the reasons that nurses voluntarily resigned from their positions in practice environments located in rural parts of Australia. Their grounded theory analysis of participants' accounts resulted in a framework that reflected a three-stage process leading to resignation: sharing values, conceding values, and resigning (Bragg & Bonner, 2014). In the first stage, the participants described feeling a sense of shared values with their hospitals, but in the second stage they expressed growing feelings of discord with regard to values (Bragg & Bonner, 2014). These changes occurred as the nurses perceived the

hospitals shifting their practices in ways that they perceived as degrading the quality of patient care, resulting in a perception that their personal values related to nursing were no longer upheld by the hospitals in which they worked (Bragg & Bonner, 2014). These feelings of values discordance eventually influenced their resignations (Bragg & Bonner, 2014).

Nurses who worked in rural hospitals connected their concerns about poor patient care to outdated practices and to the remoteness of hospital oversight (Bragg & Bonner, 2014). The increasing practice of telehealth has been suggested as a possible means of addressing such concerns about patient care in rural and/or remote areas (Gagnon et al., 2014; Marcin et al., 2015). Telehealth refers to the use of information and communication technologies to facilitate collaboration between rural healthcare professionals and experts in their field who work in distant settings (Gagnon et al., 2014; Rutledge, Haney, Bordelon, Renaud, &Fowler, 2014). Health professionals can use technologies such as the telephone and computers to exchange information through audio conversation, still photos, videos, or live video streaming (Rutledge et al., 2014). Telehealth might also involve direct consultations between medical professionals and patients, which may be carried out synchronously or asynchronously (Marcin et al., 2015).

Of particular interest for the present study, the utility of telehealth for reducing professional isolation for rural nurses is an important consideration. For example, telehealth might be used to share videos of wounds experienced by patients in rural areas with wound care experts in other regions (Gagnon et al., 2014). Such technologically mediated consultation would provide the rural nursing staff access to a broader pool of

knowledge and support on issues they encounter (Gagnon et al., 2014; Rutledge et al., 2014). In interviews about the use of telehealth for wound care, nurses and nurse managers in rural areas expressed that this resource enhanced their perceptions of the nursing practice environment by improving the quality of care they provided to patients (Gagnon et al., 2014). Responding to the documented need to better support rural nurses through telehealth practices, Rutledge et al. (2014) evaluated an educational program for nursing students that provided instruction and immersive learning opportunities related to telehealth's applications to needs such as chronic disease monitoring, palliative care, and mental health services. The 60 students who participated in the evaluation reported generally positive perceptions of telehealth as a potentially supportive resource for nurses who practice in remote areas (Rutledge et al., 2014).

Staffing and resource adequacy. Under Lake's (2002) model of nursing practice environment, staffing and resource adequacy referred to the presence of sufficient numbers of nurses to meet the needs of patients, the availability of adequate amounts of supportive services that allow nurses to spend sufficient time with their patients, and sufficient time on the job to consult with other nurses regarding patient health and care issues. Nowrouzi et al. (2015) investigated factors that were associated with intention to remain in one's position, using a sample of 1,337 nurses in rural Canada. Their findings indicated that nurses who were required to work one hour of overtime or less each week reported significantly higher intentions to stay (Nowrouzi et al., 2015). As adequate staffing levels may be associated with lower overtime demands, this finding provided support for this dimension of the nursing practice environment as a key retention factor for rural nurses

(Nowrouzi et al., 2015). Similarly, Bragg and Bonner's (2014) findings also revealed the importance of staffing and resource adequacy. In their interviews with rural nurses who had resigned, a downgrading of patient care was often linked with hospitals' attempts to reduce spending, resulting in inadequate supplies and staffing (Bragg & Bonner, 2014). This sense of values-based discord eventually led to the nurses voluntarily resigning (Bragg & Bonner, 2014).

Nurse manager ability, leadership, and support of nurses

The nursing practice model developed by Lake (2002) includes the nurse managers' abilities to lead effectively and respectfully, to provide adequate oversight and training, and to act as supportive figures for nurses under their supervision. Bragg and Bonner's (2014) analysis focused on the sense of values discordance between nurses and their employers, but the lack of staffing and supplies might also be cast as inadequate support of nurses. In consistent findings, AbuAlRub et al. (2016) found that nurses in rural areas of Jordan evaluated their working environments as less supportive than their counterparts in non-rural areas. These perceptions of unsupportive working environments in rural areas were associated with lower job satisfaction and greater intentions to leave their positions (AbuAlRub et al., 2016).

In response to such findings about the importance of supportive work environments for nurses working in rural areas, Bourke, Waite, and Wright (2014) proposed a model of mentoring to increase nurse retention in rural and/or remote areas. Provision of mentoring to new nurses in rural environments was recommended as a means of building supportive relationships between nurses and their supervisors and/or senior coworkers, and of

developing new nurses' skills as they adapted to their new positions (Bourke et al., 2014). Based upon their review of the literature, Bourke et al. (2014) anticipated that these positive effects mentoring might increase retention of nurses in rural areas.

The experiences of nurse administrators working in rural areas provide some context for rural nurses' concerns about lack of support, as reported by AbuAlRub et al. (2016) and Bragg and Bonner (2014). In interviews with 40 nurse administrators working in rural areas of the United States, Fairchild et al. (2013) found that the often-limited financial resources of rural hospitals constrained nurse leaders' abilities to provide what they perceived as adequate training to their nursing staff. Specifically, nurse administrators reported that they lacked access to nurse educators and technologies to support the most up-to-date continuing education for their nurses (Fairchild et al., 2013). Supporting this finding, nurses who did have access to advanced technologies in the form of telehealth assistance reported that this resource enhanced their views of the nursing practice environment through supporting their professional development (Gagnon et al., 2014). Rural nursing leaders also explained that the requirement that they fulfill a wide range of leadership capacities, which is common for nurse leaders in rural areas, often resulted in them being pulled away from planned work activities (Fairchild et al., 2013). The end result of these multifold responsibilities often detracted from nurse administrators' abilities to provide training and oversight to their nursing staff (Fairchild et al., 2013).

Another consideration raised by researchers was the importance of structural empowerment for nurse leaders in rural areas (Bish, Kenny, & Nay, 2014). Because of the complex and rapidly changing nature of nursing practice, the researchers argued that nurse

leaders need to be sufficiently empowered to make decisions that effectively mobilize their nursing staff in response to emerging problems and challenges (Bish et al., 2014; Knight, Kenny, & Endacott, 2015). Structural power was described in terms of three dimensions, which were formal power, informal power, and access to resources or organizational structures (Bish et al., 2014).

In their survey of nurse leaders in rural Australia, Bish et al. (2014) found that nurse leaders reported only moderate levels of empowerment, which was primarily degraded by lack of access to resources. In another study of rural nurse leaders, Knight et al. (2015) found that nurse supervisors protected their on-call nurses from discipline resulting from policy deviance, which suggested a lack of structural empowerment. The specific policy-deviant action of question was telephone-mediated nurse consultation, which was utilized by nurses as a way of meeting patient needs when remoteness prevented them from consulting in person (Knight et al., 2015). Knight et al. (2015) suggested that enhanced structural empowerment for rural nurse leaders might enable them to constructively revise policies that do not effectively address the complexity of rural nursing conditions, rather than simply obscuring their nurses' policy deviance to avoid punitive repercussions.

Nurse participation in hospital affairs

According to Lake's (2002) model, nurse participation in hospital affairs refers to the involvement of nurses in decision making, opportunities for advancement, and overall influence and weight of nurses' perspectives in the working environment. Deravin, Francis, Nielsen, and Anderson (2017) proposed that use of a team nursing model of care in rural healthcare settings might enhance nurses' involvement in decision making and thereby

improve their work experiences. Deravin et al. (2017) noted that rural healthcare settings often include a higher proportion of unregistered nursing staff, and that enhancing participation of nurses of all levels might create a more positive nursing practice environment. Indeed, they found that nurses working in environments that adopted the team nursing model of care reported higher levels of job satisfaction and lower levels of work stress following the change to this model of care (Deravin et al., 2017). The researchers suggested that the team nursing model of care was one approach for increasing nurse participation in hospital affairs, thereby enhancing nurses' perceptions of the practice environment (Deravin et al., 2017).

Bragg and Bonner (2014) also found that nurses who chose to resign from rural hospitals expressed feelings of decreased control and influence over workplace and patient care practices. In further analysis of these nurses' experiences, Bragg and Bonner (2015) found that nurses' perceptions that their perspectives were unimportant strongly influenced their decisions to leave their jobs. Nurses shared that they had expressed their concerns about the poor quality of patient care, but that their employers made no changes in response to their concerns (Bragg & Bonner, 2015). Some nurses explained that they would have withdrawn their resignations if changes had been made to improve patient care, but that their hospitals' leaders exhibited what they perceived as a lack of concern about their pending departures (Bragg & Bonner, 2015). Furthermore, nurses reported that they were not offered exit interviews, which they felt indicated an unwillingness of hospital leaders to modify their practices in order to increase nurse retention (Bragg & Bonner, 2015).

Collegial nurse—physician relations

Also noted as important for the nursing practice environment were collegial and cooperative relationships between nurses and physicians, which were characterized by teamwork and mutual respect (Lake, 2002). The findings of one study highlighted the relevance of nurse—physician collegiality for retention (Trépanier, Fernet, & Austin, 2013). Although this study was not focused specifically on rural nurse settings, its findings did indicate that nurses experienced lower levels of job satisfaction when they worked in environments characterized by bullying (Trépanier et al., 2013). No research was located, however, in which collegial nurse-physician relations was examined specifically in rural nursing settings.

To summarize, the nursing practice environment entails five dimensions that have been associated with positive outcomes for nurses (Lake, 2002). A variety of studies were located in which researchers examined specific features of the nursing practice environment in relation to nurse outcomes in rural settings, whose findings suggest the possibility that aspects of the rural environment might have adverse implications for the practice environment (Bragg & Bonner, 2014; Hegney et al., 2015). For example, professional isolation and budget constraints were perceived as negatively affecting quality of patient care (Bragg & Bonner, 2015). A study that used the PES-NWI affirmed that rural nurses perceived lower quality of care compared with urban nurses (Hegney et al., 2015). Inadequate budgets in rural areas were also linked with lack of staffing and resources, adversely impacting the practice environment (Bragg & Bonner, 2014). Some rural nurses also perceived less supportive leadership compared with their urban counterparts (AbuAlRub et al., 2016). Although only one study was focused on the nursing practice

environment in rural versus urban areas using the PES-NWI (Hegney et al., 2015), these studies taken together provide substantial reason to question whether characteristics of the rural working arena adversely impact the nursing practice environment.

Nursing and Role Overload

Role overload among healthcare professionals and especially nurses has been identified as a top concern by researchers investigating causes and solutions to the global nursing shortage (Cañadas-De la Fuente et al., 2015; MacLean et al., 2014; Manzano-García & Ayala, 2017). Role overload refers to a significant level of work stress which can negatively impact job satisfaction (Yaacob & Long, 2015). As in the current study, the ROS by Reilly (1982) was used to assess role overload in the study participants. The major components of the ROS which include job number of tasks or jobs given to employees, availability of time, energy and other resources to accomplish the task, role strain (uncertainty) make the instrument applicable to the current study.

The nursing profession is known to be characterized by stressful demands and working conditions, which place nurses at high risk of developing work-related stress, role overload and burnout (Cañadas-De la Fuente et al., 2015; Deravin et al., 2017; Giarelli et al., 2016). Indeed, the capacity to successfully manage the stress and pressure of the profession was reported by nurses as an essential factor that would allow them to continue in this line of work through retirement (Mauritas, de Veer, van der Hoek, & Francke, 2015). The relationship between workplace stressors and burnout in nurses was further illustrated

by the findings of Woodhead, Northrop, and Edelstein (2016). In their study, which included 250 nursing professionals from long-term care facilities, Woodhead et al., (2016) found that higher levels of job demands were associated with higher levels of emotional exhaustion and depersonalization, and lower levels of personal accomplishment and turnover intentions (Sheraz, Wajid, Sajid, Qureshi & Rizwan, 2014). Job demands referred to the nurses' experiences of occupational and personal stress (Woodhead et al., 2016).

One of the many stressful aspects of nursing is shift length, with 12-hour shifts becoming increasingly common (Dall'Ora, Griffiths, Ball, Simon, & Aiken, 2015). The connection between working long hours, work stress, intention to leave and burnout in nurses was illustrated by the findings of a study that included 31,627 nurses working across 12 different countries in Europe (Dall'Ora et al., 2015). Nurses who reported working shifts that were 12 hours or longer were significantly more likely to report occupational hazard such as burnout than nurses who worked shorter shifts (Dall'Ora et al., 2015). Furthermore, shift length was associated with most of the constructs of NIOSH such as job demands, teamwork, work schedules, role strains and job control (Sheraz et al. 2014; Xiang et al. 2014).

Tracing the antecedents of role overload has not been easy. Some authors have tried to link role overload to role demands, non-work demands, work environments, family-work-life conflict and role quality. Many authors have reported that job strain and role conflict pose the greatest risk to role overload among success-minded and high work-involvement people (Greenhaus & Beutell, 1985; Mark, 1997). Similarly, Higgins, Duxbury and Lyons (2010) and Pleck (1979) explained that workers psychological role

involvement, coupled with time spent at performing the work, increased their risk for role conflicts.

Conversely, Barnett and Baruch (1985) argued that the obligations and privileges attached to role and not the number of roles itself that are responsible for most role overload experience. Further, Greenhaus and Beutell (1985) identified time-based conflicts such as length of shifts, hours require to commune to work, amount and frequency of overtime, rigid work schedule, and lack of control as major antecedents of role overload. Other risk factor for role overload are the family-related factors such as marriage, parenthood, child-rearing responsibilities, having younger versus older children (Goldin, 2015) though individual perceptions of their environmental factors is also implicated (Guelzow et al.1991).

Role overload can be described both qualitatively (explaining when and settings where expected task is very difficult) and quantitatively (task given are too many). The available job resources (organizational climate) and job demand by type of clinical setting can impact workload. For example, mental health nurses are at the greater risk for stressful and traumatic experience from verbal and physical abuse by patients (Akanni, Osundina, Olotu, Agbonile, Otakpor & Fela-Thpomas, 2019; Fahy & Moran, 2018; Itzhaki, Peles-Bortz, Kostistky, Barnoy, Filshtinski, & Bluvstein, 2015). In addition, unsupportive clinical leadership, negative team culture and inadequate resources are other sources of workplace stress and frustration that may culminate into nurse's decision to quit (Foster et al. 2019; Gabrielsson, Savenstedt, & Olsson, 2016).

There are few studies that described some of the antidotes of role overload. For example, using the structural equation model, Frone et al. (1997) reported that supervisory support significantly and negatively impacted workload of the participants while family support significantly and negatively influenced parental overload (Frone et al. 1997). The authors found co-worker support unrelated to work overload and spousal support unrelated to parental overload though work overload was positively related to family-work-life conflict while parental overload was significantly positively related to family-work-life conflict (Hobfoll, 2014; Mansour & Tremblay, 2016; Greenhaus & Beutell, 1985).

Resilience building is a promising antidote to workplace stressors for nurses. With a population of 498 participants, Foster et al. (2019) studied workplace stressors, psychological well-being and resilience among mental health nurses in Australia. The authors found strong relationships between workplace stress, resilience and general well-being of nurses. Foster et al. (2019) therefore concluded that mental health nurses work environment is very challenging, and that resilience building is the best antidote (Foster et al., 2019).

Of particular interest to the proposed study were local clinical settings, rurality, age, and length of experience; however, few findings were specifically related to these factors. In one study, researchers found that age and length of experience were associated with burnout among hemodialysis nurses, as nurses who were older and had more experience reported significantly lower levels of job satisfaction and work stress such as burnout compared with younger and less experienced nurses (Hayes et al., 2015). Regarding rurality and burnout, only one study was located. In a study that included rural and non-

rural nurses working Australia, burnout was not significantly associated with the area in which nurses worked (Hegney et al., 2015). However, nurses in rural clinical settings areas did report significantly higher levels of secondary trauma compared with their urban counterparts; this was a finding that suggested the necessity of further study, as secondary trauma has been identified as a risk factor for work stress (Gómez-Urquiza et al., 2016; Hegney et al., 2015).

The nursing practice environment and role overload

The nursing practice environment was found to be associated with role overload and the importance of the relationships is evidenced by increased number of studies on job satisfaction and nursing shortages. For many decades, role overload has been associated with increased levels of work-related anxiety, fatigue, emotional and psychological stress, decreased levels of job, family and overall life satisfaction (Bacharach et al. 1991; Barnett & Baruch, 1985; Cooke & Rousseau, 1984; Duxbury & Higgins, 2003). Role overload has been linked with higher rates of work absenteeism, presenteeism, reduced organizational commitment, increased thoughts of quitting a job, poorer mental and physical health of workers, increased turnover and inadequate supply of healthcare professionals (Frone et al. 1997).

The consequences of role overload on healthcare industry are phenomena as the outcomes affect the patients, care providers, the employers and the society. In addition to fiscal restraints, healthcare professionals in Canada had least trust in their employers leading to least commitment to most organizations. In the absence of trust, the workplace environment further becomes toxic and least supportive workplace, and negatively

impacting the decision to stay (Chen & Mehdi, 2019; Lowe, 2007: Lowe & Schellenberg, 2001). In other words, a toxic employee-employer relationship would impede recruitment and retention of quality and experienced staff.

The nursing practice climate is associated with role stress. A healthy nursing environment provides opportunities for the professionals to have shared meaning of their organizational policies, and procedures; enable nurses to have their experiences and contributions appropriately valued. It is a place where nurses will feel supported and empowered to contribute to higher level decision-making (Peciono, Manas, Diaz-Funez, Aguilar-Parra, Padilla-Gongora & Lope-Liria, 2019; Scheneider, Ehrhart & Macey, 2010). Unlike a toxic work environment, a healthy practice environment is a social community that supports nurses' ability to provide quality care to patient in a manner that is consistent with their professional standards (Spence Laschinger & Fida, 2014; Qian, Yang, Wang, Huang, & Song, 2019). In other words, an unhealthy work environment is a toxic workplace that if not properly addressed would facilitate higher levels of work stress, burnout, job dissatisfaction and decision to quit.

Furthermore, negative perceptions of nursing practice environments were also significantly associated with intentions to leave their jobs (Qian et al. 2019; Coetzee et al., 2013). These findings were consistent with those of Hayes et al. (2015), who found that more positive perceptions of the nursing practice environment were associated with higher levels of job satisfaction and lower levels of emotional exhaustion. Supporting the relationship between nursing practice environment and burnout further, Zhang et al. (2014)

found that poorer scores on the PES-NWI scale were significantly associated with higher levels of burnout in nurses working in Chinese hospitals.

Specific aspects of the nursing practice environment were also investigated in relation to burnout among nurses. For example, Holland, Cooper, and Sheehan (2016) examined the relationships between clinical supervisor support, employee voice, managerial responsiveness, and employee engagement using 1,039 Australian nurses. Employee voice refers to the level of opportunity provided to employees to express their concerns and suggestions, and to enter into a two-way discussion with leaders in the workplace related to their perspectives (Kalfa, Wilkinson, & Gollan, 2017; Kallio, Kallio, Tienari Hyvonen, 2016). Holland et al., (2016) describes managerial responsiveness as the way leaders respond to employee concerns, including how seriously they take such concerns and how efficiently they respond. Holland et al., (2016) concluded that supervisor support and employee created positive engagement which may reduce work stress and support creation of a healthy workplace for nurses.

The constructs of employee voice and managerial responsiveness are similar to the dimensions of nursing practice environment pertaining to nurse involvement in hospital affairs and leader ability (Lake, 2002), which suggests that positive perceptions of these aspects of the nursing practice environment may reduce the risk of burnout in nurses (Holland et al., 2013). Another form of leadership, authentic leadership, was also found to negatively relate to burnout in nurses in Canada (Laschinger, Wong, & Grau, 2013). Authentic leadership refers to the encouragement of openness and communication in the leader-employee relationship, and an interest in incorporating employee input into

organizational decision making (Laschinger et al., 2013). This leadership construct reflects the constructs of employee voice and managerial responsiveness; therefore, Spence Laschinger et al.'s (2014) findings were harmonious with those of Holland et al. (2016). In related findings, Woodhead et al. (2016) found that nurses who perceived their supervisors as supportive also reported higher levels of personal accomplishment and lower levels of emotional exhaustion. Taken together, these findings support a protective effect of healthy leadership on nurses' feeling overloaded or their likelihood of developing work stress such as burnout (Holland et al., 2016; Spence Laschinger et al., 2014; Woodhead et al., 2016).

Another aspect of the nursing practice environment, staffing and resource adequacy, was also investigated in relation to nurse burnout. Leineweber et al. (2014) conducted an analysis of data provided by 8,620 nurses working across 53 hospitals in Sweden. Participants completed the Maslach Burnout Inventory (MBI) to self-evaluate burnout, and also completed the PES-NWI to assess their hospitals' nursing practice environment (Leineweber et al., 2014). Findings indicated that adequate staffing and good leadership were negatively related to burnout or other work-related stress (Leineweber et al., 2014). Specifically, leadership and staffing adequacy were negatively correlated to emotional exhaustion and depersonalization; further, staffing was positively related to job satisfaction from personal accomplishment (Ko, Kiser-Larson, 2016; Leineweber et al., 2014; Sarafis et al., 2016).

A final element of the nursing practice environment, collegial nurse-physician relations, was also found to have bearing on burnout in nurses (Trépanier, Fernet, & Austin, 2013). In a study of 1,179 nurses working in Quebec, nurses who reported experiencing

higher levels of workplace bullying were more likely to report burnout (Trépanier et al., 2013). Although workplace bullying as measured could refer to either nurse-physician or horizontal bullying between nurses, these findings still highlight the importance of collegiality in relation to the experience of work-induced stress such feeling frustrated, overload and burnout (Trépanier et al., 2013).

Outcomes of role overload in nurses

In findings that contradicted expectations and conventional wisdom, nurse burnout was not significantly associated with poorer performance, as measured by the frequency of conducting physical assessments of patients (Fennessey, 2016; Mohamed, 2016). Similarly, findings of a study involving 197 Chinese nurses revealed no relationship between the emotional exhaustion dimension of burnout and supervisor-rated task performance (Tourigny, Baba, Han, & Wang, 2013). Indeed, in a literature review of studies pertaining to nursing outcomes and quality of care, nurses' perceptions of poor quality of care in their practice settings created a risk for developing work hazards such as role overload, and burnout (Humphries et al., 2014). However, the directional effects of burnout as a predictor of poor-quality care was not found to be established in the literature (Humphries et al., 2014).

Burnout is a serious concern in the nursing profession, as it can have adverse implications for turnover and retention. Illustrating such concerns, Tourigny et al. (2013) found a significant relationship between the emotional exhaustion dimension of burnout and turnover intentions among nurses working in hospitals in China. Participants completed the relevant section of the MBI to self-evaluate emotional exhaustion, and also

completed scales to rate their own levels of emotional or affective commitment to their hospitals (Tourigny et al., 2013). Notably, the researchers found that a decreased level of organizational commitment mediated the relationship between emotional exhaustion and turnover intentions (Tourigny et al., 2013). They interpreted these findings through a social exchange framework and suggested that the factors that nurses find exhausting might also damage their feelings of emotional connection to their workplaces, leading them to seek work elsewhere (Delgado et al. 2019; Lindqvist, Alenius, Griffiths, Runesdotter, & Tishelman, 2015; Tourigny et al., 2013). Affirming the relationship between burnout and turnover intention, Zhang et al. (2014) also found that burnout from role overload was significantly associated with turnover intentions in a sample of 9,698 nurses working across 181 different hospitals in China.

To summarize, nurses in any setting experience a high risk of developing job stress and burnout due to conditions of high emotional stress, heavy workloads, and long shift hours (Cañadas-De la Fuente et al., 2015; Delgado et al. 2015; Deravin et al., 2017; Giarelli et al., 2016; Olatunde & Odusanya, 2015). Because role overload has been associated with turnover in nurses, it is an important factor to consider in relation to the nursing shortage (Pecino et al. 2019; Tourigny et al., 2013; Zhang et al., 2014). Features of the nursing practice environment were found to associate with role overload, work stress across several studies (Coetzee et al., 2013; Foster, Roche, Giandinoto & Furness, 2019; Hayes et al., 2015; Pecino, et al. 2015). For example, employee voice and managerial responsiveness and support had positive implications for role overload and, burnout, reflecting the value of nurse involvement in hospital affairs and leadership capability (Foster et al. 2019;

Holland et al., 2013; Lindqvist, et al. 2015; Olatunde & Odusanya, 2015; Pecino et al. 2019). Staffing and resource adequacy was another feature of the nursing practice environment framework that was linked with burnout risk, as nurses working in adequately staffed facilities reported lower levels of burnout and intension to leave (Leineweber et al., 2014).

Although the only study that involved rural nurses did not establish a connection between rurality and burnout from role overload, it did yield findings that indicated a greater prevalence of secondary trauma in rural nurses (Gómez-Urquiza et al., 2016; Hegney et al., 2015). Given the connections between nursing practice environment and role overload, considered against the possible adverse effects of rurality on the nursing practice environment, further study of these variables in relation to one another is certainly warranted (Gómez-Urquiza et al., 2016; Hegney et al., 2015). Another potentially influential variable, jo satisfaction, will be the subject of the next and final section of this review.

Nursing and Job Satisfaction

The workplace as a social institution, often displays reactive behavioral manifestations such as strains and job dissatisfaction. Job satisfaction is the personal and affective description of behaviors (positive or negative) that an individual employee makes and displays about their work or workplace situation (Rudolph, Clark, Jundt, & Baltes, 2015). Many authors also conclude that being a reactive workplace behavior, job satisfaction is a strong determinant of most workplace outcomes such as performance, workers' general well-being, their decision to stay or leave an organization. As a workplace

outcome behavior, researchers claim that job satisfaction impacts recruitment and retention of quality and experienced nurses (Li et al. 2015; Olatunde & Odusanya, 2015; Thian, Kannusamy, He, & Klainin-Yobas, 2015; Korner, Wirtz, Bengel & Goritz, 2015).

As in the present study, job satisfaction has been commonly assessed using the MSQ (Weiss, Davis, England & Lofquist, 1967). The MSQ short version designed by the Vocational Psychological Research Unit, University of Minnesota was used to analyze job satisfaction. The MSQ has been commonly used in studies analyzing job satisfaction among nurses (Olatunde & Odusanya, 2015). The MSQ assesses Job satisfaction through items related to the individual's feelings of pleasure or displeasure with certain work-related factors their jobs such as amounts of responsibilities, workload, management practices, supports, decision making ability and opportunity for development (Kunte, Gupta, Bhattacharya & Neelam, 2017; Rodolph et al. 2015). In a study on job satisfaction in banking industry by Kunte et al. (2017), the author found role overload, and role stagnation inversely associated with job satisfaction among bankers and job satisfaction positively impacted turnover (Kunte et al. 2017).

Nursing practice environment, personal traits, and job satisfaction

Employees' job satisfaction may emerge from factors that are rooted in the working environment (organizational culture and structure) and also within the individual personality endowments (Kunte et al. 2017; Rudolph et al. 2015). For example, nurses indicated that their feeling of well-being was promoted by certain individual traits or behaviors, such as remaining positive, being open to change in the workplace, and being proactive (Biggio & Cortese, 2013). Durkin et al. (2016) similarly found that mental well-

being in nurses was related to individual level factors. In their survey of 37 registered nurses in the United Kingdom, Durkin et al. (2016) found that how nurses view of themselves had implications for their sense of accomplishment and general well-being. Specifically, nurses who reported higher levels of compassion satisfaction reported higher levels of well-being compared with nurses with lower levels of compassion satisfaction (Durkin et al., 2016). Compassion satisfaction refers to nurses feeling happy that they have helped others through their work (Durkin et al., 2016).

Other factors were identified in the research literature that were related to well-being in nurses that were concordant with dimensions of the nursing practice environment (Khamisa, Oldenburg, Peltzer & Ilic, 2015; Lindovist et al. 2015; Olatunde & Odusanya, 2015). For example, Khamisa et al. (2015) found that nurses reported higher well-being when they experienced higher levels of perceived organizational support, which might be considered related to leadership capacity in the nursing practice environment framework. Perceived organizational support is a construct that refers to employees' sense that their organizations value their perspectives and contributions in the workplace (Khamisa et al. 2015). In Australian but not U.S. nurses, Brunetto et al. (2013) also found that the quality of nurses' relationships with their supervisors was positively associated with their well-being.

Consistent with Olatunde and Odusanya (2015), Kamisha et al. (2015), found that workplace environment characterized by poor staffing management, inadequate resources and higher security risk is a risk to nurses 'general well-being (Kamisha et al. 2015). Similarly, Olatunde and Odusanya (2015) examined job satisfaction and mental well-being

of mental health nurses in Nigeria with a sample of 110 psychiatric nurses. The authors reported that area of clinical specialty of nurses impact their work stressor risk, thoughts of staying or leaving their jobs (Olatunde & Odusanya, 2015). The authors described the basic components of nurses' work environment as to include nurse-physician relationships, communication, relationship with patients and patient's family, psychiatric emergencies, workload, staffing level, leadership support and feedback mechanism (Olatunde & Odusanya, 2015). In other words, environmental factors in the clinical settings where nurses practice do influence their work-related behaviors whether pleasant or unpleasant.

Focus on job satisfaction and nursing environmental factor is changing. For example, most of the previous studies on job satisfaction of nurses had extensively focused on organizational staffing structure, nursing leadership, financial rewards and how they influence job satisfaction and intention to stay or leave (Lindovist, et al. 2015). In their study on self-reported quality of care, work environment, burnout and intention leave, Lindovist et al. (2015) explored the structural hospital environments of nurses to understand factors that may induce a sense of pessimism, burnout, and intentions to leave. The authors focused at understanding insidious hospital characteristics that maybe influencing dearth of nurses in Sweden, using the Sweden version of the European Commission 7thframework funded RN4CAST project (RN4CAST Consortium, 2009) dataset. Using a sample of 11,000 nurses, Lindovist et al. (2015) found hidden structural factors of the nursing environments (such as hospital size, teaching status, rural or urban settings) not strongly related to self-reported outcomes such as burnout, quality of care, job satisfaction and intentions to leave (Lindovist et al. 2015).

The within hospital factors (intrinsic or hospital structures) could be easily sighted and addressed. To address workplace environmental issues facilitating intention to leave, Lindovist et al. (2015) explain that hospital structures that cannot be easily altered such as size, hospital location, teaching status, interpersonal aspects of nurses and nursing work are equally important (Lindovist et al 2015). While most of the previous job satisfaction studies have focused on leadership, staffing organization pattern as characteristics that magnetize nurses to some hospitals (Aiken et al. 2011), findings of Lindovist et al. (2015)'s research confirmed that the hidden structural factors are less important to creating a satisfying workplace for nurses. The authors used the findings to encourage nursing leadership to focus on organizational structural factors rather than insidious one in their efforts to improve work environment and reverse the nursing shortage (Lindovist et al. 2015).

Outcomes of job satisfaction for nurses

Because nurses' perceptions of their job satisfaction may have an impact on organizational commitment and retention, this variable has relevance to the nursing shortage (Belaid, Dagenais, Mahaman & Ridde, 2017). These authors used mixed methodology to examine factors affecting attraction and retention of health professionals in rural and remote areas in Niger. Groups of participants included policymakers, officials from the Ministry of Health, health professionals, local health managers, and midwifery students. Belaid et al. (2017) found that the local workplace environments such as the living conditions (absence of life-essentials such as water, electricity, schools); social factors such as geographical isolation and insecurity; working conditions such as workload; financial

compensations and individual factors such as gender, marital status influence attraction, recruitment and retention of health professionals (Belaid et al. 2017).

To summarize, nurses' perceptions and display of their feelings about their job and job satisfaction is a fundamental to their recruitment and retention. Understanding the environmental location, type of clinical setting, and clientele population is key to attracting and retaining quality and experienced health professionals. Improving job satisfaction of nurses by enhancing their work environment will not only facilitate their mental well-being but may also address the rural nursing shortage, as it indicates a positive and healthy state of functioning that is not simply the absence of mental illness or distress (Belaid et al., 2017; Olatunde & Odusanya, 2015). Job satisfaction has been associated with lower turnover intentions in nurses, making this a potentially important outcome for promoting retention of nurses (Lindovist, et al. 2015). Job satisfaction may be associated with individual traits (i.e., pessimism or optimism), but findings reviewed indicated that features of the nursing practice environment might also have relevance for general well-being (Lindovist, et al. 2015). For example, perceiving the organization as supportive was associated with mental well-being for nurses, and might relate to the nursing practice environment component of leadership capability (Belaid et al. 2017; Olatunde & Odusanya, 2015).

Again, considering the previously discussed potential for characteristics of the rural environment to adversely impact the nursing practice environment (Bragg &Bonner, 2014), considering such environments in relation to the general and especially, mental well-being of nurses should be clarified. Although one study failed to produce evidence to

correlate geographic region with nurses' well-being, my study did not use an instrument specifically designed to assess this construct (Hegney et al., 2015). Therefore, a gap in knowledge on this relationship continues to exist.

Summary and Conclusions

The shortage of nurses continues to exist on a worldwide basis and is particularly acute in rural areas, including those of Canada. The rural nursing shortage has been identified as one of many factors associated with widespread health disparities for rural residents, creating a condition of health-related social injustice. To address the shortage of nurses in various Canadian locations, it is important to understand the contributing causes; however, research on this topic is yet very limited. Because the nursing practice environment has been identified as an important predictor of nurse outcomes (i.e., retention, job satisfaction), it is worth considering its role in the rural nursing shortage. Indeed, characteristics of the rural setting might have adverse effects on dimensions associated with the practice environment, such as budget constraints, understaffing, and compromised quality of care.

Because features of the nursing practice environment may also relate to the retention factors burnout and mental well-being, it is important to understand how rurality is related to the practice environment and these individual level nurse outcomes. However, very little research has been conducted to examine these factors for rural nurses and no studies were found in which all of these variables were investigated in relation to each other. To address this gap in knowledge, the purpose of this cross-sectional study was to examine the association between nursing practice environment, role overload and job

satisfaction among nurses across geographical locations in Canada. Chapter 3 provided an explanation of the methods that was used to address this purpose.

Chapter 3: Research Method

Introduction

The purpose of this cross-sectional study was to examine the association between nursing practice environment, role overload, and job satisfaction among nurses across geographical locations in Canada. This study used the NSWHN (Statistics Canada, 2008) to compare the perceptions of the nurses in various Canadian locations on practice environment, role overload, and job satisfaction. The study used the Herzberg's two-factor theory to explore the relationships among the variables, controlling for sociodemographic factors such as age, work setting, and years working in an organization. In this chapter I cover the following topics: the methods used in this study; the research design and rationale; the population, sample and related procedures; the procedures for recruitment, participation, and data collection; the study instruments; data analysis; threats to validity; ethical considerations; and by a summary of key points.

Research Design and Rationale

This study used a quantitative method, which was selected because of its usefulness in determining statistical relationships between previously defined variables (Bernard, 2013). Because nursing practice environment, role overload, and job satisfaction have all been clearly defined and can be measured using existing instruments, a quantitative approach was a good fit (Babbie, 2012). Also, the aim of this study was to compare variables in clinical settings across rural and urban contexts, for which a quantitative method is best suited (Bernard, 2013). By contrast, a qualitative method would be useful in *exploring perspectives* of nurses from diverse clinical settings across Canada, but it

could not meet the aims of this study to determine *measurable differences* in the outcomes of the various clinical locations (Merriam & Tisdell, 2015).

This cross-sectional study used secondary analysis of an existing dataset to explore the nature of the relationships among three variables in registered nurses: nursing practice environment, role overload, and job satisfaction. The correlational approach was deemed appropriate for this study because it helped to examine the direction and strength of the relationships between variables, rather than determine causality (Hanrahan et al., 2010). Findings from a correlational study can help estimate the prevalence of a health issue and can predict events from existing data, thereby serving to formulate preventive interventions (Curtis, Comiskey, & Dempsey, 2015). Understanding the relationships among the variables is critical to creating a healthy workplace environment (Biggio & Cortese, 2013; Peterson & Wilson 2002). A healthy nursing practice environment would consequently impact nursing recruitment and retention—both of which are especially important during this time of global nursing shortages (Redknap et al., 2015).

Methodology

In this section, I present the study methodology. This includes a discussion of the population of interest, as well as the sample and the sampling procedures. Procedures for recruitment, participation, and data collection are also discussed.

Population

The population of interest in the present study included all nurses working in Canada in 2004, and clinical settings across rural and urban locations. This included registered nurses, licensed practical nurses, and registered psychiatric nurses. Nursing

assistants were not included in the study. This information was drawn from Statistics Canada (2008).

Sample and Sampling Procedures

In this study the researcher conducted a secondary analysis of the 2005 NSWHN (Statistics Canada, 2008). The study sample totaled18,676 nurses working throughout all areas of Canada. The sampling strategy was a stratified probability design, organized according to the 26 provincial registrars.

Power analysis was used to determine the sample size as well as the effect size for the study. The study sample size was calculated based on three key factors: effect size, statistical power, and .05 alpha level (Cohen, 1988). As recommended by McDonald (2014), an effect size was needed to ascertain the numerical strength of the association between the dependent and independent variables. Also used was the G*Power or *1-beta* (*1-β*) to measure the chance of rejecting the null hypothesis while the alpha value was used to measure the significant level of the statistical test in the study.

G*Power was used to calculate minimum sample size required for this multiple regression analysis. A minimum sample size of 1363 is required for a medium effect size of x^2 = .10 with 80% power at a level of 5% significance.

Test family: Chi-square test

***x2* -tests -** Goodness-of-fit tests: Contingency tables

Analysis: A priori: Compute required sample size-given alpha, power, and effect size.

Input:	Effect size w	=	.01
	α err prob	=	0.05

	Power (*1-β* err prob)	=	.80
	Number of predictors	=	6
Output:	Noncentrality parameter λ	=	13.6300000
	Critical x_2	=	12.5915872
	Total sample size	=	1363
	Actual power	=	0.80001959

Procedures for Recruitment, Participation, and Data Collection

Recruitment was conducted in the original study through letters that were mailed to nurses, which introduced the study and invited them to participate. Response and participation by selected nurses were voluntary. If nurses chose to participate, they engaged in a telephone interview with the interviewers. The telephone interviewer asked participants survey questions and entered their responses into a computerized format.

This source was selected because Statistics Canada is a reputable organization, and because the extent of their sampling was far greater than what the researcher could accomplish as part of the dissertation study. Statistics Canada's superior resources allowed them to conduct a nationally representative study, which will provide the study with the best possible dataset and support the researcher's intended analyses. Access to the dataset required formal permission of the Statistics Canada after which data was obtained at the Research Data Centre (RDC), University of Alberta (U of A), Edmonton (see Appendix A).

Instrumentation and Operationalization of Constructs

This section contained information on the three instruments that were used in the original study by Statistics Canada to assess role overload, job satisfaction, and nursing practice environment. Because the proposed study will use secondary data, it was not necessary to obtain permission to use these instruments. Relevant information for each instrument will be described below.

Instrumentation

Following are descriptions of each of the three instruments to be used in this study:

Nursing practice environment

The PES-NWI by Lake (2002) was used to measure practice environment. This instrument is the most widely used to evaluate the nursing practice environment (Warshawsky & Havens, 2011), and is similarly appropriate for the current study due to its focus on the nursing practice environment in relation to nurses' outcomes. The PES-NWI has been used with nurses from a wide variety of specialties and cultures (Warshawsky & Havens, 2011). Favorable scores on the PES-NWI have been correlated with desirable nurse outcomes, such as job satisfaction, empowerment, and organizational commitment (Warshawsky & Havens, 2011). Conversely, unfavorable scores on the PES-NWI have been correlated with undesirable nurse outcomes, such as burnout and turnover intention (Warshawsky & Havens, 2011). Lake's (2002) validation of the instrument was conducted through surveys of 1,610 hospital nurses, with subscale Cronbach's Alpha ranging from .71 to .84.

Role overload

Role overload was measured by using the Reilly's Role Overload Scale (ROS: Reilly, 1964). The ROS was originated from the work of House and Rizzo (1972) on measure of role conflict and role ambiguity. O'Reilly (1980) describes role overload as the conflict a role player experiences when expected behavior demanded by a given position exceeds the resources such as time and energy available to the role player. The ROS Previous studies on job satisfaction have successfully used the scale to measure role overload (Bal Tastan, 2014; Morter, 2010; Thiagarajan, Chakrabarty, & Taylor, 2006; Sheraz et al. 2014). The ROS has 13 items such as 'there are too much demands on my time and energy'. The items are measured with a 5-point Likert scale with a range of 1, representing *strongly disagree*, to 5, indicating *strongly agree*. Total score may range from 13-65 with higher scores indicating role overload and lower scores confirming less role overload. In his analysis, Reilly obtained a Cronbach's alpha score of .88 but subsequently, Thiagarajan (2006) conducted a confirmatory factor analysis of the scale and revealed a Cronbach's alpha of .95.

Role overload has been positively associated with job satisfaction. When the employee is expected to complete too many responsibilities with insufficient resources of time and energy required for the position, role overload would occur. The employees confronted with role overload would feel frustrated, experience low morale leading to low job satisfaction (Manas et al., 2018; Meitasari, Wirama, Suardikha, 2018; Pradana & Salchuin, 2015).

There are studies that reported to correlation between role conflict and job satisfaction. For example, Manas et a., (2018) using job resources demands-resources

model, Manas et al. (2018) used a sample of 706 to study workers from multinational company regarding role ambiguity, affective engagement and extra-role performance. The study showed negative impact of role ambiguity on extra-role performance and affective engagement on workers workplace behavior. The author argued reported that role ambiguity rather than role conflict was related to job dissatisfaction among these workers. Similarly, Handayani (2012) reported no correlation between role ambiguity and job satisfaction. The author argued that individual employee must be fully responsible for their work even when the employee did not receive complete information about the position offered and accepted (Handayani, 2012) while robust salaries and family support remain credible buffer state against role overload (Abbasi, 2015; Altaf & Awan 2011).

Job satisfaction

Job satisfaction was measured by using the shortened version of the Minnesota Satisfaction Questionnaire (MSQ; Weiss, Davis, England & Lofquist, 1967) with a score of 5 indicating very satisfied. The short version of the MSQ has 20-item frequently used in job satisfaction studies. The scale has a Cronbach's alpha of.9169. Job satisfaction can be measured by one principal item that captures employees' overall attitude towards their jobs.

Operationalization

Following are operational definitions of each of the three key variables:

Nursing practice environment

This refers to the workplace culture, opportunities for personal and professional development, and communication and collaboration with nursing leadership (Canadian Nurses Association, 2010). The PES-NWI (Lake, 2002) includes 31 items, which allow

responses from 1 (strongly agree) to 5 (not applicable). Items are statements regarding various aspects of the practice environment, such as “There are enough nurses or staff to provide quality patient care.” Statistics Canada used an abbreviated version of this instrument, which included 15 items. Therefore, scores for participants can range from 15 to 75, with lower scores indicating more favorable perceptions of the nursing practice environment, and higher scores reflecting more negative perceptions.

Role overload

This was defined as the work situation in which employees feel they have more responsibilities than what the available time, capabilities and other resources can help them achieve (Rizzo, House & Lirtzman, 1970). Role overload was measured by using the Reilly’s Role Overload Scale (1964). Items describing role overload include comments such as ‘I often arrive early and stay late’ ’I have too much work for one person.’

Job satisfaction

This was defined as the positive or pleasurable feeling employees think and display toward their jobs (Locke, 1976). Job satisfaction describes the feeling and expression of accomplishment, and success an employee has about their job. It is an indication of the state of happiness and enthusiasm employee has and demonstrates on their and may include recognition, income, promotion

Age: This information was drawn from the Statistics Canada (2008) dataset and was presented in years.

Gender: Possible responses per the Statistics Canada (2008) survey were male or female.

Experience: This information was drawn from the Statistics Canada (2008) dataset and was presented in years.

Rurality: This information was drawn from the Statistics Canada (2008) dataset and reflected either rural or urban nursing settings.

Work settings: The information was obtained from the Statistics Canada (2008) dataset and reflected hospital and long-term care and others.

Data Analysis Plan

This study sought to address the following research questions and to test the following hypotheses:

This study was guided by the following research question:

RQ: Is there any association between job satisfaction, nursing practice environment work settings—(hospital, LTC facility, CHF, other) and role overload; age, or years working with organization, among nurses in Canada?

H01: There is no association between job satisfaction, nursing practice environment (work settings—hospital, LTC, CHF, other) and role overload; age or years working with the organization, among nurses in Canada.

Ha1: There is association between job satisfaction, nursing practice environment (work settings—hospital, LTC, CHF, other) and role overload; age or years working with organization, among nurses in Canada.

Data collected from this study were imported into the Statistical Package for the Social Sciences (SPSS v. 25.0) to prepare for data analyses. The IBM SPSS is a statistical software that facilitates a better understanding of data and which enables individuals to access study outcomes of interest (IBM, 2015). This statistical tool provides opportunity for users to perform both descriptive and

inferential analyses of the given data. The data for this study, which included descriptive and inferential statistics were loaded into the SPSS for analysis. Demographic characteristics of participants were presented using frequency and percentages because these are categorical in nature. Study variables were described by using measures of central tendencies such as mean, standard deviation, and range values. Inferential statistics were used to test the hypotheses posed in this study. Pearson correlations will be used to analyze the direct linear relationships between variables if the data collected are normally distributed. Moreover, a multivariate analysis considering the variables of nursing practice environment, role overload and job satisfaction among nurses, and variables of age, and years working in organization as covariates were conducted to examine the existence of relationships between the variables further. The demographic characteristics were considered as covariates because these are uncontrollable variables in the study, which may have an impact on the dependent variable. The result of the multivariate analysis revealed that there are significant relationships between the identified variables while controlling for covariates. A significance level of .05 was used to determine whether correlations are significant for all analyses. This indicates that a significance level of less than .05

determines statistically significant correlation between the variables.

Threats to Validity

Because this study used a cross-sectional design, one cannot infer causality to be implied by any statistical relationships between variables. This study has examined the association between nursing practice environment and role overload and job satisfaction among nurses, thus no causal relationships can be examined. Furthermore, although the nationally representative sample ensures results that are generalizable within Canada, such assumptions cannot be made beyond the Canadian context.

Ethical Procedures

The study used a non-publicly available data that contained identifiable information of study participants. Therefore, to access the dataset for the study, permission had to be obtained from the data owner to access the dataset which has been deidentified by the original researchers. Therefore, the study required ethical approval from both the data owner as well as from Walden Institutional Review Board (IRB). Because the dataset was already deidentified, procedures such as informed consent and assurances of the voluntary nature of the study were not a concern (Appendix A). Upon receiving the approval of the data owner, the Walden IRB was processed and the approval number for the study is 12-19-18-0421209. Similarly, because the data are not identifiable, inclusion of original participant data in the proposed study was not anticipated to create risks related to participant identification. Further, measures were taken to protect participants' anonymity and confidentiality. If the data were to contain identifiable participant information, this will not be shared in the written dissemination of this study's findings. Confidentiality of data

will also be ensured by storing electronic data in password protected files, and by storing any hard copy versions of data in locked file cabinets. All data will be destroyed in 3 years following the completion of the proposed study.

Summary

This chapter presented an explanation of the methods used in the study. This study used data provided through the 2005 NSWHN. The sample for this study consisted of 18,676 nurses working throughout all areas of Canada. Variables of interest used were nursing practice environment, role overload and job satisfaction of participants in hospital/LTC settings versus other clinical settings. Analyses included correlational analysis and multivariate analysis. Because this study used secured data, permission to use was obtained from the Stats Canada before the data was accessed from the Research Data Centre (RDC) University of Alberta, Edmonton. In Chapter 4, I will present the statistical results of the study, showing the descriptive and inferential statistics such as the logistics statistics and chi-square of difference.

Chapter 4: Results

Introduction

The purpose of this quantitative analysis was to explore the association between job satisfaction, nursing practice environment (work setting-hospital and LTC, CHF, and other), and role overload. I used a cross-sectional design to perform a secondary analysis of the data of the 2005 NSWHN. The data were jointly owned by the Statistics Canada and the Canadian Institute for Health Information (CIHI), and kept in custody of, the RDC data lab. A total population of 18,965 nurses was used as the sample size in the original survey. However, a sample of 1,360 was used for the present study.

In this study, chi-squared for association was used to analyze the relationship between categorical variables, and binary logistic regression was used to determine

whether the variables of role overload, lack of social support, and lack of decision authority predicted job satisfaction. The following research question was addressed in the analyses:

RQ1: Is there an association between job satisfaction, nursing practice environment (work setting-hospital and LTC, CHF, and other), and role overload; age, or years working with the organization, among nurses in Canada?

H01: There is no association between job satisfaction, nursing practice environment (work setting-hospital and LTC, and other), and role overload; age or years working with the organization, among nurses in Canada.

Ha1: There is association between job satisfaction, nursing practice environment (work setting-hospital and LTC, and other), and role overload; age or years working with the organization, among nurses in Canada.

This chapter covers the following topics: protocols and procedures behind the data collection and subsequent analysis; the descriptive demographic features of the nurses that demonstrate their representativeness, a description of the statistical tests used for the study and the results.

Data Collection

The data analysis plan presented in Chapter 3 was slightly changed due to some key variables that were improperly captured in the dataset and the small sample size of values of the geographical variables. Thus, I decided to use the anonymized, restricted - access microdata set with the hope that I would be able to access more information that would adequately define the study variables. Request to access the dataset began with

submitting a draft proposal of the project, together with a Letter of Support, from Walden University. This was followed by completing an online application that was evaluated before progressing to completing the security screening protocol. The Microdata Research Contract (MRC) document, which indicates approval of the application to access the dataset, was signed. Data collection and analysis then began. A copy of the approval, titled Microdata Research Contract (MRC), is in Appendix A.

From the available population of 24,443 nurses who worked in Canada in 2004, a random sample of 18,676 nurses was selected to participate in the survey. The sample consisted of registered nurses (RN), licensed practical nurses (LPN), and registered psychiatric nurses (RPN) working in various health care settings across locations in Canada. The NSWHN survey was a stratified design using probability sampling method. The primary stratification produced a separate stratum for each combination of nurses' province of registration and type of nurse. The secondary stratification further stratified the nurses into age groups, place of work (work settings such as hospital, long-term care facility, community health setting and other), and employment status such as full-time, part-time, and casual. Using G*Power calculator, a sample size of 988 was recommended though a sample of 1,363 was used for this study. Further in the analysis, a weighted sample of 314,357 was used. The decision to use a larger sample size was based on the recommendation of the data owner. Moreover, I assumed that using weighted sample would remove any defect in sample selection during the data selection phase and would further help to ascertain sample representativeness.

Appropriateness of the Statistical Tests

Binary logistic regression tests were performed to analyze the samples and to address the only research question for the study. A binary logistic regression is appropriate for a study whose purpose is to assess if the independent variables of interest will predict a dichotomous dependent variable (Sperandei, 2014; Tabachnick & Fidell, 2012). For this study, the independent variables (role overload, social support, decision authority) will predict the dependent variable (job satisfaction) controlling for years of age, and work setting. The binary logistic regression served as the primary statistical test to assess whether an association exists between the variables in the research question. A comprehensive analysis of the logistic regression model should include the overall model and the classification table to ascertain the percentage of correct predictions (Field, 2015). The author adds that it is imperative for users of the tests to evaluate the *Nagelkerke R*. in other to understand the level of variance accounted for by the independent variables. Also, it is a common practice to examine Exp (β) to determine the probabilities of the outcome variable. Using a binary logistic regression will help overcome some of the restrictive assumptions posed by using linear regressions (Field, 2015; Statistics Solutions, 2016). Binary logistic regression test is appropriate for studies in which the outcome is binary (0,1) and the predictors are categorical or continuous and these conditions fit the present study. The Pearson r will permit for measuring the strength and statistical significance of each independent variables.

Control Variables: I controlled for age of nurses (also a proxy for years of

experience) to show whether they worked in a hospital/long-term care setting versus other settings.

Main variables: The independent variables used were role overload, lack of social support and lack of decision authority. These predictors were used to show whether they will predict the outcome variable, job satisfaction.

Results

The target population for the study comprised of all the nurses who participated in the NSWHN in 2005. Descriptive statistics were performed on the target population.

Table 1 shows the percentages of unstandardized (raw scores) predictors as well as that of the standardized (*z* scores) predictors. In this table, years of age and work setting were the two demographic characteristics of interest to this study. Age could have been included but the initial analysis showed that there were hardly any males in the sample to include in the model. According to the classification section in Table 1, for predicted job satisfaction, a total of (n = 142,100) was observed with 80.5% correct. Also, out of the 53,805 observed for job satisfaction, 57.2% were correct with overall percent of 70.8% of nurses in total. The use of percentages and frequency helped to clearly depict the impact of years of age and work setting on job satisfaction.

Table 1 - Frequencies and Percentages for Region

Regons	*n*	%

Atlantic	31,737	10.1
Quebec	77,016	24.5
Ontario	113,495	36.0
Prairies	57,103	18.1
BC	34,124	10.8
North	1,455	0.5
Total	314,929	100.0

Figure 1 - Frequency by region

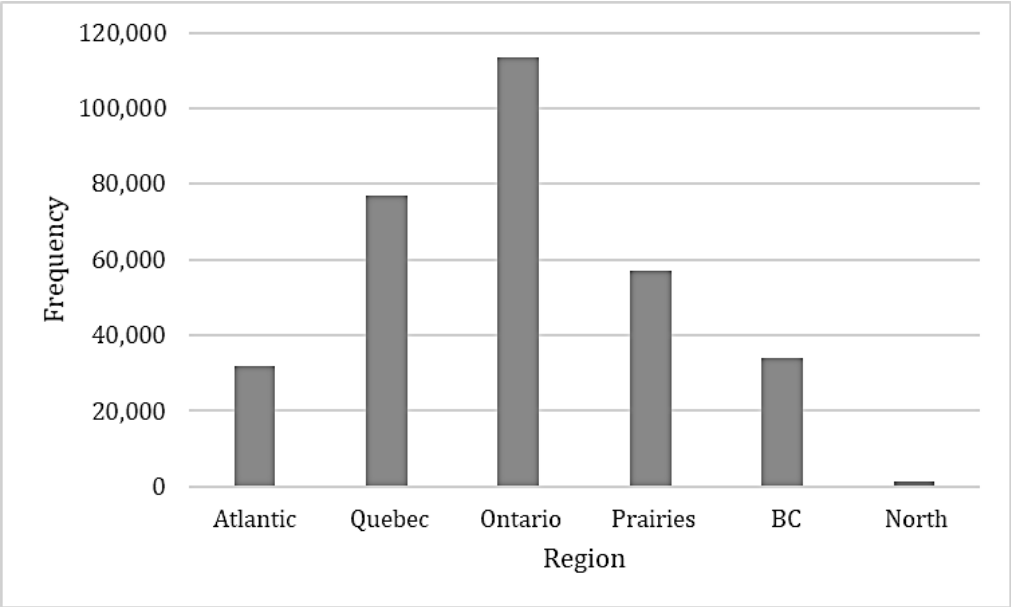


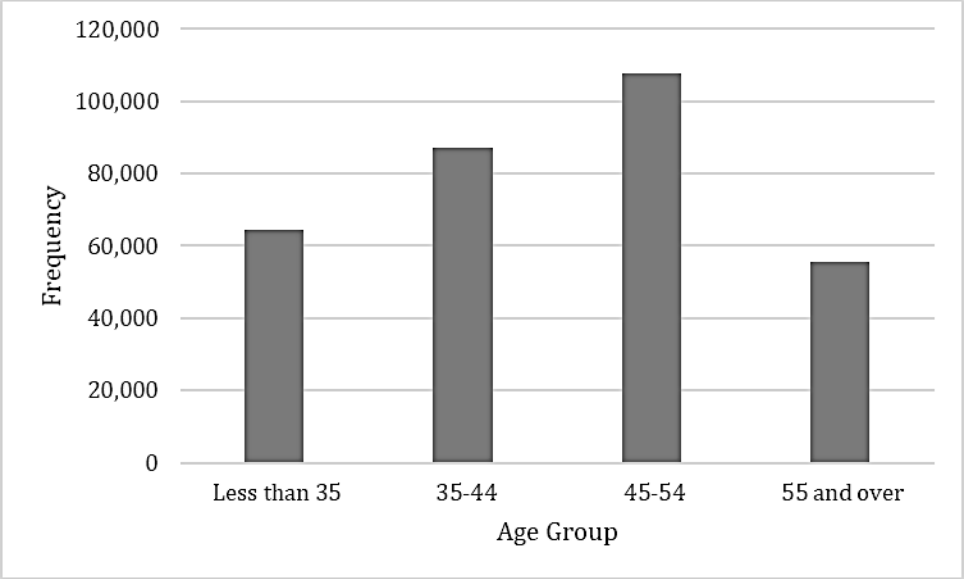
Table 2 describes the proportion of nurses feeling highly satisfied with their job by age level. A total of (*n* = 64,536) nurses in the age group less than 35. About 63.1% (*n* =

40,742) of the nurses aged less than 35 are less than highly satisfied with their job while 36.9% (*n* = 23,794) of the nurses aged less than 35 are highly satisfied. For nurses aged 55 and above, there are more highly satisfied nurses (*n* = 28,609, 51.6%) than those less than highly satisfied (*n* = 26,787, 48.4%). The difference between groups was determined by using chi-square analysis to determine a significant difference in satisfaction among the different age groups of nurses (Pearson's chi-square = 3061.59, *p*-value < .05).

Table 2 - Frequencies and Percentages for Age

Age	*n*	%
Less than 35	64,582	20.5
35–44	86,981	27.6
45–54	107,778	34.2
55 and older	55,588	17.7
Total	314,929	100.0

Figure 2 - Frequency by age group



In terms of work settings, the results presented in Table 3 determined that a higher percentage of participants working in community health centers (*n* = 19,911, 51.1%) and other facilities (*n* = 24,872, 62.7%) are highly satisfied with their jobs than those who are less than highly satisfied. On the other hand, a higher percentage of participants working in hospitals (*n* = 115,916, 62.9%) and long-term care facilities (*n* = 32,831, 63.9%) are less than highly satisfied than those who are highly satisfied. The result of the chi-square analysis determined that the difference in satisfaction between the job setting groups is significant (Pearson's chi-square = 10841, *p*-value < .05). On the other hand, in terms of geographic regions, majority of the participants in Northern (*n* = 768, 53.1%) are highly satisfied with their jobs. However, majority of participants in other geographic regions are less than highly satisfied with their jobs. The result of the chi-square analysis determined

the difference between geographic groups to be significant (Pearson's chi-square = 6315.855, *p*-value < .05).

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Table 3 - Frequencies and Percentages by Work Setting

Nursing Setting	*n*	%
Hospital	184,743	58.7
Long-term care	51,487	16.3
Community health	38,996	12.4
Other	39,703	12.6
Total	314,929	100.0

Figure 3 - Frequency by setting

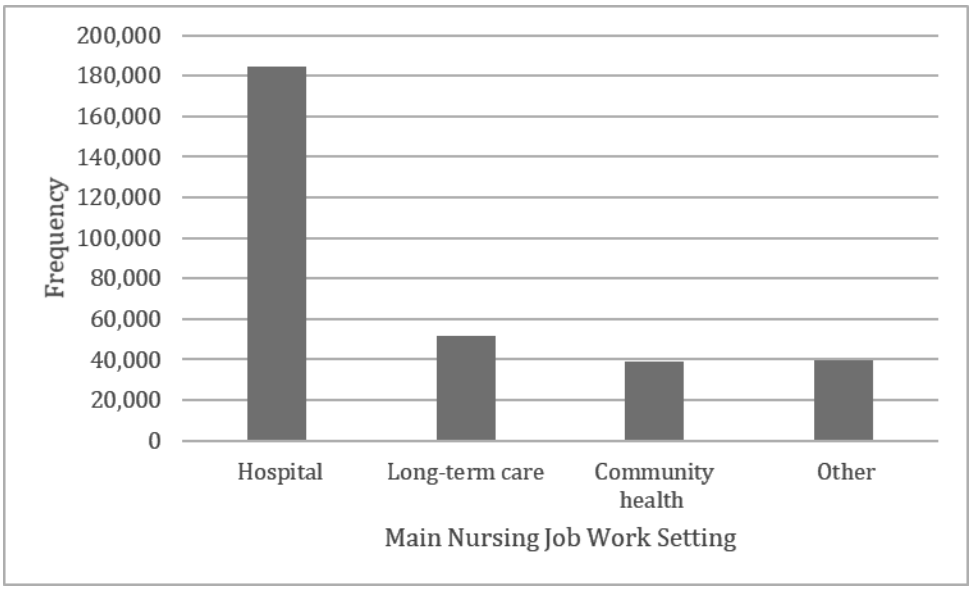
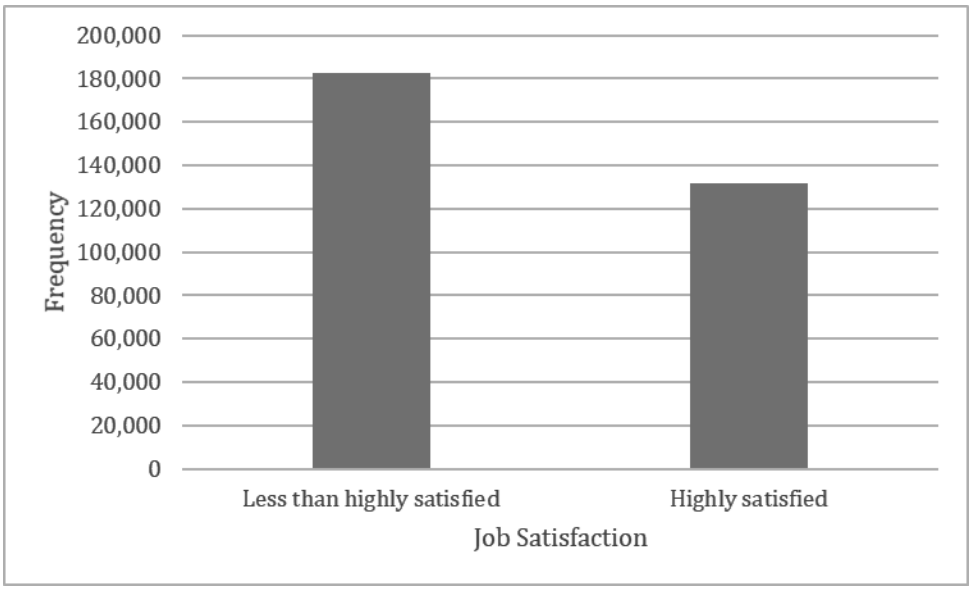


Table 4 describes the frequencies and percentages of nurses by job satisfaction. The result shows that while 58.0 % were less than highly satisfied with their job, a total of 41.8% reported feeling highly satisfied.

Table 4 - Frequencies and Percentages by Job Satisfaction

Job Satisfaction	*n*	%
Less than highly satisfied	182,615	58.0
Highly satisfied	131,743	41.8
Total	314,358	99.8

Figure 4 - Frequency by job satisfaction.



In terms of the type of nurses by age group, the data is presented in Table 5. As observed, majority of the participants included in the study were registered nurses. Table 5 shows that while many (63%) of the younger nurses (less than 35) reported feeling less than satisfied with their job, more than half (58.1%) of the older nurses (over 55 years) were highly satisfied.

Table 5 - Frequencies and Percentages of Job Satisfaction by Age Group

Age	<35		35-44		45-54		55+		Total	
Job Satisfaction	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Less than highly	40,7	63.	52,6	60.	62,44	58.	26,7	48.	182,6	58.

satisfied	42	1	41	6	5	0	87	4	15	1
Highly satisfied	23,794	36.9	34,169	39.4	45,171	42.0	28,609	51.6	131,743	41.9
Total	64,536	100	86,810	100	107,616	100	55,396	100	314,358	100

Figure 5 - Job satisfaction by age.

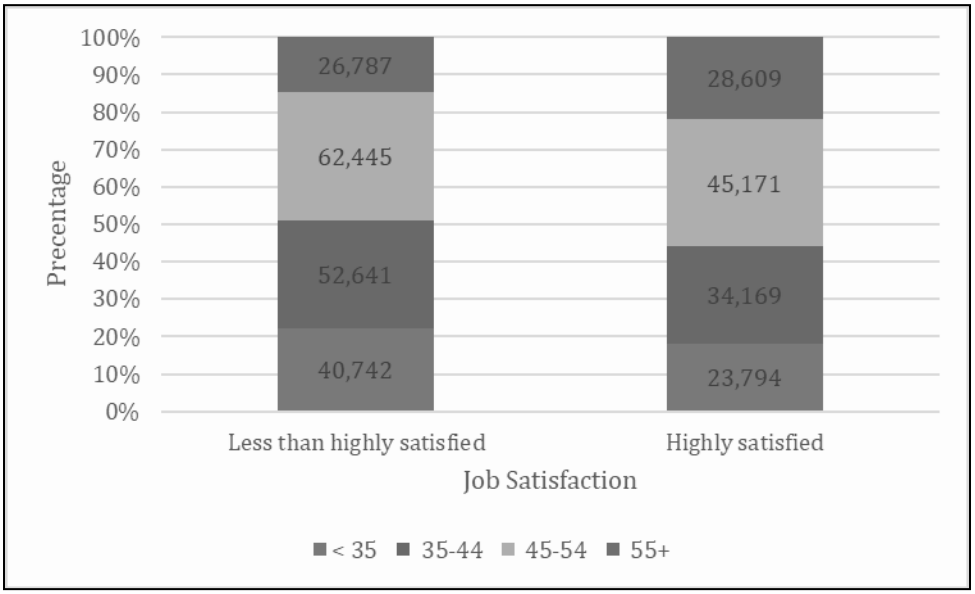


Table 7 presents the work-setting distribution of participants by region. Majority of the participants worked in a hospital except for Northern (*n* = 560, 38.5%). For Northern, participants were distributed to hospitals (*n* = 560, 38.5%), community health facilities (*n* = 332, 22.8%), and other facilities (*n* = 447, 30.7%). For Canada, majority of participants worked in hospitals (*n* = 178,644, 56.7%). Other participants worked in long-term care facilities (*n* = 49,694, 15.8%) and community health facilities (*n* = 32,072, 10.2%).

Table 6 shows the frequencies and percentages of job satisfaction by the various work settings. Over two-third of the nurses working in LTC (64%) reported feeling less than satisfied compared to 37.3% of their counterparts working in setting categorized as *Other*. Similarly, 36.1% of the nurses in LTC reported feeling highly satisfied with their job compared to the nearly 63% of the nurses working in *Other*.

Table 6 - Frequencies and Percentages of Job Satisfaction by Work Setting

Work Setting	Hospital		Long-term care		Comm health		Other		Total	
Job Satisfaction	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Less than highly satisfied	115,916	62.9	32,831	63.9	19,068	48.9	14,800	37.3	182,615	58.1
Highly satisfied	68,416	37.1	18,544	36.1	19,911	51.1	24,872	62.7	131,743	41.9
Total	184,332	100	51,375	100	38,979	100	39,672	100	314,358	100

Figure 6 - Job satisfaction by Work setting

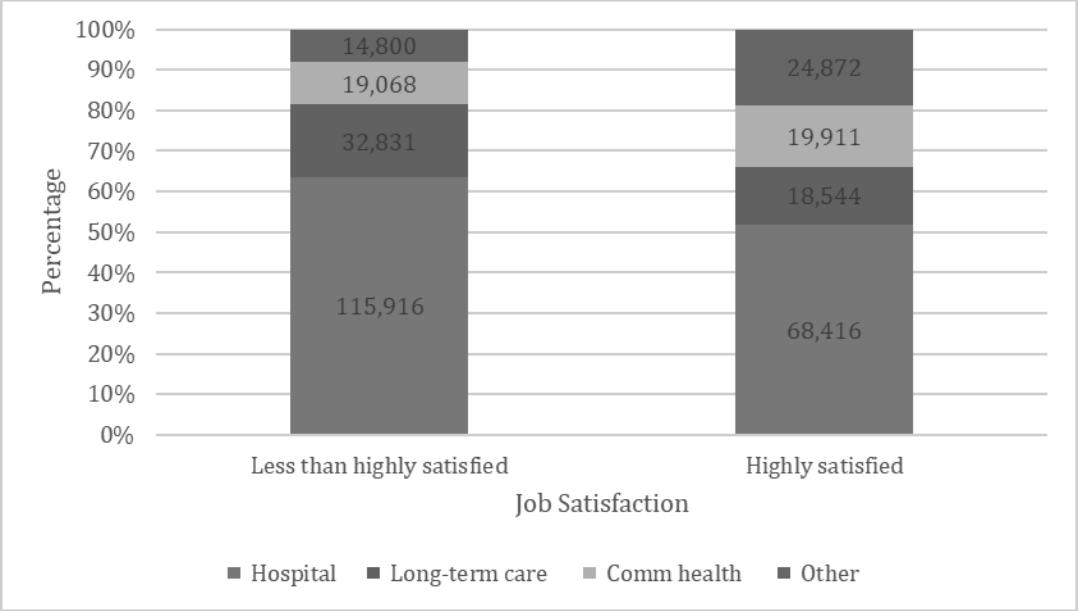
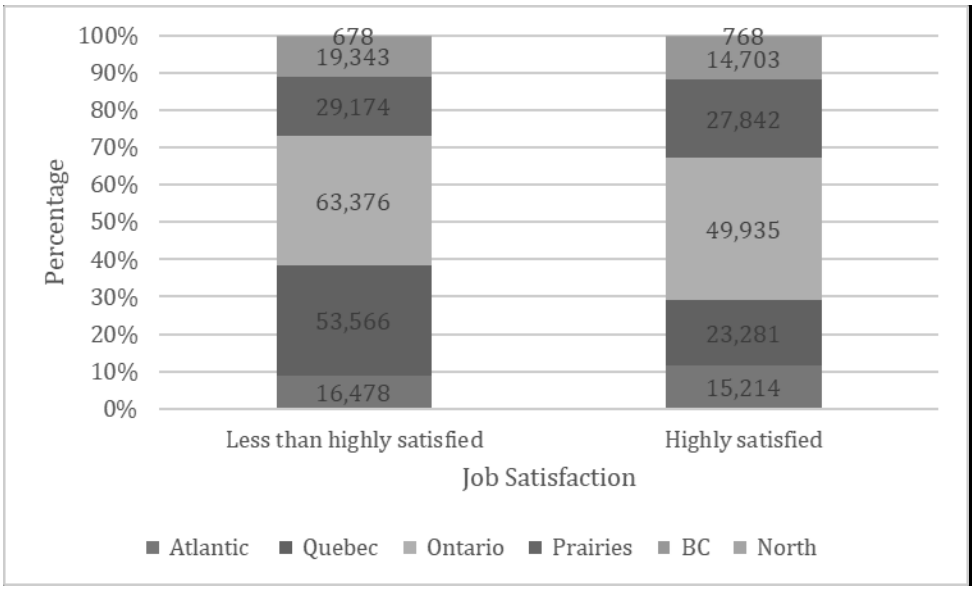


Table 7 presents the age group distribution for the different geographic regions considered in the study. As observed, majority of the participants were aged 45 to 54 and 34 to 44 years old. For all geographic regions, most participants were observed for 45 to 54 years old age group. Overall, Canada (*n* = 314,930) was the geographic region with most participants followed by Ontario (*n* = 113,495) and Quebec (*n* = 77,016).

Table 7 - Frequencies and Percentages of Job Satisfaction by Region

Region	Atlantic		Quebec		Ontario		Prairies		BC		North		Total	
Job Satisfaction	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Less than highly satisfied	16,478	52.0	53,566	69.7	63,376	55.9	29,174	51.2	19,343	56.8	678	46.9	182,615	58.1
Highly satisfied	15,214	48.0	23,281	30.3	49,935	44.1	27,842	48.8	14,703	43.2	768	53.1	131,743	41.9
Total	31,692	100.0	76,847	100.0	113,311	100.0	57,016	100.0	34,046	100.0	1,446	100.0	314,358	100.0

Figure 7 - Job satisfaction by region



The results of the study indicated the three main variables (role overload, lack of social support and lack of decision authority) were significant negative predictors to the overall model predicting job satisfaction after controlling for each other and also controlling for age and nurses work setting. All the three variables have the same significant levels of association with job satisfaction. The variables were all strongly associated with job satisfaction than age or setting. After controlling for the other variables in the model, each of the three was found to be negative predictors of job satisfaction. Therefore, it is concluded that RNs with higher role overload were less likely to be very satisfied with their nursing jobs than their colleagues with lower role overload and RNs with lower levels of social support were less likely to be very satisfied with their nursing jobs than their colleagues with higher social support. Further, RNs with lower levels of decision authority were less likely to be very satisfied with their jobs than their colleagues

with higher decision authority.

Logistic Regression Results

Role Overload, Social Support, Decision Authority Score, Age, and Work Setting were assessed as predictors of Job Satisfaction Level. The predictors in model accounted for 20 – 26.9% of the variance in job satisfaction. Role Overload was a significant predictor of Job Satisfaction, B = -0.11, OR = 0.90, $p < .001$, indicating that for a one-unit increase in Role Overload, the odds of responding yes to Job Satisfaction will decrease by 10%. Social Support was a significant predictor of Job Satisfaction, B = -0.19, OR = 0.83, $p < .001$, indicating that for a one-unit increase in Social Support, the odds of responding yes to Job Satisfaction will decrease by 17%. For social support in this study, higher scores indicate less felt support. Decision authority is coded to indicate that higher scores suggests less felt authority. In the study, decision Authority was a significant predictor of Job Satisfaction, B = -0.30, OR = 0.74, $p < .001$, indicating that for a one-unit increase in Decision Authority, the odds of responding yes to Job Satisfaction will decrease by 26%. Age was a significant predictor of Job Satisfaction, B = 0.01, OR = 1.01, $p < .001$, indicating that for a one-unit increase in Age, the odds of responding yes to Job Satisfaction will increase by 1%. For age, higher values indicate greater age. Work Setting was a significant predictor of Job Satisfaction, B = -0.51, OR = 0.60, $p < .001$, indicating that for a one-unit increase in Work Satisfaction, the odds of responding yes to Job Satisfaction will decrease by 40%. Table 8 summarizes the results of the regression model.

Table 8 - Logistic Regression Results: Comparing all the Study Variables

Variable	*B*	*SE*	Wald	*p*	*OR*
(Constant)	1.99	.02	14,106.10	< .001	7.33
Role Overload	-0.11	0.002	8,269.10	< .001	0.90
Social Support	-0.19	0.003	13,506.20	< .001	0.83
Decision Authority	-0.31	0.000	1,093.40	< .001	0.74
Age	0.01	0.009	2,988.40	< .001	1.01
Work Setting	-0.51	0.023	7,833.0	< .001	0.60

Pearson Correlation Analyses

Three Pearson correlations were conducted to determine if there was a significant relationship between role overload, social support, and decision authority. A significant positive correlation was observed between role overload and social support (r_p = 0.28, p = < .001). The correlation coefficient between role overload and social support was 0.28, indicating a small effect size. This correlation indicates that as role overload increases, social support tends to increase. A significant positive correlation was observed between Social Support and Decision Authority (r_p = 0.30, p < .001). The correlation coefficient between social support and decision authority was 0.38, indicating a moderate effect size. This correlation indicates that as social support increases, decision authority tends to increase. A significant positive correlation was observed between role overload and

decision authority (r_p = 0.17, p < .001). The correlation coefficient between role overload and decision authority was 0.17, indicating a small effect size. This correlation indicates that as role overload increases, decision authority tends to increase. Table 9 presents the results of the correlations.

Table 9 - Pearson Correlation: Role Overload, Social Support and Decision Authority

Combination	r_p	p
Role Overload with Social Support	0.28	< .001
Social Support with Decision Authority	0.30	< .001
Role Overload with Decision Authority	0.17	< .001

Summary

In this chapter, I presented the results of the analyzed data of the 2005 NSWHN that was used for the study. The analyses performed include both the descriptive and inferential statistics such as logistics analyses and chi-square of difference. The analyses revealed that the results were statistically significant regarding the relationship between the independent variables (role overload, lack of social support and lack of decision authority) and the dependent variable (job satisfaction).

The next chapter contains the discussion on the interpretation of the results. The chapter also includes other topics such as the study limitations, recommendations for future

studies, implications for social change and the conclusion.

Chapter 5: Discussions, Conclusions, and Recommendations

Introduction

The purpose of this cross-sectional study was to examine the association between nursing practice environment, role overload, and job satisfaction among nurses in various clinical settings (Hospital, Long-term Care Facility (LTC), Community Health Facility (CHF) and Others across geographical locations in Canada. In Chapter 5, I interpret the findings of the study and provide recommendations for future research on the subject. Thus, the contents of the chapter include interpretations of findings, findings in relation to the Herzberg two—factor theory, limitations, validity, recommendations, and implications for social change.

To address the purpose of this study, I answered the following research question and tested the hypotheses:

RQ: Is there any association between job satisfaction, nursing practice environment work settings—(hospital, LTC facility, CHF, other) and role overload; age, or years working with organization, among nurses in Canada?

H01: There is no association between job satisfaction, nursing practice environment (work settings—hospital, LTC, CHF, other) and role overload; age or years working with the organization, among nurses in Canada.

Ha1: There is association between job satisfaction, nursing practice environment (work settings—hospital, LTC, CHF, other) and role overload; age or years working with organization, among nurses in Canada.

Interpretation of Findings

The study revealed that the three principal variables (role overload, lack of social support, and lack of decision authority) were significant negative predictors of the overall model that predicted job satisfaction after controlling for each other and controlling for age and nurses' work setting. All three variables had the same significant levels of association with job satisfaction. In other words, there was significant association between the independent and dependent variables.

The workplace has long been a constant source of stress and therefore a determinant of the recruitment and retention of quality and experienced employees. A good number of sources supported my hypothesis that role overload, along with other predictors in the model, leads to greater likelihood of job dissatisfaction among nurses (Delgado et al., 2019; Mousazadeh, Yektatalab, Momennasab, & Parvizy, 2019; Fahy & Moran, 2018; Gabrielsson et al., 2016; McTiernan & McDonald, 2015; Olatunde & Odusanya, 2015). The findings of my study were consistent with the findings of most of the previous studies on this subject. For example, several Canadian studies have used the NSWHN to examine the impact of the nursing shortage on the health of nurses. They reported that nurses working in conditions of heavy work-demand, coupled with lengthy shifts, are at risk of physical injury, emotional fatigue, and stress-related illnesses—all of which may decrease retention (Bragg & Bonner, 2014; Giarelli, Denigris, Fisher, Maley, & Nolan, 2016; MacLean et al., 2014). The findings of the present study were similar to those of the previous inquiries.

Nursing practice environment impacts professionals' feelings of job satisfaction and dissatisfaction. For example, the present study used the same NSWHN to examine relationship between practice environment, role overload, and job satisfaction of nurses across geographical regions in Canada. The study found that the nurses' working conditions characterized by role overload, inadequate social support, and the absence of decision authority significantly reduced their levels of job satisfaction. Further, the study revealed that the nurses job dissatisfaction level varied according to some demographic variables, such as age and work setting.

Nurses' Job Satisfaction According to Age (or Years Working with Organization)

Nurses' level of maturity makes the difference. The study results showed that from a total of (n = 314, 929), a total of (n = 64,536) nurses fall into the category of younger nurses with age less than 35 years. About 63.1% (n = 40,742) of the nurses aged less than 35 are less than highly satisfied with their job while 36.9% (n = 23,794) of the nurses aged less than 35 are highly satisfied. The results also revealed that for group of nurses 55 and above, there are more highly satisfied nurses (n = 28,609; 51.6%) than those less than highly satisfied (n = 26,787; 48.4%). The percentage of nurses who are less than highly satisfied decreases as the age group of nurses increases. The use of the chi-square analysis of difference between groups helped to determine if there was a significant difference in satisfaction among the different age groups of nurses (Pearson's chi-square = 3061.59, p-value < .05). This result revealed that nurses aged 55 and above are significantly more satisfied with their job as opposed to their counterparts of less than 35 years old.

Nurses' professional maturity enhances their cognitive and affective domains,

which also impact job satisfaction, retention and intension to leave. Though work overload may affect job satisfaction experience of the workforce (Foster, Roche, Giandinoto & Furness, 2019; Pecino, Manas, Diaz-Funez, Aguilar-Parra, Padilla-Gongora & Lopez-Liria, 2019; Yaacob & Long, 2015), the present study revealed that age of the individuals can be a buffer against workplace stressors negatively impacting the nurses level of job satisfaction. Resilience is built as the nurse continues working with an organization. The nurse accumulates experience, grows with the organization culture and more so, the nurse is likely to become more realistic in their expectation (Cheng, Yang, Chen, Zou, Su, & Fan, 2016; Foster et al. 2019).

The nurse's workplace conditions of recruitment and retention, job satisfaction and workload are impacted by their practice environment factors. The difference in the level of job satisfaction related to working conditions of nurses based on age could be explained by younger nurses hoping and looking for greater career development opportunities and greener pastures (Chen et al., 2016). The authors explained that growing and developing with an organization equips employee with the ability to make appropriate age-related career-decisions (Cheng et al., 2016).

Nurses' Job Satisfaction in Relation to Role Overload

Kunte, Gupta, Bhattacharya and Neelam (2017) examined role overload, role self-distance, role stagnation as facilitators of job satisfaction and turnover among bank workers in India. The authors used a total population (n = 282 with 86 public and 196 private banking workers). Kunte et al., (2017) reported positive relationship between job satisfaction and turnover intention. Therefore, the study of Kunte et al., (2017) supports

the findings of this study stating that job satisfaction and role overload are related to each other.

Farooqi (2014) studied the relationship of job satisfaction and dissatisfaction on employees' performance and engagement among faculty and non-faculty university workers in Pakistan. Using a sample of 207 participants, Farooqi (2014) found significant effect of work overload on the entire workforce irrespective of sex, gender, age and any other demographic variables. The author concluded that work overload remains a major concern for most employees across organizations (Farooqi, 2014). In relation to the study, the findings of Farooqi (2014) supports part of the present study's hypothesis stating that there is a significant association between job satisfaction and role overload. Moreover, this hypothesis was also proven through the data analyzed for this study.

Similarly, Mittal and Bhakar (2018) explored causal relationships between role overload, job satisfaction and job performance among women bankers in India with a total population (n = 150) working women. The authors reported that among women bankers, role overload significantly and positively impacted job stress and job performance and negatively impacted job dissatisfaction. Mittal and Bhakar (2018) concluded that overloaded women bankers would manifest poor efficiency at work leading to poor job performance and significant level of job dissatisfaction. Similar to the findings of some of the other studies on role overload, Mittal and Bhakar (2018) supported the findings in my study, that there is a significant association between job satisfaction and role overload.

Nurses' Job Satisfaction in Relation to Nursing Practice Environment

The issue of job satisfaction of nurses has been studied from different parts of the

world. For example, Aiken and Clark (2002) reported that over 40% of the American nurses were dissatisfied with their jobs, Selebi (2007) reported that 42% of South African nurses were less satisfied while Olatunde and Odusanya (2015) found that 60% of mental health nurses in Nigeria had reported low satisfaction with their jobs. The level of dissatisfaction of the Nigerian nurses could reflect on the exodus of nurses from Nigeria and similar third world countries to developed countries causing brain drains. The present study concurs with the findings of all the above studies indicating that nursing practice environment has significant influence on the professionals' job satisfaction and intention to leave.

Findings in Relation to Herzberg-Two Factor Theory

The Herzberg (1987) two-factor theory was applied to facilitate exploring the relationship between the study dependent and independent variables. Herzberg's (1987) theory provides a significant knowledge of employees' attitude about their jobs. The two categories of factors related to motivation in a job are: hygiene factors and motivators (Herzberg, 1987). There are certain factors (e.g., motivators) in the workplace that may cause job satisfaction, while a separate set of factors (e.g., hygiene factors) may lead to dissatisfaction among employees (Herzberg, 1987). In relation to this study, motivators are factors that promote job satisfaction, while hygiene factors have negative influences on job satisfaction (Herzberg, 1987). Based on the findings of this study, nursing practice environment can be either hygiene factor or motivator, depending on the type of environment an employee has. For example, work overload, which signifies poor working environment, is considered a hygiene factor; hence, the findings of the study revealed that

work overload has negative relationships with job satisfaction of nurses. Moreover, lack of support and low decision authority are both hygiene factors, as both were found to have negative association with job satisfaction. On the other hand, motivators would be having manageable workload, experiencing support at work, and good decision authority in order to promote job satisfaction among nurses. However, these motivators are not explicitly explored in this study because the variables used are the opposite of these motivating factors. Therefore, future research may explore these positive motivators to confirm applicability of the two-factor theory to the concept or topic being explored in this study.

Limitations of the Study

Despite all attempts made to ensure a perfect product, the study had some identifiable flaws. For example, being a secondary analysis of an existing dataset collected by other people for different research purposes posed some unavoidable limitations (Busse, 2010; Johnston, 2014; Kang, 2013) but these limitations were adequately managed in the study. Though the data were collected from the appropriate population of interest to this study, the data was old with no current ones since 2005 when it was last collected. The age of the data facilitated a better understanding of the trends in the topic from the time the original data were collected, and this would hopefully enhance conducting prospective studies on the topic by future researchers. Like any other studies using analysis of existing data, the researcher had no influence on the purpose, collection method and overall management of the data, thus some data were missing.

Missing data might reduce the statistical power of a study, introduce bias in the estimation of study parameters and may reduce its representativeness (Kang, 2013). To

address missing data, the researcher used methods of analysis that were robust to the missing data. For example, instead of recruiting 998 participants recommended for the study, a sample of 1,364 was recruited. Further, weighted samples were used to ensure representativeness, which also adds to the generalizability of the study findings. For the present study, internal validity and its associated threats were not a concern because the study was looking for the association between the dependent and independent variables of interest and not cause-effect outcomes.

Validity of the Study

Both the study and its findings were valid, credible and reliable for many reasons. For example, the data source is credible, the sample was large, the collection method and overall data management were great with rigorous access protocol (Johnston 2014; Kang, 2013). In addition to the highly restrictive security screening processes, the researcher had to obtain special training before being permitted to access the dataset. As part of the requirements for accessing the dataset, potential users must be supervised by a local supervisor who must also pass the security screening test before being certified to supervise a student researcher in the data lab. All analyses must be approved by the data center analyst before the investigator would be given a printout of the analysis conducted.

Recommendations

The recommendations for future study are mostly based on the limitations of the current study. The first limitation of the study is that the data from this study is based on an existing dataset that other people have collected in the past. Therefore, the researcher is limited to the information that other researchers collected and how the data was collected.

For future researches on this topic, it is hereby recommended that collecting first-hand or primary data should be considered in order to ensure that the manner of data collection and analysis aligns with the study requirements.

Missing data was not avoided or replaced because of the use of secondary data. Such incomplete data may have introduced bias in the estimation of study parameters and reduce data representativeness. Therefore, in future research, it is recommended that primary data be used. Moreover, with the new data, the researcher recommends that primary data be collected in order to properly address missing information. Another possible recommendation is to collect additional data that supports the secondary data in order to compensate for missing data and to validate the findings using primary information.

Another limitation that must be addressed in relation to using secondary data is that the information is not current. Nevertheless, the use of data from old records allowed the researcher to study the influence of age or job tenure in the context of job satisfaction and trends in the data for the different variables. However, in future research, it is recommended that the variable of age be measured based on the number of years that the nurse has spent in the profession instead of doing a longitudinal approach by collecting old data.

Implications for Social Change

The findings of the study revealed that role overload, lack of social support and lack of decision authority were significant negative predictors to the overall model of job satisfaction after controlling for each other and controlling for age and nurses work setting. Based on this result, the data implied that changes to society and community must be

applied. The first implication to social change would be the need to ensure that in working conditions, especially for nurses, problems related to role overload, lack of social support and lack of decision authority must be identified and eliminated.

Work environment should promote manageable workload for nurses in order to minimize burnout and promote job satisfaction. Findings of the study may help nurse managers obtain a better understanding of the interaction between nurses' environment and its implications to nursing shortage. Consequently, nursing directors and hospital administrators may develop policies, social support and other effective strategies in order to minimize dissatisfaction of nurses. Furthermore, allowing for decision authority at work must be promoted in order to minimize negative implication of lacking the authority to make relevant clinical decision contributing low to job satisfaction.

Overall, society must ensure that job satisfaction is achieved through promoting positive work environment. In relation to Herzberg (1987) two-factor theory, a work environment must be in favor of *motivators* as compared to *hygiene* factors. The findings of the study could be helpful to nursing directors, managers and hospital administrators in developing managerial interventions that would help creating a healthy workplace environment for nurses. In this manner, employees, especially nurses in Canada, would hopefully become satisfied with their respective jobs and develop positive attitude towards work. In a healthy workplace, employees are less likely to leave prematurely, thus adequate staffing is a reality with less role overload on the existing staff strength. The result of adequate staffing would make quality healthcare available and accessible to people living in rural and geographically isolated community and thereby reducing health disparity

between the rural and urban communities.

The next agenda is the dissemination of the study findings. Moving forward, the plan is to start sharing the findings of the study to local hospital administrators and nurses' unions by conducting seminars and giving presentations. Feedback obtained from the local audiences will be used to prepare sharing the findings to a wider population through national and international conferences and scholarly journals.

Summary and Conclusion

The inadequate availability of nurses, especially in rural or geographically isolated communities is a worrisome public health issue. As a public health of a global concern, many scholars have researched on factors causing shortage of nurses and how to overcome them. One study recommended that to address rural nursing shortage, the nursing practice environment should be explored. Thus, the purpose of my study and the approach that I used to explore the relationship between practice environment, role overload, and job satisfaction.

The findings from the study corroborate the Herzberg's two-factor theory that formed the framework for this study. Herzberg claimed that the workplace consists of *motivations* and *hygiene* factors which impact employees' job satisfaction. With the findings of this study, I am convinced that Herzberg's *motivation* and *hygiene* factors are strongly related to job satisfaction-a precursor for recruitment and retention of experienced workers. The shortage of nurses could be addressed by improving the working conditions and workplace environments for these professionals. Based on the findings of the study,

hospital administrators, nursing directors and managers should promote policies on manageable workload while the larger community/society should support creating a positive work environment.

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Appendix A: Approval Letter to Use the NSWHN Dataset

13 SSH - UA 5 5 0 AUG 2 7 2018

MICRODATA RESEARCH CONTRACT

(Hereinafter referred to as the "Contract")

BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF CANADA, as represented by the Minister responsible for Statistics Canada,

(Hereinafter referred to as "Statistics Canada")

Olabisi Amao Olaniyan	Walden University, USA
Behdin Nowrouzi—Kia;	University of Toronto

(Hereinafter referred to as Researcher (s)

Each a "Party" and collectively referred to as "Parties".

Recitals

1. Statistics Canada requires the services of the Researcher (s) to perform Special Services of statistical research and analysis, as described herein, pursuant to the Statistics Act R. S.C. 1985-chapter S—19;

2. The performance of these Special Services requires that the Researcher (s) has/ have access to the Information in Appendix D;

3. Subsection 5 (3) of the Statistics Act provides that any persons retained under contract to perform Special Services for the Minister pursuant to the Statistics Act, and the employees and agents of those persons shall, for the purposes of the Statistics Act, be deemed to be employed under the Statistics Act while performing those services;

4. (Keep for public servants only) Subsection 5 (2) of the Act provides that the Minister may, for such periods as the Minister may determine, use the services of any employee of the public service of Canada in the exercise or performance of any duty, power or function of Statistics Canada or an officer of Statistics Canada under this Act or any other Act, and any person whose services are so used shall, for the purposes of this Act, be deemed to be a person employed under this
Act;

5. Subsection 6 (1) of the Statistics Act provides that any person deemed to be employed pursuant to the Statistics Act shall, before entering on his/her duties, take and subscribe the oath or solemn affirmation contained in that subsection;

6. To perform these services and to have access to confidential information, the Researcher (s) must become Deemed Employee (s) of Statistics Canada, and is/ are required to take the Oath of Secrecy and must adhere to Statistics Canada' s security and confidentiality requirements;

7. Pursuant to section 13 of the Act, documents or records (Administrative Data) maintained in any department or in any municipal office, corporation, business or organization can be

obtained and brought into Statistics Canada for the purpose of this Contract. All Administrative Data required for the purpose of this Contract must be listed in Appendix 'G';

8. (Keep if Administrative Data Provider is a provincial government or institution) Paragraph 19 (1) (c) of the Privacy Act provides that head of a government institution shall refuse to disclose any personal information requested under the Privacy Act that was obtained in confidence from the government of a province or an institution thereof;

9 .(Keep if Administrative Data Provider is a municipal department) Paragraph 19 (1) (d) of the Privacy Act, provides that the head of a government institution shall refuse to disclose any personal information requested under the Privacy Act that was obtained in confidence from a municipal or regional government established by or pursuant to an Act of the legislature of a province or an institution of such a government .

10. Researchers can also gather and bring into Statistics Canada Premises, Publicly Available Information required for the purpose of this Contract;

11 . The Proposed Output and all materials (excluding Other Source Data) brought into

Statistics Canada premises (which includes Research Data Centres) by

Researcher (s) pursuant to the execution of the Special Services will be subject to the Access to Information Act, R.S.C., 1985, c. A—I and the Privacy Act,

R. S.C., 1985, c. P-21;

12 . Administrative Data brought into Statistics Canada premises by Researcher (s) pursuant to the execution of the Special Services will be subject to the confidentiality

provisions of subsection 17 (1) of the Act and subsection 24 (I) of the Access to Information Act;

13 . Statistics Canada wishes to establish the terms and conditions under which the Researcher (s) is/ are retained to perform Special Services for the Minister pursuant to the Statistics Act, notably to ensure the appropriate use and the protection of the confidentiality of the Information to which the Researcher (s) may have access during the performance of these Special Services;

NOW THEREFORE the Parties agree as follows:

1. DEFINITIONS AND INTERPRETATIONS

1 .1 Definitions

In this Contract, a capitalized term has the meaning given to it in this section, unless the context indicates otherwise:

"Administrative Data"

Administrative Data means information that is collected by other organizations and departments for their own purposes and is sought at the micro or aggregate level by Statistics Canada in respect to the objects of the Statistics Act. It excludes Publicly Available Information and data held by an individual. The Administrative Data can be brought onto Statistics Canada premises by Researcher (s) under section 13 of the Statistics Act for use in the performance of Special Services and listed in Appendix G.

"Administrative Data Provider"

Administrative Data Provider refers to the government department, corporation, business or organization from which the Researcher (s) receives the Administrative Data.

"Deemed Employee"

Deemed Employee means any person, not currently an employee of Statistics Canada, retained to perform Special Services for Statistics Canada pursuant to the Statistics Act, for which access to Information protected by the Statistics Act is required in order to perform the Special Services.

" Information "

Information means the confidential identifiable microdata provided to Researcher (s) by Statistics Canada and listed in Appendix D, pursuant to this Contract, and statistical aggregates thereof that could directly or indirectly identify a Person.

"Person"

Person means an individual, a corporation incorporated under any Act of Canada or a province or territory, a partnership, an association or an unincorporated business.

" Personal Identifiers"

Personal Identifiers refers to information that may lead to the direct identification of an individual.

"Proposed Output"

Proposed Output means output/work created by Deemed Employee (s) as a result of providing Special Services outlined in Appendix C.

"Publicly Available Information"

Publicly Available Information means data obtained from the internet, as well as data obtained under licence with or without a fee and can be made available to any member of the public under a licence agreement. Publicly Available Information is not brought into Statistics Canada under the Act.

" Special Services"

Refers to statement of work described in Appendix C.

"Statistics Canada Premises"

Statistics Canada Premises refers to a building or part of a building designated as Statistics Canada premises. This includes all Statistics Canada Research Data Centres.

1 .2 Interpretation of Appendices

This Contract contains the following Appendices, which form an integral part of this contract:

(a) Appendix A — Security Requirements

(b) Appendix B — Operational Requirements

(c) Appendix C — Description of Special Services to be provided to Statistics Canada by Researcher (s)

(d) Appendix D — Information and related documentation provided to Researcher (s)

(e) Appendix E — Documents to be provided to Researcher (s)

(f) Appendix F — Conflict of Interest Declaration Form

(g) Appendix G — Administrative Data Metadata

In case of inconsistency or conflict between a provision contained in the part of the Contract preceding the signatures and a provision contained in any of the appendices, the provision contained in the part of the Contract preceding the signatures will prevail.

2 . STATE>ENT OF WORK

2. 1 The Researcher (s) is/ are hereby retained to perform the Special Services as documented in Appendix C, for the Minister pursuant to the Statistics Act.

2. 2 Special Services shall consist of carrying out the research project and in providing the Proposed Output as described in Appendix C, in accordance with the requirements contained in this Contract.

3. INFORMATION ACCESSED BY DEEED EMPLOYEE (S)

Subject to this Contract, Statistics Canada shall grant Deemed Employees access to the Information required to perform Special Services for Statistics Canada.

4 . TERMS AND CONDITIONS OF ACCESS TO THE MICRODATA

4. 1 Subject to the terms and conditions contained in this section and the Security Requirements in Appendix A as well as the Operational Requirements in Appendix B, Statistics Canada will provide access to the Information to the Researcher (s) for the purpose of performing the Special Services.

4. 2 Such access will be provided only to the extent necessary, at Statistics Canada's discretion, for the performance of the Special Services.

4. 3 Such access will only be provided on Statistics Canada premises and using equipment provided and/or specifically designated by Statistics Canada.

4. 4 The Researcher (s) acknowledge and agree that, in order to have and maintain access to the Information, the Researcher (s) shall comply with the following pre—access requirements:

4.4. I Having been granted at minimum; a "Reliability" security status as defined in the federal Policy on Government Security;

4. 4. 2 Having taken the oath of office, as required by section 6 of the Statistics Act;

4. 4. 3 Having read, understood and will comply with the relevant Statistics Canada policies, directives, guides and guidelines listed in Appendix E;

4. 4. 4 Having read, understood and will comply with the Values and Ethics Code for the Public Sector, Statistics Canada Code of Conduct and the Policy on Conflict of Interest and Post —Employment listed in Appendix E;

4. 4. 5 Having declared in Appendix C:

4.4.5.1 That the sole purpose of the research project is statistical research,

4.4.5.2 The sources of monetary or in-kind support they are receiving to carry out the Research Project;

.4.6 The Researcher (s) understand the potential penalties should they contravene the terms and conditions of access to the Information and the penalties should the Researcher (s) contravene the Statistics Act and any applicable related Acts, including the

Income Tax Act or the Excise Tax Act.

5. LIMITATIONS ON USE OF INFOR2ATION

5. 1 The Researcher (s), in the course of carrying out this Contract, may not use any of the information gained by accessing the Information for any other purpose except that which was agreed upon in this Contract.

5. 2 Access to the Information is being provided for the statistical and research purpose outlined in the Statement of Work in Appendix C.

5. 3 The Researcher (s) shall not disclose any of the Information to anyone other than current Statistics Canada employees involved in the review or evaluation of any aspect of the research project or to other Deemed Employees who have been approved for the same Special Services and therefore are also authorized to have access to the same Information.

5. 4 The Researcher (s) shall ensure that no attempts are made to link the Information supplied herein to any other files in order to relate the particulars to any identifiable Person.

6. PENALTIES

As Deemed Employees of Statistics Canada, and having taken the oath/ solemn affirmation of

secrecy set out in section 6 of the Statistics Act, Researcher (s):

6. 1 Remains/ Remain subject to the oath/ solemn affirmation of secrecy even after the term of the Contract has ended.

6.2 Is/ are subject to all the applicable penalties provided for in the Sta t is tics Act for contravention of any of the confidentiality provisions and are liable on suru•nary conviction to any of the applicable fines or imprisonment terms.

6. 3 Is/ are prohibited from disclosing information related to any Person (subsection 17 (1) of the Statistics Act) obtained under the Statistics Act. Researcher (s) contravening subsection 17 (I) of the Statistics Act is/ are guilty of an offence and liable on summary conviction to a fine not exceeding one thousand dollars or to imprisonment for a term not exceeding six months or to both (paragraph 30 (c) of the Statistics Act) .

6. 4 Is/ are prohibited from disclosing confidential information obtained through the course of their employment that might exert an influence on or affect the market value of any stocks, bonds or other security or any product or article, or using the same information to speculate in any stocks, bonds or other security or any product or article (section 34 of the Statistics Act) .

Researcher (s) contravening section 34 of the Statistics Act is/ are guilty of an offence and liable on summary conviction to a fine not exceeding five thousand dollars or to imprisonment for a term not exceeding five years or to both.

6. 5 Is/ are reminded that if they are accessing data from sources other than Statistics Canada, in accordance to this Contract, then they are subject to all the applicable penalties provided for in related and applicable laws for contravention of any of the

confidentiality provisions and are liable on summary conviction to any of the applicable fines or imprisonment terms.

7. OWNERSHIP AND COPYRIGHT OF INFORMATION

7. 1 Statistics Canada is the owner and/or steward of the Information and related documentation listed in Appendix D and Parties agree that this Contract pertains to the use of the Information and related documentation to produce
the Proposed Output for Statistics Canada. Nothing contained herein shall be deemed to convey any title or ownership interest in the Information or the related documentation to the Researcher (s).

7. 2 Statistics Canada is also the steward of Administrative Data and all associated documentation, as well as Publicly Available Information brought onto Statistics Canada Premises by Researcher (s).

7. 3 Copyright in the Proposed Output shall vest in Her Majesty the Queen in Right of Canada. The Researcher (s) may be required to provide to Statistics Canada, at the completion of the Contract, or at such other time as Statistics Canada may require; a written permanent waiver of Moral rights from every author who contributed to the Proposed Output.

7. 3 Copyright in any subsequent work created by the Researcher (s) using the Proposed Output shall vest in the Researcher (s).

8. USE OF AND PUBLISHING OF PROPOSED OUTPUT

8. 1 Release of the Proposed Output by Statistics Canada may be considered by Statistics Canada

in consultation with the Principal Researcher.

8. 2 Statistics Canada reserves the right:

8. 2. 1 To publish in whole or in part or an amended/ derived version of the Proposed Output; or

8. 2. 2 Not publish at all, any part of the Proposed Output

8. 3 Use of the Proposed Output by Researcher (s) will be governed by the Statistics Canada Open License Agreement which can be found at the link below. This license agreement allows Researcher (s) to use Statistics Canada information without restrictions on sharing and redistribution, for commercial and non—commercial purposes.

http: / /www. statcan. gc. ca/eng/reference/licence—eng

9. CONFLICT OF INTEREST

9. 1 Researcher (s) engaged as Deemed Employee (s) in the course of carrying out this Contract shall conduct themselves in accordance with the principles and spirit of the Values and Ethics Code for the Public Sector, Code of Conduct at Statistics Canada and the Policy on Conflict of Interest and Post—Employment found in Appendix E.

9. 2 Researcher (s) must complete the Conflict of Interest Declaration Form found in Appendix F.

9. 3 If Researcher has a conflict, the Researcher must fill out a Confidential Report to be provided by the Statistics Canada representative. This Report must be approved by the Director

General, Human Resources Branch, Statistics Canada, who may require corrective action prior to providing the approval.

10. DESIGNATED REPRESENTATIVES

10. 1 Any notice to be given to Statistics Canada pursuant to this Contract will be addressed to:

Director
Microdata Access Division
Statistics
Canada 9R, R.
H. Coats
Building
Ottawa, ON KIA OT6

10.2 And any notice to be given to the Researcher (s) will be addressed to:

Olabisi Amao Olaniyan
19—765 School road, Gibsons, BC, VON IV 9
(604) 741-5476

11. PAYMENT

Funding arrangements and payment modalities for purposes of this Contract are outlined in a separate Letter of Agreement between Statistics Canada and the Researcher (s).

12. TERM

This Contract comes into force when signed by all Parties, beginning on the date of the later

signature, and shall continue until 2019—09—30 (YYYY—MM—DD) unless terminated earlier in accordance with section 13.

13. TERMINATION

13. 1 This Contract may be terminated for any reason by either Party upon thirty (30) day Notice of termination having been made in writing to the other Party, or at a time otherwise agreed upon by the Parties. Such termination will take effect on the expiry of the notice period.

13. 2 Statistics Canada will terminate this contract immediately upon giving written notice to the Researcher (s) where the Researcher (s) commits or permits a breach of any of the terms and conditions contained in this Contract.

14. NOTICE OF CHANGE

Researcher (s) shall inform Statistics Canada, in writing, within thirty (30) days of any changes in their programs and policies, as well as of any legislation or regulation that may affect this contract.

15. AMENDMENT

No amendment to this Contract will be effective unless it is made in writing and signed by the persons occupying the positions of the signatories of this Contract.

16. GENERAL

16. 1 No Assignment

The Researcher (s) acknowledges that this Contract will not be assigned in whole or in part without the prior written consent of Statistics Canada, and any assignment made without such consent will be void and of no effect.

16. 2 Notices

Unless otherwise specified in the Contract, where in this Contract any notice or other communication is required to be given or made by either Party, it will be in writing and be effective if sent by registered mail, e—mail, facsimile, postage prepayment or delivered in person, addressed to the respective Party at the contact information outlined under Section 10 of this Contract. Any notice or other communication will be deemed to have been given: if by registered mail when the postal receipt is acknowledged by the other Party; if by e—mail or facsimile on the day after the e—mail or facsimile was sent; if by mail on the eighth (8th) calendar day following the day of mailing .

16. 3 Survival

The sections of this Contract regarding restrictions on use, confidentiality, conflict of interest, offenses and punishment, disclaimer of warranty, termination and general, and any other provisions which by their nature survive the termination or expiry of this Contract, will survive any termination or expiration of this Contract .

16. 4 Law

This Contract shall be governed by and construed in accordance with the laws of the Province of Ontario and all applicable laws of Canada.

16. 5 Entire Agreement

The Contract constitutes the entire agreement between Parties with respect to the subject matter described herein and supersedes all previous negotiations, communications and other agreements on the same topic, unless specifically incorporated by reference in this Contract.

16. 6 Waiver

Any tolerance or indulgence demonstrated by one Party to the other, or any partial or limited exercise of rights conferred on a Party, shall not constitute a waiver of rights, unless expressly waived in writing by that Party.

16.7 Severance (Delete 16.7 if Researcher (s) is/ are federal employee (s)) If any provision of this Contract, whether in whole or in part, is held by a court of competent jurisdiction to be void or unenforceable, such provision or portion thereof declared invalid or unenforceable shall be deemed to be severable and shall be deleted from this Agreement and all remaining terms and conditions of this Contract will continue to be valid and enforceable.

IN WITNESS WHEREOF, this Contract has been executed on behalf of:

FOR STATISTICS CANADA:

Acted for Donna Dorman G. Jourdain

Director, Microdata Access Division Print Name

Tanya McNally Tanya McNally

Witness Print Name

DATED at Ottawa, Province of Ontario, this 20 day of November (month) 2013 (year).

NR THE PRINCIPAL RESEARCHER AND CO-RESEARCHER (S):

Principal Researcher (sign here) — Olabisi Amao Olaniyan
Print Name

Witness (sign here) — ABID KHATTAK
Print Name

DATED at QUEEN ELIZABETH II HOSPITAL ~~2018 GRANDE PRAIRIE~~ (location), Province of Alberta, this 30 day of 08 (month) 2018 (year).

Olabisi Amao Olaniyan

co— Researcher (sign here) Print Name

Witness (sign here) Print Name

DATED at(location), this day of(month)

(year) .

(Complete for all deemed employees signing contract)

IN WITNESS WHEREOF, this Contract has been executed on behalf of:

FOR STATISTICS CANADA:

Director, Microdata Access Division Print Name

_____ _____

Witness Print Name

DATED at Ottawa, Province of Ontario, this _____ day of _____ (month)

_____ (year).

FOR THE PRINCIPAL RESEARCHER AND CO-RESEARCHER (S):

_____ _____

Principal Researcher (sign here) Print Name

_____ _____

Witness (sign here) Print Name

DATED _____ at (location) , _____ day of _____ _____

this(month)

(year).

Co-Researcher (sign here) Print Name

Witness (sign here) Print Name

DATED at Toronto (location), this 20 day of Aug (month) 2018 (year).

(Complete for all deemed employees signing contract)

A

SECURITY REQUIREMENTS

The Information is designated as confidential. The security requirements described below are the minimum requirements that Researchers must comply with.

1. The Researcher (s) shall not remove any of the Information or any confidential sensitive statistical information provided pursuant to this contract from Statistics Canada Premises.

2. The Researcher (s) may request the removal of information subject to the following conditions.

a) Any material to be removed from the Statistics Canada premises by the Researcher (s) must first be screened by Statistics Canada to ensure that there is no risk of disclosure of confidential information, which includes any information that may lead to the identification of a Person as defined in section 17 of the Statistics Act.

3. Researcher (s) must take all precautions to avoid disclosure of confidential information.

4 . The Researcher (s) must use only equipment that is provided in the secure Statistics Canada Premises. Such equipment must never be removed from the Statistics Canada Premises.

5 . The Researcher (s) shall make no attempt to tamper with the configuration or security features of any computer workstation they are provided with to perform the Special Services.

6. The Researcher (s) shall not attempt to compromise the security of the computing environment. Without limiting the generality of the foregoing, this includes using screen capture/ sharing software or devices and allowing unauthorized individuals to view the data.

7. Should the Researcher (s) become aware of a real or suspected breach of security, an unauthorized disclosure or unauthorized access of confidential data, they must inform the Statistics Canada Representative without delay.

8. Network Use

In accordance to Statistics Canada IT Security Policies as defined in the Network Use Policy Researcher (s) acknowledge that the following limitations apply to all use of the Research Data Centre wide area network:

Researchers must not conduct any unlawful or unacceptable activity. Without limiting the generality of the foregoing this includes:

- Attempting to defeat information technology security features, through such means as using anti—security programs; using someone else' s password, user— identification or computer account; disclosing one' s password, network configuration information or access codes to others; or disabling anti—virus programs. (Government Security Policy).

- Destroying, altering or encrypting data without authorization and with the intent of making it inaccessible to others with a lawful need to access it.

APPENDIX B - OPERATIONAL REQUIREMENTS

1 The Statistics Canada representative shall provide Researcher (s), with copies of all relevant Statistics Canada policies related to confidentiality, privacy and security and standard operating procedures listed in Appendix E.

2 Should a conflict of interest be acquired or develop during the life of this Contract, the Researcher (s) shall inform the Statistics Canada representative without delay. It may be necessary to submit or modify a Confidential Report. The performance of the Special Services will be suspended until the Confidential Report is approved by the Director General, Human Resources Branch, Statistics Canada, who may request corrective action prior to approval.

3 The Researcher (s) shall provide Statistics Canada with the programs, the supporting documentation and any other information necessary to reproduce all the tabulations and analytical output they would like to remove from Statistics Canada premises under Appendix A (1) (2).

APPENDIX C

DESCRIPTION OF SPECIAL SERVICES TO BE PROVIDED TO STATISTICS CANADA BY RESEARCHER(S)

DESCRIPTION OF STATEMENT OF WORK

See attached proposal entitled Practice Environment in Canada: Relationships with Burnout and Mental Well—being of Nurses.

DESCRIPTION OF PROPOSED OUTPUT: Vetted Statistical output associated with the Statement of Work;

LOCATION OF WORK

Contact Name	R.D.C
Olabisi Amao Olaniyan	University of Alberta
Behdin Nowrouzi—Kia	University of Toronto

COMPLETION DATE: See Section 12.

SOURCE OF FUNDING: Self—funded (unaffiliated researcher)

APPENDIX D - INFORMATION AND RELATED DOCUMENTATION PROVIDED

Product Description
5080 NSWHN-ENTSPI C2005

APPENDIX E - DOCUMENTS TO BE PROVIDED TO

The following documents will be provided to Researcher (s).

(Insert for RDC only)

- Research Data Centre Researcher Guide Research Data Centre Orientation Session
- Code of Conduct at Statistics Canada
- Values and Ethics Code for the Public Sector
- Policy on Conflict of Interest and Post—Employment

APPENDIX F - CONFLICT OF INTEREST DECLARATION FORM

Deemed Employees are required to conduct themselves in accordance with the Values and Ethics Code for the Public Sector, including taking all possible steps to prevent and resolve any real, apparent or potential conflicts of interests between their official responsibilities and their private affairs in favour of the public interest.

As a Deemed Employee of Statistics Canada, I acknowledge that I have read the Values and Ethics Code for the Public Sector, that I will not undertake any projects in the future that would benefit from my access to any confidential data as a result of this contract, and I further declare that I will comply with the code and that:

I have no conflicts to declare, or I may have a conflict and will complete the "Confidential Report " as required.

Signature of Deemed Employee Printed Name of Deemed Employee Date

I have no conflicts to declare, or I may have a conflict and will complete the " Confidential Report " as required.

Signature of Deemed Employee Behdin Nowrouzi-Ka August 24, 2018

Printed Name of Deemed Employee Date

(Complete for all deemed employees signing contract)